

Benefits of Red Cross Blood Services Questions and Answers

Most of us know what happens when the Red Cross visits PPPL: You roll up your sleeve and put your feet up for 20 minutes or so. At the end of the day they pack up boxes of donated blood and promise to return for more in six months.

But where does it go? And how do you get it back if you ever need it? What about tests for diseases? Do they really work? And what what would happen if something were wrong with your blood?

With the biannual blood drive scheduled for October 11, we thought you'd be interested in some questions that go beyond "Have you eaten today?" and "Have you recently traveled out of the country."

PPPL recently interviewed Jim Moffitt, Recruitment Representative, American Red Cross Penn-Jersey Blood Services, about these and other issues.

1. If you ever need blood, what are the options?

If you can anticipate the need for blood, you may have choices to consider. Jim Moffitt says that the very first step is to

consult a physician and ask about your alternatives. Depending on the individual circumstances, you may be able to decide among the following options:

General Supply: Most often, people receive blood which has been collected by

of tests to insure that it is safe and free of contamination.

Directed Donation: Family members and friends often want to direct their donation to a specific person. Because the requests for this service has greatly increased over the past few years, the Red Cross has simplified the process required to do this, but certain steps must still be taken.

✓ A **Directed Donor Certificate** must be obtained *from the hospital where the blood will ultimately be used*. While the donor needn't give at that location, the certificate must be issued from there.

✓ With the certificate in hand, donors may then contact the Red Cross in their area to determine where and when they can most conveniently make a donation. This can be done at a bloodmobile, a Red Cross office, or at any number of the scheduled blood drives. The blood will then be transported to the proper location.

Donors should understand, however, that while they may want to help a friend or relative by donating blood, only blood which is compatible with that of the patient's can be used. Jim Moffitt also

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the Red Cross at blood drives such as the one in which PPPL participates. (In this area the Penn-Jersey Chapter provides more than 380,000 units per year to some 100 hospitals.) Before being issued to a hospital, each unit is subjected to a battery

16 PPPL Papers Presented at IAEA

Princeton Plasma Physics Laboratory was well represented at the 13th International Atomic Energy Agency (IAEA) conference on Plasma Physics and Controlled Nuclear Fusion Research held this year in Washington, D.C. from October 1 to 6.

Twenty-seven PPPL employees were selected by the Office of Fusion Energy to

represent the United States at this semi-annual symposium which is attracting nearly 600 of the the most prestigious fusion experts from around the globe. An additional 19 employees attended the conference as observers.

And in a competitive process which determined the conference's presentations, the international selection committee

chose 16 papers from PPPL. Speaking honors will be shared with fellow fusion

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Red Cross — continued from page 1

emphasizes that due to the sophistication of testing, statistically it is just as safe to use the General Supply blood as it is to use that collected through the Directed Donor program.

IAT (Intra-Operational Autogenous Transfusion): Many large hospitals have the ability to recycle a patient's blood during a surgical procedure by processing it through a machine which filters, cleanses, and pumps it back into their body. When this technology is used, no outside blood needs to be introduced during an operation. Smaller hospitals can also provide this service by renting the technician and machinery.

Auto Donation: For selected procedures and those which can be scheduled in advance, patients should ask their physician about the possibility of donating their own blood, thus eliminating the possibility of post trans reactions. Individuals who qualify can have between four and five units of blood drawn prior to the operation. (The shelf life of whole blood is roughly 40 days.)

2. What about screening and tests?

Probably one of the least understood steps of the blood donation process is that of screening and testing. First of all, testing is done to *all blood*, regardless of whether it was gathered from a General Supply process, such as in a bloodmobile, or as a Directed Donation, such as might occur when giving to a family member.

This process begins, however, before the blood is ever drawn.

A verbal question and answer session between the nurse and volunteer addresses basic questions which help to determine if a donor is acceptable or not. Disqualification at this stage can be for a reason as simple as having a common cold or for something as significant as having been exposed to malaria.

After the blood has been collected it goes through a series of tests to check for diseases such as Hepatitis, Syphilis, and AIDS. As recently as three months ago a test was approved by the Federal Drug Administration (FDA) to test for Hepatitis

non-A and non-B (now called Hepatitis C). According to Jim Moffitt, however, serious diseases such as Hepatitis B are rarely found in test results — not because tests are inaccurate, but because medical history questions asked during the screening process have already identified individuals at risk of having these diseases.

Testing for AIDS is less than definitive, but since testing began in 1985, not one unit of AIDS contaminated blood collected in the Penn-Jersey region has been given to a patient. While no testing exists for the AIDS virus, what can be detected as soon as six to eight weeks after contracting the disease, is a specific antibody produced by the body to fight the virus. Moffitt says that the body's reaction can be compared to mobilizing an army of soldiers to fight an enemy, which makes detection of the AIDS antibody very accurate.

Last Chance: In recent years all donors have been offered an 11th-hour opportunity to bring the use of their blood to a halt. By making a confidential call and anonymously giving a reference number which corresponds to the donated blood, it will be immediately pulled — no questions asked. Given the social stigma associated with exposure to certain diseases, this provision allows individuals the chance to think honestly about the decision to expose others to their blood, even if for purely precautionary reasons.

What if . . . ? While most of us have no reason to worry about the results of these tests, what if there were a problem? Would you be notified if your blood showed a positive test for one thing or another, and if so, how would it be handled?

Moffitt says that the Red Cross has a special program which specifically addresses this sensitive matter. Anyone who has donated blood that results in a positive test for anything such as Hepatitis B or the AIDS antibody is discretely and confidentially contacted. A registered letter will be sent which contains no information except a request that the donor contact the Red Cross. Absolute confidence is adhered to — no family will be given the message over the phone and no one in a work environment will be made aware of the situation.

3. How much does blood cost?

Patients are never charged for blood which has been donated to the Red Cross. This does not mean, however, that no costs are incurred. The Red Cross passes on their expenses to hospitals which in turn bill patients. The most recent calculation estimates that each unit of blood costs the Red Cross \$61.10. This includes donor coordination, bloodmobile operations, laboratory testing and processing, hospital distribution and administrative and support costs.

If you ever receive blood and are billed for its replacement, contact your local Red Cross and they will arrange to replace it at no cost to you.

Free Answers

If you have questions about a Directed Donation, giving blood in general, or how blood is tested, call 1-800-26 BLOOD.

Have you called ext. 2272 to register for the October 11 Blood Drive?

— E. Webster

Volunteers Lie Down on the Job

As volunteer opportunities go, blood donors have it pretty easy. It's fast, simple, and a sure-fire way to feel immediate gratification. . . . Not a bad return on a 20-minute commitment that can be made lying down! And because blood may be separated into several parts before being distributed to hospitals and patients (packed red cells, plasma, platelets, whole blood cells, and anti-hemophilia factors), as many as five people may benefit from each donation.

A few of the PPPL employees you'll see with their sleeves rolled up for the October 11th Blood Drive are on page 5.

Dail 2-ASK for Help — Computer User Group is Waiting

Someone among us must think that the Computer User Group operates like a mail-order catalog business. The story goes that an employee suspected a problem with his circuit board, proceeded to remove it, placed it in an interoffice envelope and mailed it to the User Group for repair. When it reached its destination, it was, indeed, broken.

For obvious reasons, the Group prefers to make house (office) calls.

Started just over a year ago, the Micro-computer User Group is headed by Sally Connell and includes a staff of specialists in Macintosh and IBM machines.

Anne Stepanek's (formerly Palladino) specialization is IBM and compatible personal computers. Andy Soccio services Macintoshes and is an Apple-trained technical representative. Ginny Zelenak answers many of the software questions and coordinates service calls that are received on the computer hotline. Jack Abraitis is a programmer who specializes in scientific applications. And Judy Benson assists Zelenak and Abraitis.

But you don't need to worry about contacting the right person for help; all calls are channeled through one phone number, extension 2275 (2-ASK).

Anyone needing assistance with hardware (the machine itself), software (the programs that are run on the computer such as Word Perfect, Microsoft Word, or Excel) or general questions about the operation or capabilities of their computers can find answers to simple and complicated questions by calling the User Group. Many

calls are handled on-the-spot with assistance given over the phone. Questions requiring a service call are also attended to quickly, and even during busy periods, assistance can generally be expected within 24 hours.

Questions regarding scientific and en-

thirds are Macintoshes and the remainder are IBM/compatibles.

Ann Stepanek says that the User Group typically responds to a combination of questions about hardware and software. Sometimes the problems are as simple as loose cables or cables which are connected

to the wrong port (outlet). Other times, she says, the group is asked to do things such as salvage information that appears to be lost — and sometimes the retrievals are successful.

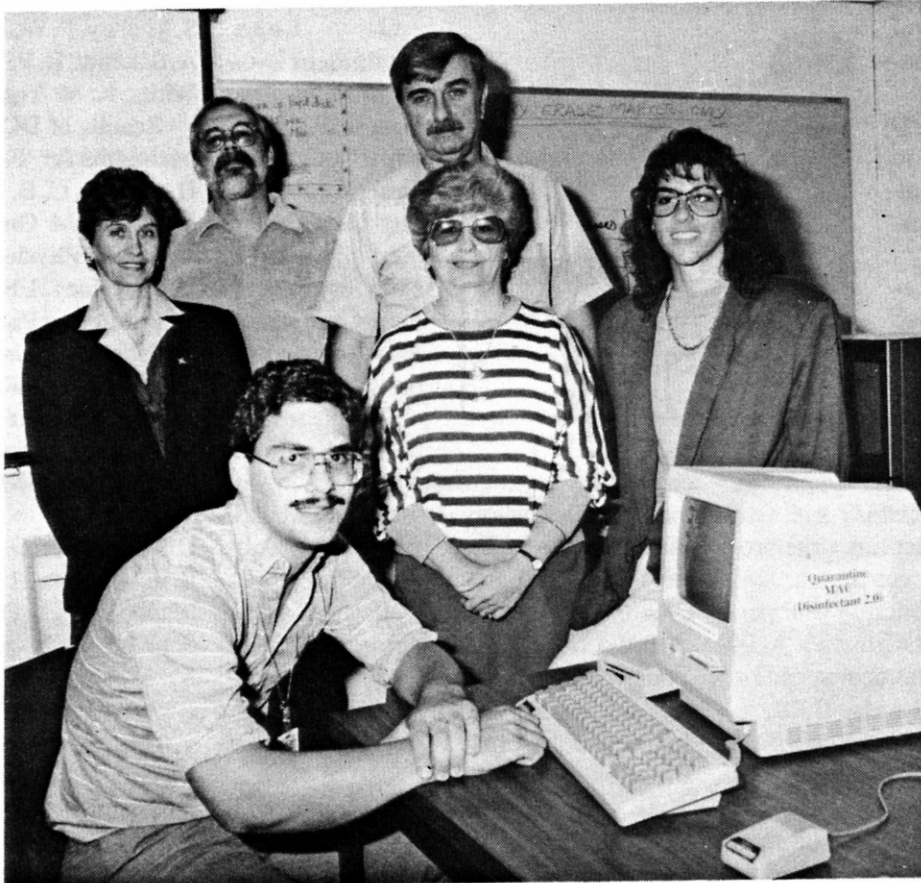
When the water leak occurred in the RF building in June, Macintosh computers were among the equipment that was damaged. Andy Soccio was able to clean the casings and components and restore all of the data.

In another case, an employee called and said his Macintosh just wasn't working right. It was discovered that he

had six operating systems installed instead of only one. The machine was confused and the user was frustrated, but Andy was able to fix the problem by simply placing five of the operating systems in the trash (Macintosh's term/destination for a file to be deleted).

Stepanek says that computer problems are bound to occur, which is why employees should feel free to call the User Group for help. She said that simply saving files, and saving them frequently, can prevent

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Computer User Group — (front) Timothy Riotto, Co-op student from Drexel University, (center) Ginny Zelenak, (back) Sally Connell, Jack Abraitis, Andy Soccio, and Ann Stepanek.

Photo: JOHN PEOPLES

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gineering computers are handled through the Computer Division and should also be directed to Jack Abraitis who can be contacted by calling ext. 2275 or by sending a VAX mail message to GRIPE.

Two years ago the NBI system, which was a dedicated word processor, was phased out and microcomputers took its place. Last August the User Group was formed to service the equipment and inform, educate, and assist users. Currently there are about 970 microcomputers at this facility. Of these, approximately two

Computer — continued from page 3

the heart aches of information lost forever. She also suggests paying attention to changes in the way a machine works because what you may be seeing is an important warning sign of a problem about to occur.

While it's important to know that the User Group is here to help during a computer crisis, they are also available to help solve the brain teasing mysteries that computers are notorious for creating.

The following are among the services provided by the Microcomputer User Group:

❑ **Hotline Help (2-ASK)** — One number to call for all requests for support. Responses are normally within 24 hours.

❑ **Computer Resource Center** — Open from approximately 8 a.m. to 5 p.m., Monday through Fridays. Houses IBM and Macintosh machines, scanners, and laser printers. Contains software to convert IBM to Macintosh and vice versa. Macs in the Center are virus protected so outside disks can be checked before risking contamination to your personal machine. Has a Mac running AUX (Unix for Mac). Often has demonstration equipment, currently has a Mac II FX.

❑ **Lending Library & Data Base** — Before ordering software packages, you can try out the programs by borrowing them from the lending library or from someone at the Lab who is currently using the programs.



❑ **Bits & Bytes Newsletter** — This monthly newsletter is prepared by Ginny Zelenak and features a question and answer column, little-known features about frequently used software, information on new equipment and software upgrades as well as notices of classes and demonstrations. Suggestions, articles and comments are welcome.

❑ **Traveling Equipment** — If you need to take equipment on a trip, contact the User Group about the availability of portable equipment.

❑ **Loan Equipment** — Loaner equipment is available while yours is being repaired. The User Group may also have extra equipment for use on a short-term temporary basis.

❑ **Classes** — Ginny Zelenak coordinates the microcomputer training in the Lab. Introductory classes for IBM and Macintosh are offered on request. Advanced classes are also held in-house. (Microsoft Word and Excel classes were recently offered by instructors from Mercer County Community College.) Word Perfect classes are coordinated through Personnel and are offered through Princeton University.

❑ **Repairs** — Repairs are arranged through the User Group. (Repairs are actually done by the Electrical Engineering Division's Calibration Laboratory.)

— E. Webster

IAEA— continued from page 1

experts from the countries of Japan, France, the Federal Republic of Germany, the USSR, the United Kingdom, China, Spain, Australia, Italy, Switzerland, the Netherlands, India, Finland, Sweden, Romania, Czechoslovakia, and Austria.

This year's papers, presenters and authors were:

Recent TFTR Results

D. Meade and the TFTR Group

Local Transport Measurement During Auxiliary Heating in TFTR

S. D. Scott and the TFTR Group

Nonlinear Kinetic Analysis of Fluctuations and Turbulent Transport Due to Tokamak Microinstabilities

T. S. Hahm, S. C. Cowley, G. W. Hammett, R. M. Kulsrud, F. W. Perkins, M. H. Redi, G. Rewoldt, and W. M. Tang

ICRF Heating in Several Regimes on TFTR

J. Hosea and the TFTR Group

Advances in Transport Understanding Using Perturbative Techniques in TFTR

M. Zarnstorff and the TFTR Group and

collaborators

Ideal MHD Stability of Very High Beta Tokamaks

M. S. Chance, S. C. Jardin, C. Kessel, J. Manickam, D. Monticello, and others

3-D MHD Studies of Sawtooth Oscillations and Pressure Driven Resistive Modes in Tokamaks

W. Park, D. A. Monticello, E. Fredrickson, B. Grek, K. McGuire, and others

Physics Objectives and Design of CIT

G. Bateman, M. G. Bell, C. Z. Cheng, P. L. Colestock, R. J. Goldston, S. C. Jardin, S. S. Medley, F. W. Perkins, N. Pomphrey, J. A. Schmidt, D. P. Stotler, M. Ulrickson, R. White, K. M. Young, and others

Results of DC Helicity Injection Experiments for Tokamak Current Drive

D. Darrow, C. B. Forest, G. L. Greene, Y. S. Hwang, M. Ono, and others

ITER: Physics Basis

D. Post (for ITER)

Power and Particle Control for ITER

S. Cohen and others

Partial and Full Reconnection During Sawtooth Activity and Disruptions

E. Fredrickson and the TFTR Group

Limiter H-Mode Experiments on TFTR

C. Bush, N. Bretz, K. McGuire, G. Taylor, R. J. Goldston, E. D. Fredrickson, D. K. Mansfield, H. Park, A. T. Ramsey, J. Schivell, D. S. Scott, B. Stratton, E. J. Synakowski, H. H. Towner, and the TFTR Group

Influence of Sheared Poloidal Rotation on Edge Turbulence Dynamics and Access to Enhanced Confinement Regimes

H. Biglari and others

Alpha Particle Effects on Global MHD Modes, Alpha Particle Transport in Ignited Tokamaks, and Kinetic Effects on the m=1 Internal Kink Mode

C. Cheng, R. B. White, L. Chen and others

PBX-M Research Progress: Approach to Second Stability

N. Sauthoff, N. Asakura, R. Bell, M. Chance, P. Duperrex, H. Fishman, R. Fonck, G. Gammel, G. Greene, R. Hatcher, A. Holland, S. Jardin, T. Jiang, R. Kaita, S. Kaye, C. Kessel, H. Kugel, B. LeBlanc, F. Levinton, J. Manickam, M. Okabayashi, M. Ono, S. Paul, E. Powel, Y. Qin, D. Roberts, S. Sesnic, and H. Takahashi

— E. Webster

A Pat on the Back to . . .

Blood Donors

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Cathy Saville
2-time donor

"I started giving because I knew I was healthy enough and hoped if I ever needed it myself, someone would be there for me."



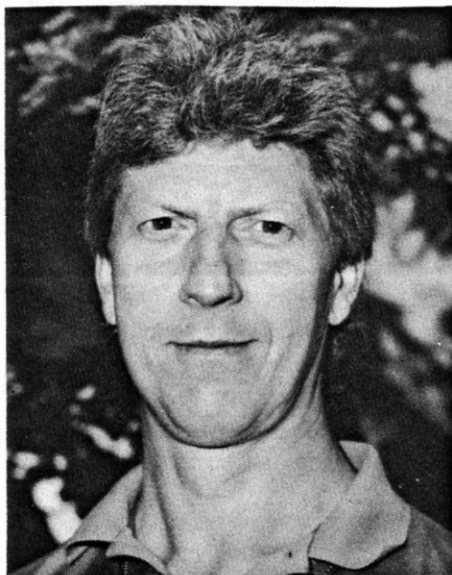
Beth Reardon
3-time donor

"You look at those posters and think you want to help someone out. This past year two of my nieces needed blood, so it really brought an appreciation for donors close to home."



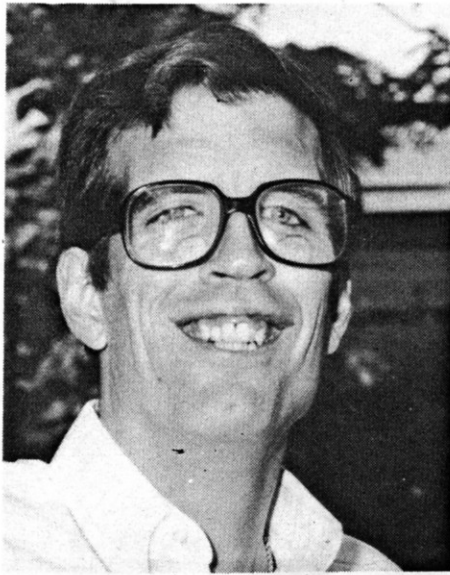
Dr. Caruso
10-time donor

"There really isn't any other way to give the kind of help blood provides."



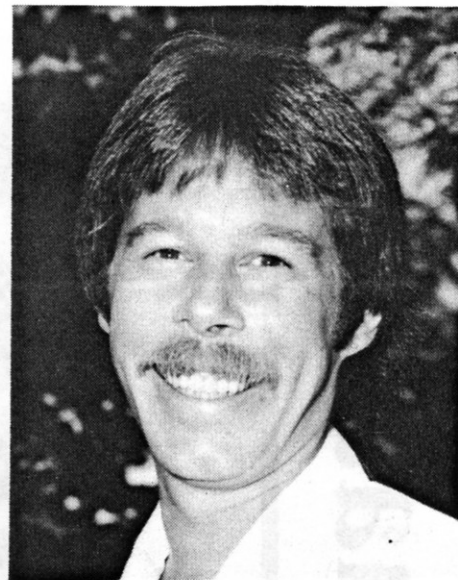
Trevor Bayes
29-time donor

"I get a regular call from the Red Cross every 56 days or so and go down to give. I know it helps someone — no matter who it is. It's really everyone's duty. It's just the right thing to do."



Scott Larson
51-time donor

"It's a good way to help people, and you don't even know who they are. . . . And I like the donuts!"



Greg Tompkins

"If Scott's given 51 times, I've given 52!"
"For about the past 10 years I've given blood every eight weeks. It's a way to show human kindness and it takes very little effort."

Photos: JOHN PEOPLES

What's Happening at PPPL?



On September 17, representatives from the Japan Atomic Energy Research Institute (JAERI), other Japanese institutes and companies were given a full day orientation and tour of the Laboratory.

90A0346-14

Photo: JOHN PEOPLES

Dr. H. Guy Stever, head of the Fusion Policy Advisory Board (FPAC), former science adviser to President Gerald R. Ford and former head of the National Science Foundation, spoke at the September 26 PPPL colloquium about the results of the recently concluded FPAC report.

Photo: JOHN PEOPLES



90A0363-3



Fred Dylla, a research physicist who has been with PPPL for 15 years, recently left the Laboratory in a move which will take him to Newport News, Virginia and a job with CEBAS.

90A0359-10

Photo: JOHN PEOPLES

NOTICES

Upcoming Colloquia

- 10/10 Victor Golant, Ioffe Institute (USSR)
"Status of Fusion Research at Ioffe Institute"
- 10/17 Horst Wobig, Garching (Germany)
"Progress in Stellarator Research"
- 10/31 George Wicks, Savanna River
"A Nuclear Waste Vitrification & Safe Deposal"
- 11/7 Robin Herman
"Fusion Research, A Historical Perspective"

Colloquia are in the Gottlieb Auditorium at 4:15 p.m., unless otherwise noted.

Shoemobile Returns

The Iron Age Shoemobile will visit PPPL on Thursday, October 11, and Friday, October 12. It will be located at Receiving #3 from 8:00 a.m. to 12:00 noon and from 12:30 to 4:30 p.m. both days.

Shoe withdrawal forms (available from the C-Site stockroom or from Marie Steer in Spare Parts, Inventory Control Module, C-Site, ext. 3476) must be signed by a responsible cost center supervisor and presented for each purchase.

Jeanes Called Up

Ray Jeanes, Lieutenant Colonel in the Air Force Reserves, has made eight overseas flights to transport military equipment and supplies, including four trips into Saudi Arabia. From September 4 to 22 he logged 17,500 miles. He is now back at the Laboratory on an on-call basis with the Air Force.

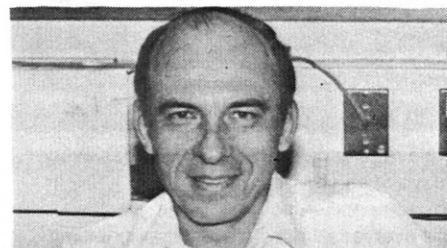


Photo: ELLEN WEBSTER

Annual Fall Tennis Tournament Swings Again



David Ignat in a preliminary tournament match. Photo: H. TAKAHASHI

When fall arrives you can count on feeling a nip in the air and gaining an hour of sleep. You can also look forward to the chance to be a spectator at the 14th annual Melvin B. Gottlieb Tennis Tournament.

And as in the past, onlookers are invited to witness the competition among Laboratory staff, their spouses and children as the finalists vie for first and second place



Hiro Takahashi, director of the Melvin B. Gottlieb Tennis Tournament.

prizes in Divisions A and B and the consolation round.

Tournament director Hiro Takahashi says that the idea for the event began a decade and a half ago when as an avid player he began looking for friendly on-the-court competition. It occurred to him that one of the best ways to accomplish that might be to organize a tournament and see who showed up.

And competitors have been turning out ever since. About two dozen participants signed up for the first tournament; last year it was up to 41; and this year 32 registered to play.

The first year Sandy Dreskin was the overall winner. But in subsequent competitions first place in the men's division has volleyed between Hiro Takahashi and Jim Bialek. The question remains to be seen if one of these two competitors will walk away with the title again this year, or if a new winner will emerge from the ranks.

The women's title, when a separate tournament was held, has gone to Janet Roberts and Marilee Thompson.

The tournament has been supported in recent years by the Laboratory's morale fund and by registration fees which help defray trophies and court rentals for the first two rounds of the competition.

Hiro Takahashi says that besides the competitive spirit that is at the heart of the tournament, he also hopes that the matches encourage people to get out and take advantage of a sport that is relatively easy to participate in — one that can be played both by youths and by individuals well into their eighties. Since tennis requires no heavy equipment like that essential to wind-surfing or skiing, a person need only pick up a racquet and sneakers in order to play the sport.

Takahashi says that even though no official tennis club exists at the Laboratory, employees can play as often as they like by taking advantage of the Princeton University courts. In the summer months outdoor courts are available on either a season rate or on an hourly basis.

During the winter PPPL employees can use the six indoor courts at Jadwin Gym for

\$4 per hour per person. A \$10 reservation permit (available in mid-October at the gym's box office) allows you to make phone reservations up to three days in advance. This compares favorably against alumni and consultants who can reserve only two days in advance and the general public which can only hold a court only 24 hours ahead of time.

Anyone interested in attending the tennis tournament finals or finding out more about the competition may contact Hiro Takahashi at ext. 2809 or Madge Mitas at ext. 3100.

— E. Webster

A limited number of booklets explaining tennis and other athletic facilities offered to PPPL employees are available in the HOTLINE office and may be requested by calling ext. 2757, or you may call the box office directly at 258-3538 with specific questions.

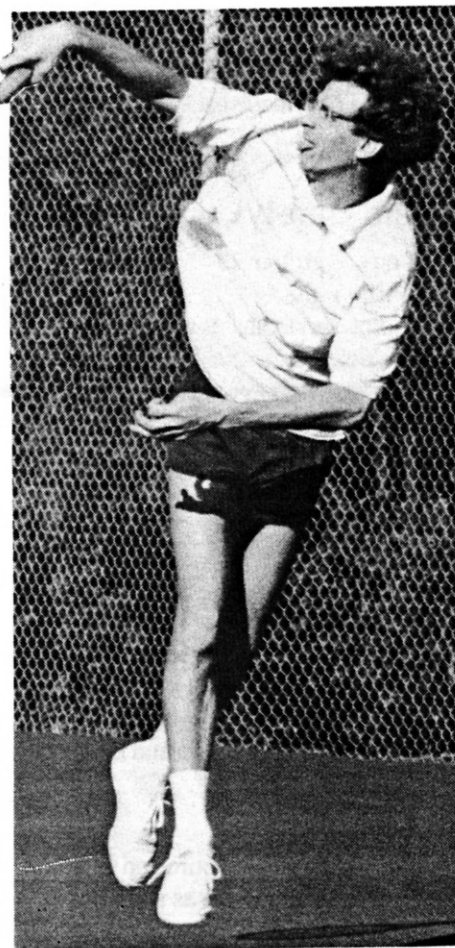


Photo: H. TAKAHASHI

October Safety Classes

Safe Handling of Cryogenic Liquids

Monday, October 15
2:30-3:30 p.m.

Personnel will be trained in the characteristics, hazards, safe handling practices and Lab policies associated with cryogenic liquids.

Safe Handling of Compressed Gasses

Tuesday, October 16
2:30-3:30 p.m.

Personnel will be trained in the classification, hazards, the safe handling practices, and Lab policies associated with compressed gasses.

Confined Space

Thursday, October 18
1:30-3:30 p.m.

Employees will be trained regarding the hazards associated with confined spaces and the proper procedures for entering a confined space.

Basic Safety

Tuesday, October 23
3:00-4:00 p.m.

This one hour class is required for new employees within the first 30 days of

employment and subsequently for all employees every two years. The class includes information on general safety items as well as environmental and radiation information and the New Jersey Right-to-Know law.

Basic Electrical Safety Training

Monday, October 22
1:30-3:30 p.m.

This course reviews the effects of electricity on the human body, energy courses, conversion and modification equipment, energy storage devices, energy uses, conductors protective procedures, wiring methods, devices and tools, and emergency procedures. It is required for all employees in the electrical field.

Laser Safety Training

Wednesday, October 31
9:00-11:00 a.m.

Theory Conference Room

Safe work procedures will be taught to those who use or work in the vicinity of Class III or IV lasers.

Unless otherwise indicated, courses are held in the D-Site Safety Trailer. Preregistration is necessary and can be made by calling Sue Hill at ext. 2526.



FOR SALE

Bike — 25" men's Peugeot racing bike. Like new. \$175 OBO. Call Sylvia Reissman, ext. 3577.

Bike — 20" boy's bike and 16" boy's bike. Best offer. Call Bob, ext. 3732.

Boat — 12' aluminum boat, including oars, anchor with rope, life jackets, one-man boat loader for car, plus boat dolly. \$350. Call Rich, ext. 2312.

Entertainment '91 — Orders being taken for the Entertainment '91 discount book. Call Greg, ext. 3370.

Fishermen — Apelco #450. Paper chart recorder. Very good condition. \$75 OBO. Call Joe Ignas, ext. 2673.

Old "Shop Smith" — Drill press, lather, etc. Best offer. Call Joe Stencel, ext. 2529.

Water Bed — Queen size with firm mattress and 4 storage drawers. Excellent condition. Call John Swatkoski, ext. 3601 or 2122.

Moving Sale — Weight set, bench with leg extender, 160 lbs, cast iron, \$260 (OBO); closet with drawer, \$225 (OBO); black acrylic full-size bed from Japan, headboard has storage space, \$480 (OBO). Call Mike (609) 298-1884.

Sofa Bed — Pennsylvania House sofa bed. Blue & tan. Highback. \$300 OBO. Call Alan, ext. 3404.

LOST & FOUND

Earring — Gold circular clip-on earring with a white pearl in the center. Call Ellen, ext. 2757.

CAR POOLING

Hamilton Township/Crestwood area — Flexible hours. Generally work 7:30 a.m. to 4:15 p.m., but can modify. Call Stan Troyano, ext. 2199.

TRANSITIONS

Obituary

Carol Sherbet, a 16-year PPPL employee who was a member of the TFTR project as Operations Information Center Manager, died unexpectedly on Monday, October 1. She is survived by her husband Harry, two children, Barbara and Eric, and one grandchild.

Retirements

Willie Mae Holman retired on October 1 after 18 years of service as a janitor.

George Kalesky retired on October 8 after 10 years of service. George supervised the electrical shop.

Sell, Buy, Rent, Give Away or Trade

Send your ad to:
HOTLINE

Name _____

Extension _____

Item _____

Price _____

Unlike any other phone extension at the Laboratory, dialing the emergency number 3333 will set off a chain of events capable of responding to any situation that needs immediate attention.

What qualifies as an emergency may be in the eyes of the beholder, but when in doubt, ask yourself this question: Does this situation require an immediate response, two to three minutes, or can it wait five to 10 minutes?

Fire Captain Gregg Tompkins says he believes the PPPL emergency number may actually be underused. "While we don't want to encourage people to call if the situation isn't an emergency," he said, "we think that some calls that go to ext. 2536 should have been directed to 3333."

So exactly what happens when a call comes in on ext. 3333?

First of all, it is given priority over all other activities and calls. The security desk officer who receives the call stays on the line until all pertinent information has been collected. The caller should not hang up before being instructed to do so. Individuals describing a crisis may not be aware that they've omitted important information — such as their exact location — when describing an emergency situation.

At the same time that the desk officer receives the call, it is piped into open speakers in the firehouse, emergency preparedness office and the safety office.

While the desk officer is generally the one to initiate a dispatch when one is required, being in on the receiving end of the call enables emergency help to be sent out at the discretion of the Fire Captain on duty.

The danger in calling ext. 2536 and not 3333 in the event of an emergency is that crucial time may be lost when the call is answered in the same order as nonemergency calls.

There are three things to remember when encountering an emergency:

- Ask yourself if the situation requires an immediate response. If yes,
- Call 3333, and
- Stay on the phone until instructed to hang up.

— E. Webster

ext. 3333

When to Call 3333

Actual fire or explosion
Visible smoke
Hazardous material spill and/or leak
Loss of power
Major accident
Immediate emergency medical response required (request for ambulance)



When to Call 2536

Unusual odor
Office or vehicle lock-out
Minor injury
Suspicious person in the area
Vandalism
Loss or theft of property
Environmental issues
Water damage
Annoying and/or obscene telephone calls

Voices, Bells & Signals

The difference between an alarm signal intended to get your attention and one given as a command to evacuate the premises should be familiar to all employees. Each Wednesday at noon these tones are sounded and then explained by EVES, the emergency voice evacuation system.

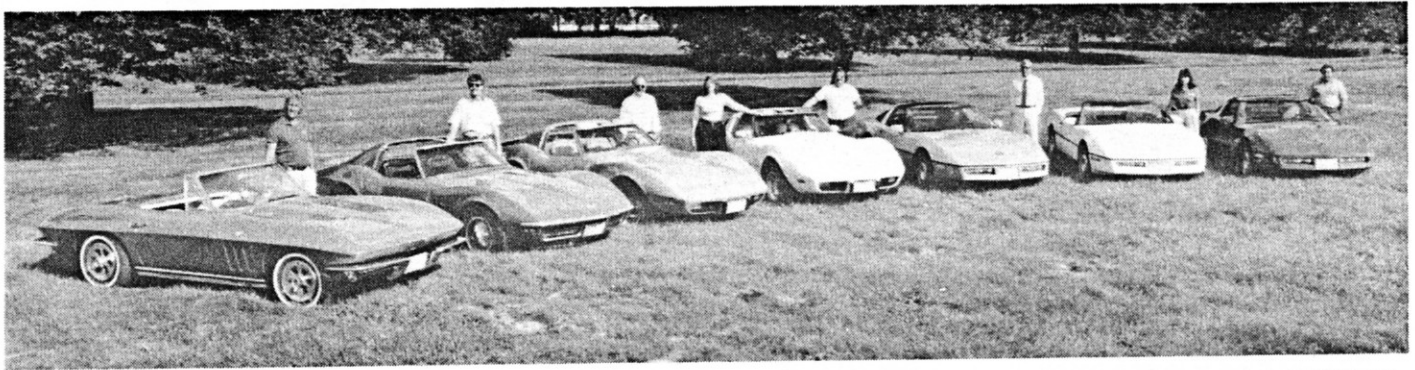
Both EVES signals are meant to get your attention. One will be followed with an informational message such as highway traffic problems, weather information, and other timely messages.

The second signal indicates evacuation is necessary. It will be followed with a message declaring which specific areas are to be evacuated.

Fire Bells are local alarms which all building occupants should respond

continued on page 6

Corvette — The All-American Sports Car



Among the PPPL Vette owners — George Barnes, '65; Mark Kijek, '72; Sid Medley, '76; Joanne & Greg Savino, '78; Ed Winkler, '84; Dori Barnes, '86; and Vinnie Smith, '84.
Photo: John Peoples

What's the draw? Why are people from careers as varied as engineering, computer sciences, facility maintenance, finance, administration and physics attracted to Corvettes?

Dori Barnes says her interest has grown from her husband George's enthusiasm. Mark Kijek's passion began when he was 10 years old. And Joanne Savino claims that she and her husband Greg's intrigue for Corvettes has escalated to addictive heights. "It gets in your blood!" she explained.

These employees are among the near dozen Corvette owners at the Laboratory, many of whom invest both time and money in machines that collectively resemble a life size set of super sport Hot Wheels.

And of these owners, many treat their cars as professional restoration projects and opportunities for showmanship rather than conventional modes of transportation. George Barnes says that many people take their curiosity for these machines seriously because Corvettes are the only true American sports car.

The story of these cars began in 1953 when the first Corvette was displayed at

General Motor's New York Motorama. Its polo white exterior, flashy sportsman red interior and wheels, and black soft top, took the public by storm. But to dealers' dismay, only 300 machines came out of the Flint, Michigan plant that year, and most of these were delivered to "prominent people for evaluation." It didn't take long for the numbers to rise, however. In 1979 production peaked at upwards of 55,000 cars.

And the fascination continues. With few exceptions, Corvettes, unlike most cars on the road today, gain in popularity the longer they've been off the assembly line.

Take the '72 coupe that Mark Kijek owns. His long-range plans are to completely restore the car, which really means that for two to three months a year it sits on jack stands while he diligently works under the hood, under the front and rear or on the interior — whichever part is scheduled for revamping that season.

But this devotion doesn't come cheap. A good paint job, one that first strips the body down to the fiber glass, can run \$5,000 to \$6,000. Repairing the door panels and weather stripping could run \$600.

And for all the attention he pours into his car in the off season, fewer than 1,500 miles are ever logged on the engine in a year. Considering this treatment, its no surprise that rain has touched down on its exterior only once — in an unexpected shower on his way home from a show.

But he's in good company as far as his efforts and

interests go. The local support group for Corvetteolics is the Capitol City Corvette Club, sponsored by Ed Cahill Chevrolet in Lawrenceville — the place to go for stories and information and expertise about the unique but similar problems that face its members. Issues such as locating parts, where to get the best buy, and what investments will pay off (or at least return even

George Barnes says that many people take their curiosity for these machines seriously because Corvettes are the only true American sports car.

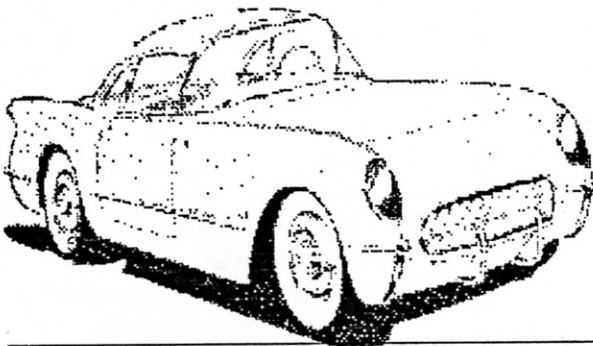
money) are among the topics of conversation you might hear at a meeting.

Most members of the club are professionals between 35 and 65 years of age who got hooked on Vettes when they were too young to be able to afford them. Now these grown up adolescents, including nearly 20 women (almost half the members), are realizing childhood fantasies.

But even if you don't own a Corvette, you're invited to belong and participate in the group's activities. If you're thinking about purchasing a Corvette, this could be the place to find out from experts what might be your best buy.

In addition to bimonthly meetings (the second and fourth Wednesdays of the

continued on page 6



A Pat on the Back to . . .

How do parents get involved in their children's education? If you're Judy Malsbury, Manager of Assurance Engineering, you skip the PTA and bake sales and run for the school board.

Which is exactly what she did five years ago when her children moved from daycare to public schools. "I wanted to get my finger on the pulse of what was going on, and at that time the PTA didn't tackle the issues that were of concern to me." So she decided the logical alternative was to become a member of the East Amwell Township Board of Education.

She admits, however, that joining up wasn't an immediate solution. "People think the Board is all powerful, but it can take a year, sometimes longer, to learn what you can and can't do as a member," she observed. The Board, according to Judy, works with policy and guidance; day-to-day administration of a school and the curriculum choices are generally left to the school itself.

"Over time you learn to be effective. You may have the best ideas, but you have to know how to get them implemented. That can make the difference between success and failure," she said. "Most roadblocks can be overcome by good timing, effective approaches, and community support." Before she joined the school board she lobbied for school-age child care, and last month, more than five years later, it was approved.

Judy believes that the most important thing a parent can give a children is a good education and the biggest impact a parent can have on a child's education is involvement. "You need to find out what's happening, even though that's hard to do when you're working full-time. You also need to

show your school board that you're interested. Schools are a reflection of what the community asks; a high-quality school will only result if the community demands it." She said that the night the after-school child care issue won (with a unanimous vote), 30 parents of the district's 500 stu-

"Schools are a reflection of what the community asks; a high-quality school will only result if the community demands it."

dents in K-8th grade, were in attendance, and it mattered.

Judy spends about one night a week working on some Board project, in addition to the bimonthly meetings, but she says that there are many other ways parents can get involved. Last year, for instance, she arranged for the eighth graders in her district to tour the Laboratory, something any employee can do. She says that skills such as word processing and coaching are

always useful and can be offered with a phone call. "Schools almost always need help. It's a good way to influence what happens in a positive way. And it's a good way to be around your children," she said.

She also suggests that parents spend some time finding out about the schools by listening to their children and their friends. Other ways to understand what is going on is to review school work with your children, attend PTA meetings and back-to-school nights, talk to teachers, and talk to other parents. And, be willing to approach the administration or the Board if you have questions that aren't adequately answered.

While Judy's biggest volunteer commitment is to the school board, she is also involved with the Girl Scouts as the outdoor trainer for her daughter's troop. "It's easy for parents to complain," she said, "but what's effective in making change is getting involved."

So watch out East Amwell Township. Her children, aged 10 and 11, are still school age which means that in the spring she's back on the school board campaign trail.

—E. Webster

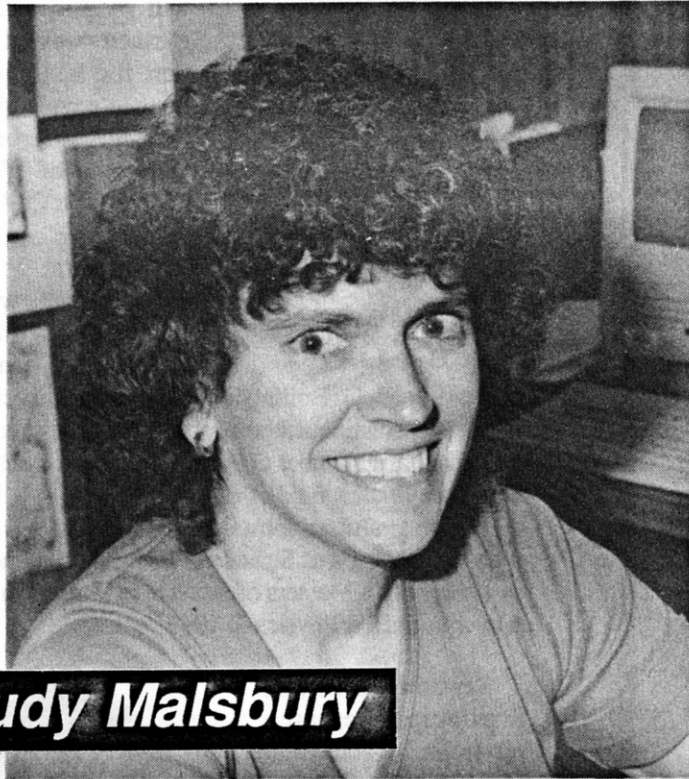


Photo: John Peoples

What's Happening at PPPL?

PPPLers Receive Awards

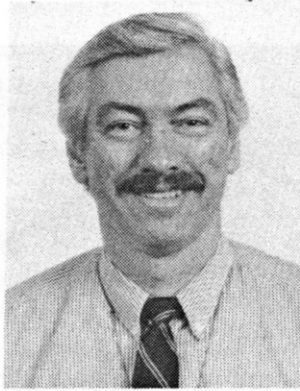


Photo: John Peoples

Dr. Dale Meade will receive a Distinguished Service Citation for his contributions to engineering on October 26 from the University of Wisconsin-Madison College of Engineering.

Meade, TFTR Project Head, will be presented with the award by the Dean of the College, John G. Bollinger, who says that this citation is "the most distinguished award offered by the college. It is given to a member of the alumni who has achieved eminence in their field of endeavor."

Meade graduated from the University of Wisconsin with a Bachelor's of Science in Electrical Engineering in 1961, with a Masters of Science in Physics in 1962, and with PhD in Physics in 1965.

Szymon Suckewer, a principal research physicist at Princeton Plasma Physics Laboratory, is co-recipient of this year's American Physical Society's (APS) Award for Excellence in Plasma Physics Research. According to the award citation, his demonstration of a soft X-ray laser was "designed through pioneering laser target design, theoretical modeling of the states of highly ionized atoms in laser produced plasmas, and novel spectroscopic diagnostics of such plasmas."



Photo: John Peoples

The award will be presented at the November APS meeting in Cincinnati.

Blood Mobile a Success

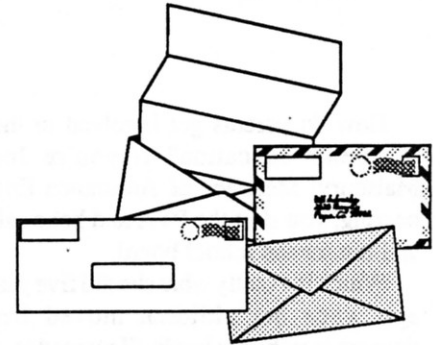


More than 90 employees donated blood during the October 11 Red Cross Blood Drive. Photo: John Peoples

Help Children Discover the World of Science

Are you interested in helping children learn what science is all about? The Science-By-Mail program, developed by the Boston Museum of Science, is a good way to get started.

Science-By-Mail is an innovative program that addresses the growing problem



of science illiteracy. The program exposes children in grades four to nine to the world of science through science activity packets and correspondence with a scientist pen-pal. The packets, which are developed by a team of science and education professionals, are mailed to participants throughout the school year. The children then send their creative solutions to an assigned scientist who responds to their ideas through letters.

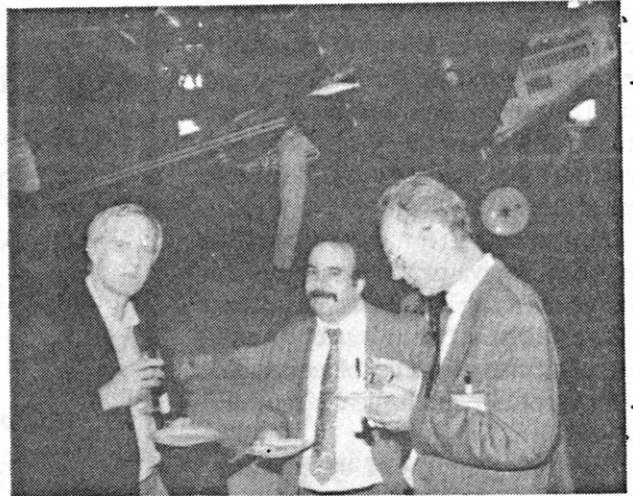
This unique program invites science and technology professionals to act as mentors, inspiring and motivating students all over the United States and abroad. Currently, there are more than 800 dedicated scientists from a variety of organizations and companies who volunteer their time to Science-By-Mail. They serve as important role models, especially to girls, minorities and disadvantaged populations who might otherwise receive little or no exposure to science and science careers.

Science-By-Mail encourages creative young minds to think about science, helps develop problem-solving skills and provides children with vital role models. Participation in New Jersey is coordinated by the Liberty Science Center. If you would like to become a scientist pen-pal, or know of any individual children or school classes who might like to participate in this program, please call Diane Carroll at ext. 2107.

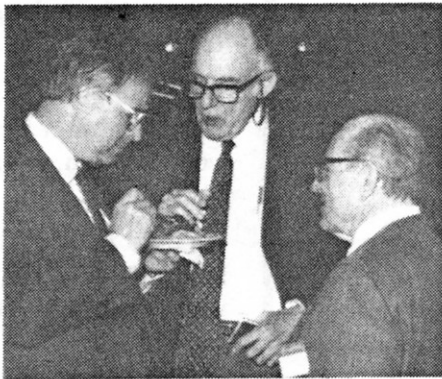
13th IAEA Conference on Plasma Physics and Controlled Nuclear Fusion Research



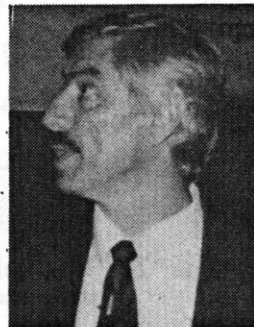
PPPL Director Harold Furth in an animated conversation.



Rob Goldston (center) during Smithsonian Air and Space Museum reception.



Former PPPL Director, M. Gottlieb (center).



Dale Meade during IAEA presentation.



Secretary of Energy, Admiral Watkins, and IAEA Deputy Director General (retired) H. Seligman.

Photos: John Peoples

Corvette — continued from page 2

month at 7:30 p.m. at Ed Cahill Chevrolet, 1100 Spruce Street, Lawrenceville), the group regularly participates in a variety of shows where Corvettes from around the region and nation are shown off and judged.

Another popular event is a "cruise night" where the group gets out and drives their prizes around. On the fourth of July the club caravaned to Bucks County and toured covered bridges. Another time they went to the Delaware Water Gap. And sometimes they just meet to go for a root beer or drive to the shore.

Dori says that for owners such as George who have older models (his is a 1965), caravanning is the best time for them to drive their cars. "There's safety in numbers, particularly with the older cars that aren't especially mechanically reliable," she said.

And does the sight of these classics cause a stir on the roads?

Mark admits that his ego gets an occasional boost. "Sometimes you pull up to a stop light and someone says, 'Oh, nice car!' ... A comment that's o.k. to enjoy as long as you don't let it go to your head!" he says — one of the rewards these mechanical gerontologists get for keeping alive all generations of the original All-American sports car.

—E. Webster

EVES — continued from page 1

to by exiting the building immediately. Do not wait for a voice message to follow.

If you have questions about evacuation, alarms or EVES, contact the Emergency Services Unit Duty Captain, ext. 3166.

Obituary

Connie Hopkins, who worked at the Laboratory from 1961 until her retirement in 1986, died on October 6. She is survived by her son, Stephen and two grandchildren.

A memorial service will be held on Saturday, October 27, at 9:00 a.m. at the Thompson Memorial Cemetery in Washington Crossing, PA. Maps are available from Eleanor Schmitt, C-Site, B136.

Recycling Paper What's In & What's Out

Deposit

Copier Paper

Letterhead

Typing Paper

White Notepad Paper

Carbonless Computer

White Tissue Copies

Don't Deposit

Newspaper

Magazines

Cardboard

Rubber Bands

Paper Clips

Envelopes

Carbon Paper

Colored Paper

Tablet Bindings

Crumpled Paper

October is Records Management Month

Since we're in the midst of records management month, why not take a moment to organize, clean out, and store what's in your filing cabinets?

If you need help, call Pat, ext. 2750.

CLASSIFIEDS

FOR SALE

Bedroom Set — Triple dresser, chest of drawers, more. \$200. Call C. Ancher, ext. 3990.

Bikes — 20" & 16" boys' bikes. Best offer. Call Bob, ext. 3732.

Sofa Bed — Pennsylvania House sofa bed, blue & tan, high back. \$300 OBO. Call Alan, ext. 3404.

Rowing Machine — Lifestyler 3000RX. Sears. \$80. Call Rich, ext. 2312.

Entertainment '91 — Orders being taken for the Entertainment '91 discount book. Call Greg, ext. 3370.

Fishermen — Apelco #450 paper chart recorder. Very good condition. \$75 OBO. Call Joe Ignas, ext. 2673.

CAR POOLING

Hamilton Township/Crestwood Area — Flexible hours. Generally work 7:30 a.m. to 4:15 p.m., but can modify. Call Stan Troyano, ext. 2199.

West Trenton — Looking to carpool from West Trenton or nearby area. Generally work 8:00 a.m. to 4:30 p.m. Call Xavier McClean, ext. 3400.

LOST & FOUND

Earring — Gold circular clip-on earring with a white pearl in the center. Call Ellen, ext. 2757.

Sell, Buy, Rent, Give Away or Trade

Send your ad to:
HOTLINE

Name _____

Extension _____

Item _____

Price _____

1990/91 United Way Campaign — Times They Are a Changin' —

It's back, but look close, you might not recognize it.

This year's Laboratory-supported United Way campaign, headed up by Dori Barnes, has had a face-lift and make-over and is ready to roll. The November 5 kick-off for General Council members will be a trial run of the November 27 & 28 campaign that promises to be an upbeat event featuring refreshments, door prizes, a brief presentation, and a question and answer session.

This year's campaign will take on the following format: The entire Laboratory will be divided into nine sections, each of which will be assigned a time to meet in the auditorium. Upon entering, employees will be given an envelope which they'll be asked to return at the end of the hour-long meeting. As the phrase implies, a voluntary donation will be asked for, so if you intend to make a one-time gift, be sure and bring your checkbook, or you may sign-up for a payroll deduction. If you choose not to give this year, it is still important that you return the envelope. **You are under no obligation or pressure to give.**

By consolidating the campaign into two days, the committee hopes to continue to raise the same amount of money, but do it in the spirit of generosity rather than obligation. "We're behind United Way because being part of a community is reciprocal — we give to neighbors, and when we need their support, we ask them to give to us. It's that simple. It's good for our area and for our business," said Dori Barnes, who is chairing the campaign for the first time this year.

The goals for this year's campaign are the same as last year's — \$25,000 and 75% participation.

— Ellen Webster

United Way Answers the Question . . .

HOTLINE recently interviewed Carol Holzer, the 1990/91 United Way Volunteer Campaign Chair, regarding questions employees may have on this charitable organization. If you have other specific questions you'd like answered in either the HOTLINE or during the November 27 & 28 campaign, please send them to HOTLINE by November 12.

With the reality of a recession at hand, how can someone justify giving right now?

CH: We are painfully aware of the downturn in the economy. I think that we are all focusing on the fact that those who have jobs are only one step ahead of those who do not, but there are many people who have much less than we do. It reminds me of a story one of the founder's of Outward Bound tells. He said, "What we try to teach people when they're undergoing a lot of stress — say they're trying to go up a mountain and are having a lot of difficulty — is to go to the end of the line — go to the person who needs the help most of all — and by doing so, you'll forget, or at least minimize, your own difficulty." I think that's something to think about.

How is confidentiality handled?

CH: Confidentiality is left up to each business.

[Here at the Lab, only one person ever sees who and how much is given. The only thing that is known by others is whether the envelope has been turned in. Whether it is returned empty or full is never disclosed.]

What about pressure to give?

CH: Some people get the feeling that there is no choice in the matter [of giving], but there is an ultimate choice. The United Way wants everyone to know that there should be no coercion whatsoever. Each one of us knows what we can do and if it happens to be nothing, then it happens to be nothing. We appreciate the need of those people not to give, and we want that message to be very clear.

What towns make up the Greater Princeton chapter?

CH: There are 13 communities with Princeton as the major hub. They are: Cranbury, East Windsor, Griggstown, Hightstown, Hopewell, Kingston, Lawrence, Montgomery, Plainsboro, Princeton, Rocky Hill, South Brunswick, and West Windsor.

How does the United Way view itself — as a community organization or a charitable one?

CH: We're both charitable and community — which translates to human need — from recreation and child care to geriatric and health-related. What we're trying to do is compensate for the needs which cannot be met by fees alone. For instance, there's a greater demand for drug counseling and rehabilitation than there are funds to satisfy that

continued on page 2

therefore we provide support to keep those efforts going.

I sometimes feel that people think these services are very frivolous, especially if they don't participate or don't use them. But we all have crises in our lives — you just don't know when they'll come along. What the United Way really does is provide a safety net for the community.

[The following examples about community and charity pertain mostly to the Princeton YWCA, an agency Ms. Holzer has had a long-time association with.]

In the Princeton area there is no community center. No tax money comes toward bringing people together in a nonreligious fashion. So while the YWCA and the YMCA are membership organizations, they cannot operate without outside funding because lots of programs are run for *anyone* who comes to them. Where would we be as an area if the Y's weren't able to teach Red Cross lifesaving, swimming, and if the Y's were not able to give people instructions in CPR? At the YWCA alone, there are 5,000 people who come to the swimming pool on a yearly basis just to learn how to swim. What other agency could handle this?

And of course there is child care. The YWCA has nine locations for after-school programs. Are single parents able to afford child care completely without subsidy? Recently there was a prime example of this where a woman locked her child in the trunk because she couldn't afford good child care. For many of these programs, what people pay is not what it costs.

Who decides where the local money goes and how much is given to each agency?

CH: Local needs are established by a citizen review committee, the findings of which are reviewed by an allocations committee, and all members of these groups are volunteers. All told, this United Way has nearly 1,500

volunteers who raise money and determine the needs of each agency.

If you would like to volunteer to be part of a needs assessment board or a participant in the allocations process, call the United Way at 734-9302.

What is the Tri-State agreement and why was it established? How is the pot divided?

CH: The Tri-State is a consortium of 35 United Ways from portions of New York State, Connecticut and New Jersey, including New York City. The agreement attempts to answer the question, "How do we fairly distribute funds when we have people living in one location and working in another?" What they do is pool the money and then give it back to the partner United Ways. In the case of last year's United Way/American Red Cross Princeton Area Campaign, we raised about \$2.8 million, \$2.2 million of which was returned to us and the difference was distributed throughout the Tri-State area. The Tri-State gives the United Way a means of distributing funds where they're most needed, but ultimately most of the funds do revert to the home communities.

What happens to my donation if it is:

(a) not specifically designated to any agency or organization?

CH: It goes into a pool which is divided into funding for the United Way's agencies. Because of the high level of scrutiny we provide before funding an organization, we are in effect, guaranteeing that that agency is sound, deserving, and that the need is really there.

(b) designated for a specific agency within this region?

CH: The dollars designated to an agency are accumulated and become the "First Dollars" of an agency allocation. Added to this amount are the undesignated funds that are distributed through the Citizens Review Process.

(c) designated for a United Way agency outside of this specific area but within Tri-State?

CH: The money would go to the specified United Way and they would administer it. In order to do this, however, the donor must supply the

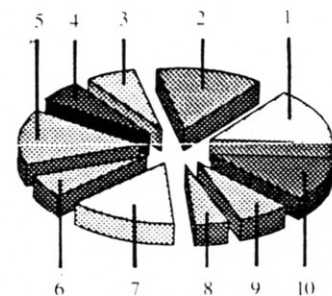
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How Your Gift Helps Others

When you give to United Way, your gift helps provide a wide range of health and human care services. Your contribution ensures that help is available where and when it is needed for your family, friends, and other community members.

Where your dollars go

| | |
|---|-------|
| 1 Child Care | 15.0% |
| 2 Health & Handicapped | 14.0% |
| 3 Information & Referral/ Community Planning | 6.5% |
| 4 Elderly | 6.0% |
| 5 Administration: Campaign/ Allocations/Communications | 15.0% |
| 6 Unpaid Pledges | 6.0% |
| 7 Character Development of Youth | 14.0% |
| 8 Crisis Intervention | 4.5% |
| 9 Substance Abuse | 7.0% |
| 10 Family & Individual Counseling | 12.0% |



name and address of the agency they want to support.

(d) designated for an agency outside the Tri-State region (e.g., Bucks County)?

CH: Many, many people are in this situation. If they decide they want their money to go to Bucks county [or any other area that falls outside the United Way-Greater Princeton Communities] we would be happy to arrange that. We're not in competition with other United Ways. The donation would be made through PPPL and then turned over to the United Way of your choice.

(e) designated for an organization not supported by United Way?

CH: We can also take care of those requests. If you designate that a donation go to an agency which is not supported by the United Way we do charge an 11% administration fee. So if you give \$100 to the Humane Society during the PPPL United Way campaign, we use \$11 to process the donation and send \$89 to the organization. If you make such a request, please be very clear on the name and address of the agency.

What is the relationship between the United Way and the American Red Cross?

CH: In most communities the American Red Cross is an agency of the United Way. In other words, the United Way raises the money and the Red Cross receives an allocation. Princeton is one of the few communities where the American Red Cross is actually a partner and takes a percentage of the funds raised, but they, too, go before a review panel and explain their program objectives and financial needs.



Dori Barnes (lower left) heads this year's United Way Campaign. Lending their support are: standing, left to right, Rush Holt, Steve Iverson, and Harry Howard; seated Ellen Webster (center) and Mary Ann Brown (right).

Photo: JOHN PEOPLES

Does the United Way give general support to agencies or does it specify which of the agency's programs will receive funding?

CH: Increasingly, we will support specific programs. Instead of saying we're going to support the Princeton YWCA carte blanche, we support individual programs such as breast cancer resource center.

Are there any organizations that receive one-time donations, and are funds given to individuals?

CH: There is a fund for ventures and also a fund for capital repairs, but this United Way does not make gifts to individuals. The United Way-Princeton Area Communities does, however, make extraordinary donations from the interest on its investments.

For example, money has been given for affordable housing in Princeton in memory of Barbara Sigmund, but this donation came strictly from the interest and not from donations themselves.

What stand does the United Way take on abortion?

CH: United Way does not take a stand on abortion.

How much of each dollar goes to administration of the funds?

CH: The United Way is considered to be one of the most efficient charities in the country [according to a study done by the National Charities Information Bureau in New York City]. In this United Way, 15% of the funds collected are used for administration.

— Ellen Webster

United Way — It Works for Everyone

When is the Day?

November 27 & 28



United Way

School Time at Quality Assurance and Reliability

For Quality Assurance and Reliability (QA/R) employees, school never seems to end.

Recently Jeff Bennett graduated first (both academically and as a trouble-shooter) in his class in Training in Air Conditioning, Heating and Refrigeration Technology. Using his newly gained knowledge, Jeff will be even more effective in the inspection of the installation, testing, and balancing of Heating, Air Conditioning, and Ventilation (HVAC) equipment here at PPPL.

Last spring three QA/R employees, Ray Camp, Jim Graham, and Judy Malsbury, became American Society of Quality Control (ASQC) Certified Reliability Engineers (CRE). This peer-recognition program is based on a combination of experience, education, and a five-hour examination. According to ASQC, these awards are given to professionals "who can understand and apply the principles of

performance evaluation and prediction to improve product systems' safety, reliability, and maintainability."

Last spring Judy Malsbury became the 684th (worldwide) ASQC Certified Quality Auditor. Similar to CRE, this is a peer recognition based on a combination of education, experience, and an examination that demonstrates an understanding of the standards and principles of auditing and the ability to use these standards and principles effectively.

PPPL maintains an active role in the development of quality professionals. Since 1988 the Laboratory has frequently hosted evening courses offered by the Princeton Section of the ASQC. Via a variety of nationally recognized certification programs, Quality Assurance and Reliability employees continue to take courses to increase their contributions to the Laboratory and to their professions.

United Way Incentives Announced

PPPL's United Way Committee today announced that nearly 100 donated prizes will be given away to employees during the Laboratory's United Way campaign.



According to Mary Ann Brown, this year's United Way Coordinator, the grand prize is airfare for two to London on the British carrier Virgin Atlantic. The drawing will be on December 5, and *anyone* who makes a donation to this year's campaign is eligible to win. This prize was arranged for the Laboratory by DeLuxe Travel.

Steve Iverson, Director of Personnel, says that at each of the nine United Way meetings, the Laboratory will be donating its own door prize — an extra vacation day.

continued on page 2

November 27 & 28 United Way Campaign Gearing Up

This year's two-day United Way Campaign will be held November 27 & 28. All employees will be assigned to one of nine meetings which will be held in Gottlieb Auditorium (schedules to follow).

Dori Barnes, this year's Chairman, says that while inspiring charitable donations is the main purpose of the campaign, she thinks that employees may be also interested in the refreshments and door prizes that will be offered at each of the meetings. "We aren't trying to hide the fact that our goal is to raise money during this time, but

continued on page 2



Photo: John Peoples

QA/R staffers who recently completed advanced education in their areas are: (front) Jim Graham and Jeff Bennett, (back) Ray Camp and Judy Malsbury.

United Way Q&A — Employees Respond with Questions

In the last issue of HOTLINE, employees were asked to supply us with more questions to pose to United Way. We have received two which are answered below. Other questions sent to HOTLINE by November 23 will be addressed during the United Way Campaign meetings.

Why has the Princeton United Way chosen to have the American Red Cross be its "partner" instead of allocating funds to it as a "member organization?"

UW: The reason that they are partners is because of something that happened in 1950. At that time the Red Cross was the largest service organization within the area and they had the most name recognition. Therefore, to help the United Way campaign, the arrangement was negotiated. They are the only agency today that provides special assistance during the campaign, but they still have to go before the Needs Assessment committee when their funds are being negotiated.

Does the United Way contribute to any counseling agencies (such as Planned Parenthood), which consider abortion an acceptable option?

UW: No. We do not provide funds for abortion counseling.



Present at PPPL's November 5 United Way kick-off for the General Council were: (l to r) Mark La Mar, Executive Director of Guidance of Mercer County; Janice Carson, United Way Princeton Area Communities Campaign/Communications Director; and Wendy Crook, Executive Director of United Cerebral Palsy. Photo: John Peoples

continued from page 1 **Incentives**

Other prizes include brunch packages at Forsgate Country Club, Casa Lupita, Alchemist and Barrister; lunches at the Ramada Sandlewood, House of Shih; and dinners at the Coach and Four Restaurant and the Nassau Inn.

Gift certificates are being offered by Good Time Charlies, Encore, the Lu Ann Shop, the Annex Restaurant, Deck the Walls, Arties Parties, and Alpen Pantry.

Packages are also being offered by Holiday Spa, Jazzercise, American Cinema, MAB, Regis Hair Stylists, Lena Scemica, Mary Kay Cosmetics, Treasure Island, Crown Jewel, Wicks and Sticks, Pet Kingdom, the Cupboard, Inc., Hickory Farms, and Silver Visions.

continued from page 1 **Gearing Up**

we'd also like employees to come out and enjoy the presentations. Who wouldn't like an extra vacation day or a trip to Europe?"

While attendance is encouraged, some employees may have extraordinary situations which prevent them from being present at their assigned time. To accommodate these situations, envelopes will be available from the receptionist in the LOB lobby, as well as from Dori Barnes and Mary Ann Brown. Any employee who anticipates being absent is asked to pick up an envelope and make a donation prior during the campaign so that they become eligible for the grand prize drawing.

November 27 & 28

APS Meeting Nov. 12-16

For the 32nd time, scientists from around the nation and all over the world will assemble for the annual meeting of the American Physical Society Division of Plasma Physics which is being held in Cincinnati, Ohio from November 12th to 16th.

This year nearly 90 staff members and graduate students will participate in the meeting. Papers will be presented by the following PPPLers:

D. Jassby — "High-Q Plasmas in TFTR"

P. Efthimion and The TFTR Group — "Comparison of Steady State and Perturbative Transport Coefficients in TFTR"

F. Perkins and The TFTR Group — "Test of Micro-Instabilities Theories on TFTR"

C. Skinner — "Soft X-Ray Lasers and Their Applications"

S. Suckewer — "Quenching of Einstein A-Coefficients in Plasmas and Lasers"

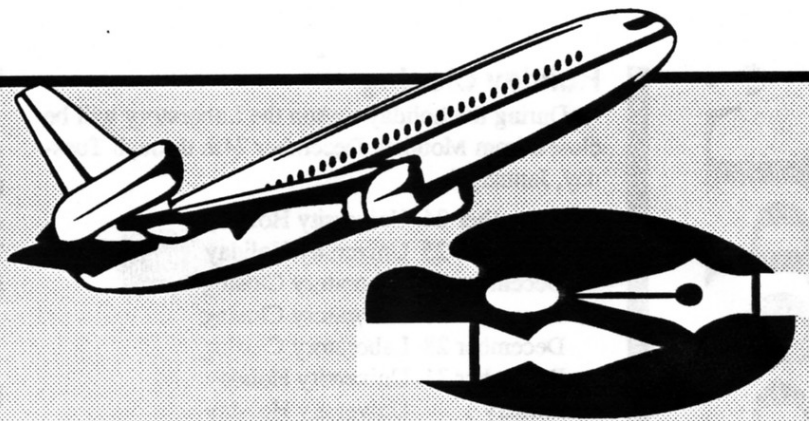
M. Yamada — "Initial Results from Investigation of 3-D Magnetic Reconnection in a Laboratory Plasma"

A. Reiman — "Error Fields and Locked Modes in Tokamaks"

S. Cowley — "Appropriate Mixing Length for the Ion Temperature Gradient Mode"

G. Neilson and The CIT Team — "Physics Design of the Compact Ignition Tokamak"

S. Cohen and The ITER Conceptual Design Activities Participants — "Power and Particle Control for ITER"



Travel & Graphic Services Pitch in for APS Meeting

As 90 staff members and graduate students make the annual pilgrimage to the American Physical Society (APS) meeting, this year in Cincinnati, at least two support departments within the Laboratory may use this time to catch their breath.

For the past three months Dawn Homer and Fran Gantiosa have put together mathematically improbable scenarios of itineraries and packages intended to satisfy individual participants' travel needs and work schedules, while upstairs in Graphic Services, Greg Czechowicz and Terry Birch prepared last-minute graphs and title and author poster strips.

Organization for this convention began in July when a Laboratory application for the Mid-west trek was submitted to the Department of Energy. In the next step individual applications were sent to Paul Rutherford for internal approval.

Then, according to Dawn, the fun began. She and Fran became involved in the process when individuals clutching travel approval forms presented themselves at her office to make arrangements. Registration forms, hotel deposits, cash advances, airline reservations as well as last minute amendments to

schedules, registration cancellations, and other changes of plans were handled with business-as-usual ease. Even the precautionary stipulation that no more than 20 PPPL employees fly on any one plane became part of the maze that Dawn and Fran successfully maneuvered their way in and out of.

And while the miles of details were being ironed out, cost-saving measures were put into place. All flights were booked on a carrier that offered a conference rate 40% lower than standard airfare. Fiscal conservation continues in Cincinnati where participants are booked in modestly-priced accommodations.

Up in Graphic Services the prep time may not have been as drawn out, but it was certainly no less involved. Greg estimates that during the three week period prior to the convention, he and Terry produced 300-400 graphics pieces, and many of these are done—or redone—in the final week.

So if the Lab's tempo seems less rushed and its personnel more sparse these days, at least two departments not attending the APS meeting may find that the quiet comes as a welcome, if temporary, change of pace.

—E. Webster

What's Happening at PPPL?

Holiday Closing

During the holiday season the Laboratory will be closed from Monday, December 24th through Tuesday, January 1.

December 24 University Holiday
 December 25 University Holiday
 December 26 Laboratory Closing
 December 27 Laboratory Closing
 December 28 Laboratory Closing
 December 31 University Holiday
 January 1 University Holiday

Staff members may choose to take the three Laboratory Closing days as vacation or they may use their two Optional Holidays in conjunction with vacation.

Exempt staff members will receive their December paycheck on Thursday, December 20; Bi-weekly checks will be distributed on Friday, December 21; Hourly staff can pick up paychecks in the Payroll Office, Mod II, on Friday, December 28 from 10:00 a.m. until 2:00 p.m.

Weather Alerts

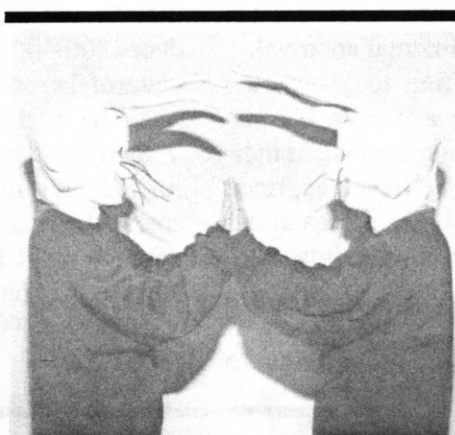
If, during inclement weather, the Laboratory will open late or remain closed for the day, announcements will be made on the following radio stations:

| | | |
|---------------|-----------|----------|
| Princeton | WHWH | 1350 kHz |
| Trenton | WTTM | 920 kHz |
| Trenton | WPST (FM) | 97.5 MHz |
| Levittown | WBCB | 1490 KhZ |
| New Brunswick | WCTC | 1450 kHz |

In an emergency situation you may call (609) 243-2034 or (609) 243-2035 to find out if the Lab will be open or closed.

New Education Partnership

PPPL is just about to sign a formal partnership agreement with the Trenton School District, and we need your help. Volunteers are needed to visit classes, meet with students, and lend support and expertise to help reinforce education as a part of these students' futures. Call Diane Carroll at ext. 2107 for more information.



Fall Aerobics Schedule

The fall session of aerobic classes begins on Monday, November 12. New routines and music will be introduced. Aerobics is open to all PPPL employees. The class meets on Monday, Wednesday, and Thursday at 5:15 p.m. in the Cafeteria. For more information call Sally Connell, ext.2689

Health Fair Nov. 15

Find out everything you ever wanted to know about your HMO (Health Maintenance Organization). Come to the PPPL Health Fair in the LOB Lobby on Thursday, November 15 between 11:00 a.m. and 2:00 p.m. Representatives from the HMOs and the Princeton Health Care Plan (Aetna) will be on hand to answer your questions and exclaim the virtues of their programs.

And, remember November 12 through 30 is open enrollment — the time to make changes to your benefit packages. During this period, you can make changes to the Health Benefit Expense Account (HBEA), Dependent Care Expense Account (DCEA), and discuss life insurance options.

To help bring you up to date on benefits, *The Princeton Weekly Bulletin* will feature a special "Benefits Update" insert in its November 12th issue. Be sure and read it carefully.

Finally, Eleanor Schmitt will have special hours to assist you. Beginning Monday, November 12, and continuing through Friday, November 30, she will be available from 9:00 to 10:30 a.m. and 1:30 to 4:00 p.m. She is located on the first floor of the LOB in room B136. Her telephone extension is 2046.



Halloween characters in purchasing! Dressed for the occasion were JoAnn Palladino, JoAnne Bianco and Teresa Chapman . . . and looming in the background, an anonymous creature.

Photos: Dietmar Krause

Failure Reports have Positive Impact for PPPL

by James Graham

No one likes to admit a failure, but in August a special U.S. Department of Energy (DOE) review committee complemented the TFTR failure reporting system and the reliability data that it provides. This system, when implemented properly, has proven to be a very efficient way of finding, fixing, and sometimes preventing failures — all of which has lead to increased TFTR availability.

The System

The failure reporting system is not just useful, it is required — by PPPL, TFTR, and DOE. Failures or malfunctions of any equipment required to directly support or operate any experimental program or which is related to personnel or equipment safety must be reported. All PPPL employees are responsible for reporting failures, and employees repairing failed equipment must confirm that a failure report has been filed.

But, the system is more than just reporting. It provides an orderly, proven method for ensuring that problems are addressed promptly and given the attention they warrant. Failures are diagnosed, prioritized, and followed up by responsible individuals and tracked by Assurance Engineering. The system also provides for flexibility, such as modifying the failure report form (with Quality Assurance concurrence) to better suit the needs of a particular project. The TFTR project has customized the form for its use, for example.

One thing the failure reporting system is not meant to be is a complaint system. Complaints or irritations can be better dealt with by direct communication with the appropriate individuals. However, if you have any doubts as to whether a problem should be reported, do report it — Assurance Engineering or project management will then make the determination.

How the System Works

Failure Report information is used to detect chronic and recurrent problems related to a certain type of failure, piece of

equipment, manufacturer, or design. This is called a trend analysis and is performed by Assurance Engineering. Trend analysis is used by project management to track the increase or decrease in failure rates of equipment and to determine whether the rates and equipment repairs are under control or in need of more attention.

Failure information also provides reliability and operating information for use in the design of future fusion devices, such as the Compact Ignition Tokamak. The data are valuable since most of the present reliability data are from non-fusion projects. Design engineers and physicists learn from the reports how to improve future designs, realize operating constraints, and document methods for fixing problems.

Information entered on Failure Reports must be as thorough and accurate as possible. Missing or incorrect information can delay diagnoses, repairs, or the detection of trends which, in turn, costs time and money. In the case of TFTR, the failed part number (obtained from the critical parts list) is of particular importance to the trend analysis process and should be entered on the report.

The cause of every failure may not be determined and fixed, but every failure must be documented along with rationale for corrective actions taken, or not taken, and be approved by project management. For a "mature" project such as TFTR, it becomes increasingly important to efficiently resolve failures following proven procedures, such as PPPL's Failure Reporting System.

Training

Over recent months, training sessions on the failure reporting system have been conducted with various TFTR support groups by Assurance Engineering personnel. The training was conducted as part of an ongoing effort to improve collection, analysis, and use of information related to failures. The classes covered the requirements of Technical Operations Procedure 20.014, "PPPL Failure Reporting" and included explanations of the uses of failure reporting.

The training is paying off, based on recent failure reports. In general, failures are being reported sooner, the number of unreported failures has decreased, and the reports themselves are more complete. Consequently, the Assurance Engineering trend analysis program used to detect adverse failure trends and to aid in their resolution has more complete input data.

While the failure reporting system has been very successful on the TFTR, other Laboratory projects still need to increase awareness and participation in the system. During fiscal year 1991, Assurance Engineering staff will be contacting the management and staff of other experimental projects and begin working with them to help improve the system on a Lab-wide basis.

If any group or individual would like more information, training, forms, critical parts lists, or failure report data, please contact Assurance Engineering or any member of the Quality Assurance and Reliability group. They can provide information for use in failure modes and effects analyses and other design activities. They can also help you or your project track failures and their corrective actions, perform trend analyses, or conduct reliability studies. Their offices are in the Quality Assurance trailers located next to the Firehouse, and they can be reached on extension 2415.



TRANSITIONS TRANSITIONS

Retired

Samuel Hand retired November 1 after 24 years of service. His most recent position was as a Technical Associate.

CLASSIFIEDS

FOR SALE

Bedroom Set — Triple dresser, chest of drawers, more. \$200. Call C. Ancher, ext. 3770.

Rowing Machine — Lifestyler 3000RX. Sears. \$80. Call Rich, ext. 2312.

Desk — Metal Desk with typewriter return. \$50. Call Ellen, ext. 2757.

Motorcycle — Yamaha 1100 XS. Special (Black). \$900. Call Thomas Sereni, ext. 3474.

Buy, Sell, Trade Give Away or Trade

Send your ad to **HOTLINE**

Name _____
Extension _____
Item _____

Price _____

November Safety Classes

Safe Handling of Cryogenic Liquids

Friday, November 16
2:30-3:30 p.m.

This course will train personnel in the characteristics, hazards, safe handling practices, and Lab policies associated with cryogenic liquids.

Confined Space

November 19
8:30-10:00 a.m.

This course will train employees regarding the hazards associated with confined spaces and the proper procedures for entering a confined space.

Vacuum Vessel Work Practices

November 19
10:00 a.m.-12 noon, LOB Auditorium

This course is required for all personnel entering the TFTR Vacuum Vessel.

Basic Safety

November 19
1:00-2:00 p.m.

This class is required for **new employees** within the first 30 days of employment and subsequently for all employees every two years. The class includes information on general safety items as well as occurrence reporting, environmental and radiation information, and the New Jersey Right-to-Know law.

Test Cell Work Practices

November 19
2:30-3:30 p.m.

This course is required for all personnel who work in the TFTR Test Cell or Test Cell Basement or require unescorted access into the Test Cell.

*Unless otherwise indicated, courses are held in the D-Site Safety Trailer.
Preregistration is necessary and can be made
by calling Sue Hill at ext. 2526.*

PPPL Directorship: A Changing of the Guard



Outgoing PPPL Director Harold Furth converses with incoming Director Ron Davidson during the Lab-wide reception which was held on Friday, November 9. (More pictures on page 4.)

Photo: John Peoples

Barnes Encourages Questions for United Way Campaign

As a first-time chairman of PPPL's United Way campaign, Dori Barnes recently spoke with the area Campaign Director, Janice Carson, to learn more about the organization for which she has become the resident spokesman. And she liked what she heard.

"I was very impressed with Janice," she said. "particularly when she told me a story about her first experience with United Way.



Long before Janice had any professional association with it, she worked for a company that supported the organization, much as ours does. One day after the company campaign, Janice was called into her bosses' office and was told that she hadn't donated enough. She couldn't believe it! And as a result of that experience, she has a strong philosophy against arm-twisting, which is

continued on page 2

PPPL United Way 1990/91 Campaign Details

Division of Labor: United Way Campaign Meetings Scheduled

During the two-day United Way Campaign, Tuesday, November 27 and Wednesday, November 28, the Laboratory will be divided into nine groups, each of which is assigned a time to meet in the Gottlieb Auditorium. If you need confirmation of your time or would like to verify which session you should attend, call Beth Reardon at ext. 2416.

Group 1

Plant Maintenance and Engineering
Harry Howard, Leader
Tuesday, 9:00 a.m.

Group 2

Administrative Operations
Dick Rossi, Leader
Tuesday, 10:00 a.m.

Group 3

Research/CIT/Experimental Projects
Don Monticello, Leader
Tuesday, 2:30 p.m.

Group 4

**Computer/Engineering
Analysis Divisions**
Steve Davis, Leader
Wednesday, 10:00 a.m.

Group 5

**Mechanical/Electrical
/Drafting Divisions**
Charlie Staloff, Leader
Tuesday, 1:30 p.m.

Group 6

Director's Office/DDTO
Rush Holt, Leader
Wednesday, 9:00 a.m.

Group 7

**TFTR (except Heating and Operations
Divisions)**

Barnes

continued from page 1



**Dori Barnes, PPPL United Way
Chairman.**

Photo: John Peoples

exactly the way I feel, too."

Barnes says that by having the United Way campaign take place over two days, everyone at the Lab is given the opportunity to hear representatives of the agencies and of United Way itself.

"Everyone can find an excuse not to give — maybe you think the overhead is too high, or you don't like a particular organization that they support — any number of reasons, but if you have a true concern, come out and ask about it. Janice didn't try to dodge any of my questions, and I think she's sincerely looking forward to the opportunity to field questions from other members of our staff."

—E. Webster

Dale Meade, Leader
Wednesday, 1:30 p.m.

Group 8

TFTR Heating & Operations Divisions
Michael Williams, Leader
Wednesday, 2:30 p.m.

Group 9

Third Shift/Make-Up Session
Tuesday, 4:00 p.m.

Speakers Announced

The following speakers are from agencies supported by the United Way and will be part of the program for PPPL's United Way Campaign meetings.

Tuesday, November 27

9:00 a.m. **Mark Lamar**
Community Guidance
Center of Mercer
County

10:00 a.m. "

1:30 p.m. **Melinda Green**
Childcare Connection

2:30 p.m. **Dorothy Fisher**
Delaware-Raritan
Girl Scout Council

4:00 p.m. **Sandy Racis**
American Red Cross-
Princeton Area Chapter

Wednesday, November 28

9:00 a.m. **Betsy Kemeny**
Alzheimer's Disease
Adult Program:
Principal Community
Homemaker

10:00 a.m. **Elane Lee Isa**
KIKS (Kids Intervention
with Kids in
School) Childrens'
Home Society

1:30 p.m. **Lisa Keys**
Boy Scouts — George
Washington Council

2:30 p.m. **Sandy Racis**
American Red Cross-
Princeton Area Chapter



Cheerio! It's Off to London We Go!

Every employee who makes a donation during this year's PPPL United Way Campaign automatically becomes eligible for the grand prize drawing of two first class tickets to London as well as limo service to and from Newark airport. The drawing will take place on December 5 at noon in the Gottlieb Auditorium, and everyone is invited to attend!

But wait there's more . . . Just for attending a meeting you'll be in the running for donated prizes including an extra vacation day that the Laboratory will raffle off during each of the nine meetings. Others prizes include: brunch packages at Forsgate Country Club, Casa Lupita, Alchemist and Barrister; lunches at the Ramada Sandlewood, House of Shih; and dinners at the Coach and Four Restaurant, the Nassau Inn, and the Marriott, Forrestal Village. An overnight package is being donated by the Compri Hotel.

Gift certificates are being offered by Encore, the Lu Ann Shop, the Annex Restaurant, the Pet Kingdom, The Cupboard, Inc., Deck the Walls, Arties Parties, and Alpen Pantry, certificates to Bennigans provided by Mike Penovolpe of Northeast Fluid Power Co., Inc., and Muffins at Forrestal Village.

Packages are also being offered by Holiday Spa, Jazzercise, American Cinema, Mercer Mall Cinema, Jewelers Workbench, Mary Ann Brown, Regis Hair Stylists, Lena Scemica, Mary Kay Cosmetics from Gloria Cain, Treasure Island, Crown Jewel, the Photo Store, Wicks and Sticks, Hickory Farms, and Silver Visions, Huckleberry Finn, J. F. Eichert Photo, The Allman Companies, Baskin Robins, DeLuxe Travel, and Sally Connell.

Looking Back at PPPL's United Way Contributions

This year's goals remain the same as those set in 1989, even though we exceeded our expectations in both participation and dollar amount last year. In 1990 PPPL is challenging itself to have 75% of all employees participate and to raise a Laboratory-wide donation of \$25,000.

| | | |
|------------|-------|-----------|
| 1984 | 11 % | \$ 6,292 |
| 1985 | 32 % | \$ 15,147 |
| 1986 | 43.6% | \$ 21,102 |
| 1987 | 50.2% | \$ 22,114 |
| 1988 | 67.9% | \$ 27,196 |
| 1989 | 81.2% | \$ 28,283 |
| 1990 Goals | 75 % | \$ 25,000 |



PPPL's United Way Grand Prize, two first class tickets to London and limo service to and from Newark Airport, were presented to United Way coordinator Mary Ann Brown by DeLuxe Travel Bureau's president Clemie Wintle. Any employee who makes a donation during the November 27 and 28 campaign is eligible for this prize. The drawing will be held at noon on December 5 in the Gottlieb Auditorium.

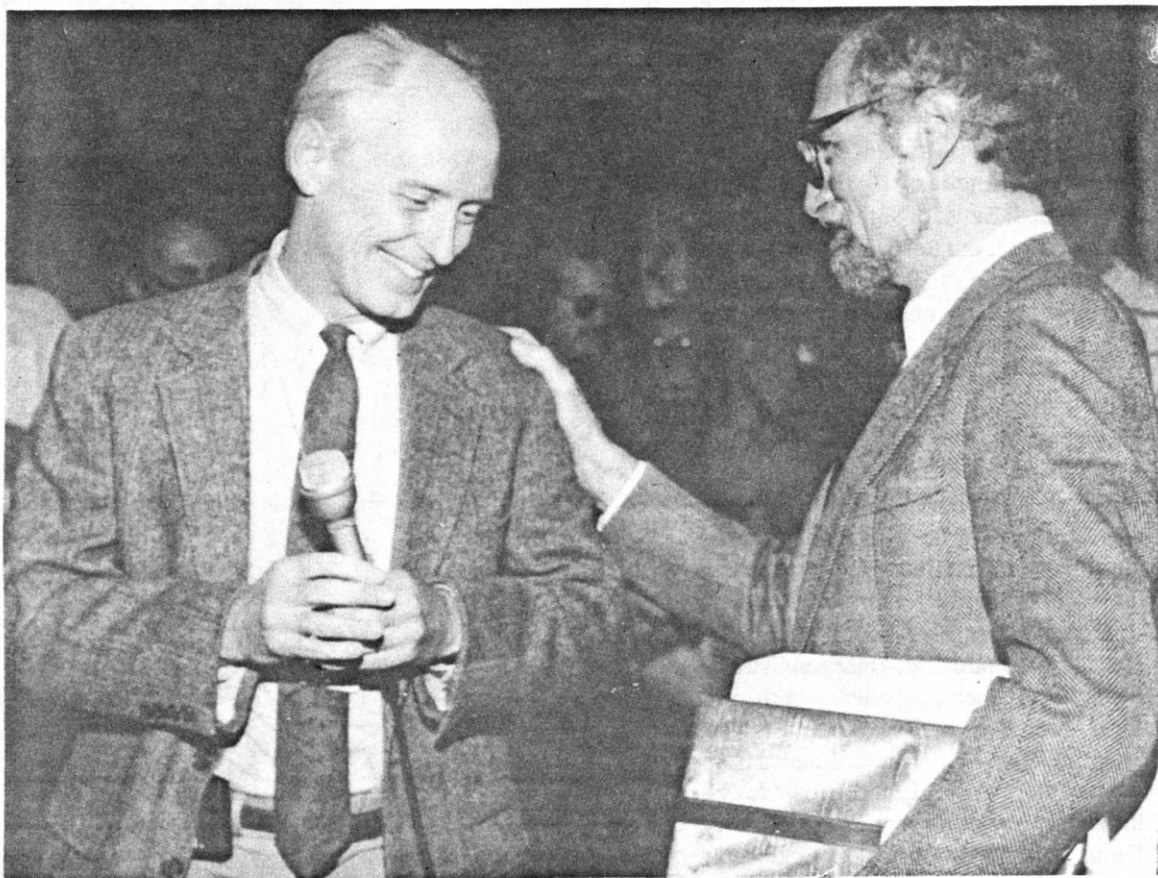
Photo: John Peoples

What's Happening at PPPL?



Manning the refreshment table during the Directors' reception were: Steve Raftopoulos, Geoff Gettelfinger, Doug Loesser, Richard Daugert, Rich Scillia, and Paul Snook.

Photo: John Peoples



Parting gifts and words. Acting Director Tip Brolin and outgoing Director Harold Furth.

Photo: John Peoples

Davidson Outlines Objectives

When you're first getting to know someone, you might do well to listen to the words they use in a conversation. Sometimes the pace for the future can be heard loud and clear right from the start. Take for instance PPPL's incoming director, Ron Davidson. Recently he met with groups of employees to discuss his ideas about the Laboratory and its workers.

And what words made their way into his remarks? Collaboration, accessibility, balance, team work, diversification and candidness were among those he chose. The way he used them indicates a willingness to listen and an acknowledgment that the Laboratory's success as a whole is dependent on the efforts of individuals.

- Recognizing the budgetary and manpower limitations put on the Laboratory

"I want there to be room for dissenting points of view. Every individual, skill, and function, is important to the enterprise here and to me."

in recent years, Davidson said that it is increasingly important for teamwork to exist within departments and throughout the Laboratory.

- Under Davidson's leadership, individuals will be encouraged to be candid . . . as well as polite and thoughtful. "I

want there to be room for dissenting points of view," he said. "Every individual, skill, and function, is important to the enterprise here and to me."

- Davidson said he wants to make

himself accessible to the PPPL staff and, as a means of doing this, has established early morning open office hours so that employees can stop by to meet with him. (Current hours are 7:30-9:00 a.m. on Fridays.)

- A balance, according to Davidson, needs to be struck between the small-, middle- and large-sized experiments being conducted at the Laboratory
- While PPPL will remain a single-purpose laboratory focused principally on fusion, it is reasonable to strive in the future for about 10% diversification in other plasma physics and technology areas. "Many people here have capabilities that can contribute significantly to this diversification," he said.
- "I will encourage collaboration with other labs because part of being the largest and leading plasma physics Laboratory is exhibiting leadership and involving others."

Ron Davidson will be at PPPL on Thursdays and Fridays through December while finishing academic commitments at Massachusetts Institute of Technology (MIT). As the Laboratory's fourth director, he will begin full-time work in January.

— E. Webster



PPPL Director, Ron Davidson.

**United Way Goals
Achieved
Thanks to You it
Worked!**

**\$30,500
collected
75%
participation**



see photos on page 2

Inside



Rutherford
Discusses
Helium-3. page 3



Lab-Wide Gift-
Pack will go to
Saudi Arabia.
page 2



PPPL Signs
Education
Partnership with
Trenton. page 3



National
Geographic
Photographs PPPL.
page 4

Operation Desert Smile

Lab-Wide Care Packages Being Sent to Saudi Arabia

A lab-wide project to send care packages to servicepeople stationed in the Mid-east has just been announced. And the first donation has come from the Laboratory itself — postage to send the items that are collected.

According to Marilyn Hondorp and

Barbara Sobel, the coordinators of this effort, the goal is to send a package a month for the next several months.

"The holidays mean a lot to me," said Hondorp, "I'd like to see the servicemen and women over there have a little bit of home. This isn't about politics. Whether or

not you approve of our presence there, we're all touched in one way or another by this situation."

Sobel's reasons for getting the project off the ground go back to the Vietnam conflict. "I did this during Vietnam, and I know it meant a lot to the people who received the packages," she said. "I think

... the goal is to send a package a month for the next several months.

it's important for those in the armed forces to know that they're being thought of by people other than family," Hondorp added.

Aaron Lemonick, Deputy Director for Administrative Operations, said, "We applaud the initiative of Marilyn and Barbara. The Lab is pleased to be able to help by contributing funds from the Director's Fund." PPPL Director Ron Davidson echoed Lemonick's thoughts and said, "This is clearly a good cause; one worth supporting."

Everyone at the Laboratory has an open invitation to become involved. Items for the next package should be delivered by Friday, January 19, to either Marilyn Hondorp in LOB368, ext. 2656, or to Barbara Sobel in LOB374, ext. 2602. Pick-ups can also be arranged.

— E. Webster



Barbara Sobel and Marilyn Hondorp are coordinating a lab-wide gift-giving effort for servicemen and women in Saudi Arabia.

Photo: John Peoples



Donation Ideas

The following is a sample of items that might be useful, appreciated, and easily transported.

- Shaving cream ● Chapstick ● Sunblock ● Perfumed soap
- T-Shirts ● Videos ● Blank and music cassettes ● Wet Wipes ●
- Ice tea/instant coffee ● Creamora ● Kool Ade, Tang (anything that can enhance the taste of water) ● Hard Candy ● Gum ● Skin lotion ● Baby powder ● Magazines ● Playing cards ● Cookies ●
- Snacks (raisins, canned and dried fruits) ● Crossword puzzles ● Paperback books ● envelopes ● Stamps ● Soft balls

(Note: Please use discretion when donating items. Avoid articles which might melt, are religious in nature, or contain alcohol. And please do not gift wrap items.)

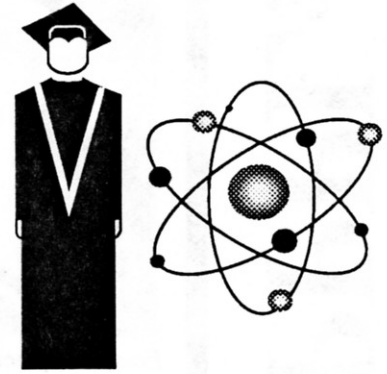
PPPL Teams Up with Trenton Education Partnership Signed

Princeton University's Plasma Physics Laboratory (PPPL) became a partner in education with the Trenton School District on Thursday, November 29. During the evening School Board meeting, PPPL's new director, Ron Davidson, signed a memorandum of understanding that, according to PPPL's Education Director, Diane Carroll, "provides a framework within which the Plasma Physics Laboratory can work with Trenton students and teachers."

Among PPPL's ongoing education efforts are its Summer Teachers' Institute for sixth to eighth grade middle-school teach-

ers, a summer Teacher Research Associate Program which enables high-school teachers to gain hands-on research experience, a Science on Saturday lecture series, student internships, and tours of the Laboratory.

This partnership, however, is the first time that a particular school system will be the primary focus of the Laboratory's efforts. Carroll says that PPPL has always taken its role within the community seriously, but a partnership will better serve the interests of the district and the Laboratory. "The reality is," she said, "that the number of young people entering science is not sufficient to meet the demands. Get-



ting students involved will benefit those working in science and technology as well as the students themselves. Even if they don't enter science professionally, students need to know about science because it affects their lives. Who better to demonstrate science than scientists themselves?"

— E. Webster

Rutherford Discusses Helium-3 as a Future Fusion Fuel Source

On Thanksgiving night, Paul Rutherford, Associate Director for Program and Research, could be seen explaining the concept of helium-3 as a possible advanced fusion fuel source on Philadelphia's Fox Channel 29.

Interviewed by reporter Dan Fiorucci outside TFTR, Rutherford answered questions regarding mining helium-3 on the moon and speculated on the benefits of such an undertaking.

Rutherford said that helium-3 is absolutely harmless. He explained that to the layman's eyes, the only noticeable difference between helium-3 and that which is generally used to lift a balloon, is that helium-3 as a lighter isotope, would float the same balloon even higher and quicker.

He said that in terms of fusion experiments, the differences between the combinations of deuterium/tritium and deuterium/helium-3 include the forecasted life expectancy of the first wall of the reactor.

In a deuterium/tritium scenario, the cost of fuel might be low, but the reactor itself would have to be replaced in a time frame conservatively estimated to be from 5 to 10 years. With helium-3 as a fuel, however, less structural damage would be done to the internal vessel because of the production of fewer neutrons, and this could

extend the life of the reactor to by as much as 30 years.

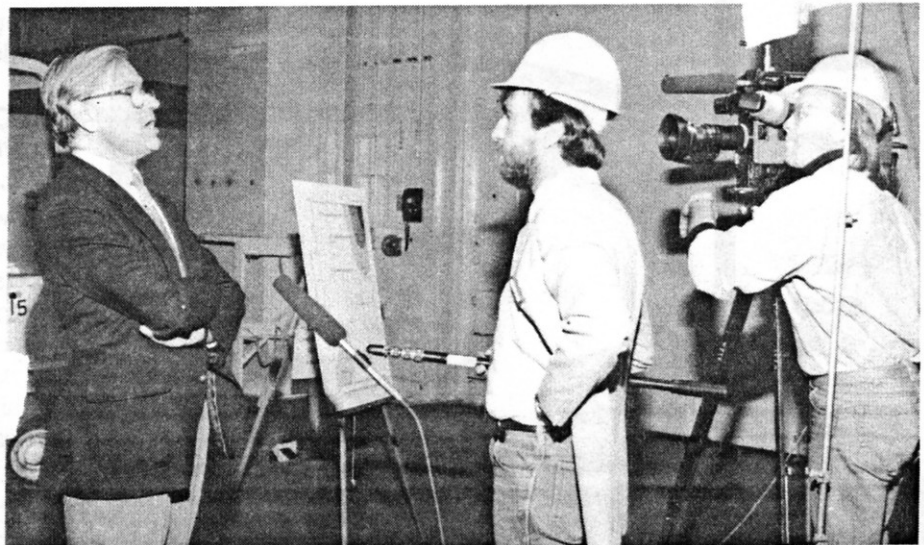
Another selling point of helium-3 is that while deuterium/tritium fusion creates orders of magnitude less radioactive than fission, a deuterium/helium-3 fusion reactor will result in a further substantial decrease in radioactivity.

The problem, however, is that while a sufficient amount of helium-3 can be found on earth to fuel preliminary experiments, it would have to be mined from the surface of

the moon for a commercial endeavor. As a by-product of the sun's fusion reaction, helium-3 is carried across the solar system in a solar wind. Once it strikes the moon's surface it becomes embedded in rocks.

PPPL has been discussing the theory of the deuterium/helium-3 reaction and possible helium-3 experiments with NASA, which has an interest in the practical applications of lunar mining.

— E. Webster



Paul Rutherford discussed helium-3 during an interview with Dan Fiorucci of Philadelphia's Fox 29 TV station.

Photo: John Peoples

What's Happening at PPPL?



Freelance photographer Roger Ressmeyer recently visited the Laboratory on assignment for National Geographic Magazine. His photos will appear in an article scheduled for the summer of '91 which will focus on America's electrical power situation. It will look at the current capacity of the industry, sources of electricity, and electrical needs for the coming decade.



Dori Barnes, PPPL United Way Chairman, handed grand prize winner Ralph Dean, two first-class tickets to London.



Door prizes were a popular part of each of the United Way sessions. Steve Iverson, Director of Personnel, officiates as John Gennuso draws the next winner.

Photos: John Peoples

NOTICES

Smithsonian Archives PPPL Database

Last year Dick Wieland and Jane Murphy were honored by being nominated for The Computerworld Smithsonian Awards for Innovative Use of Information Technology. And it has just been announced that their entry MINGL (the Mighty Ingres Locus System), will become a part of the Smithsonian Institution's National Museum of American History's permanent collection.

Because of the importance that computer applications and technology play in today's society, a national data base which can be used as an archive as well as a resource tool, will be added to the Smithsonian's Computers, Information and Society Division.

MINGL is a "data base system which provides a means of collecting and managing diagnostic data and transport code results from TFTR," according to last year's HOTLINE. Wieland said in that issue, "We wanted to provide an environment where users could examine, compare and analyze any laboratory data. We also wanted to make it easy for novice users to gain access to the data."

PPPL Education Consultant Honored at White House

Yvette Van Hise, consultant to Princeton Plasma Physics Laboratory's Science Education Program, was selected for the 1990 Presidential Award for Excellence in Science and Mathematics Teaching. Following three days of receptions and seminars in Washington, D.C., she received her award in a meeting at the White House on October 15.

Van Hise is a physics and computer science teacher at Marlboro High School. She has been working with PPPL's Diane Carroll and Rush Holt since March to develop and conduct science education programs for precollege students and teachers.

Red Cross Sends Thanks

(The following letter was sent to the Laboratory from James Moffatt, of the American Red Cross.)

"The blood drive on October 11th, once again, surpassed the goal! There were 82 pints of blood collected from 90 willing donors. There were 13 first-time donors.

Since each pint of blood can be broken into components, the lives of approximately 410 people have been affected by the blood drive at Princeton Plasma Physics Lab.

The American Red Cross is there when needed by our community. Please accept my appreciation and extend my gratitude to the blood committee for being there when we needed you."

(NOTE: The next blood drive will be on March 6.)

Happy Holidays from HOTLINE!

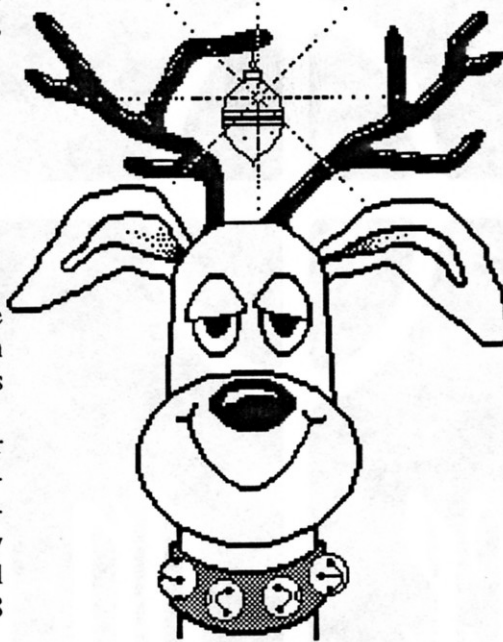
PPPL Holiday Schedule

The Laboratory will be closed from Monday, December 24th through Tuesday, January 1.

December 24 — University Holiday
 December 25 — University Holiday
 December 26 — Laboratory Closing
 December 27 — Laboratory Closing
 December 28 — Laboratory Closing
 December 31 — University Closing
 January 1 — University Closing

Staff members may choose to take the three Laboratory closing days as vacation or they may use their two Option Holidays in conjunction with vacation.

Exempt staff members will receive their December paycheck on Thursday, December 20; Biweekly checks will be distributed on Friday, December 21; Hourly staff can pick up paychecks in the Payroll Office, Mod II, on Friday, December 28 from 10:00 a.m. until 2:00 p.m.



TRANSITIONS TRANSITIONS

Retirees

Willie Mae Holman, of Plant Maintenance and Engineering, retired on October 1 after 18 years of service.

Thomas W. Dawson, an electrician with the Laboratory for 9 years, retired on October 1.

Births

A son, **Coerte Russell**, was born to **David Voorhees**, of the Engineering and Scientific staff, and his wife **Karen**, on November 21.

A daughter, **Sara**, was born to **Eric Thorsland**, and his wife **Sandy**, on December 11.

A daughter, **Margaret**, was born to **Tony Bleach**, of the Accounting Division, and his wife **Neile**, on December 12.

PPPL Conference Rooms

| Room | Capacity | Contact | Phone |
|---------------------------------------|----------|-------------------|-------|
| C-Site | | | |
| LOB Auditorium | 284 | Pat Buggs | 2750 |
| LOB, 3rd Floor (TFTR) (B318) | 40 | Kay Collins | 2202 |
| Director's Conference Room (B331)* | 30 | Gloria Cain | 2103 |
| DOE Conference Room (B252) | 30 | Sarah Thomas | 3711 |
| The Commons (LOB, 2nd Floor) | 20 | Pat Buggs | 2750 |
| Theory Conference Room (A168) | 40 | Terry Greenberg | 2629 |
| Theory Lounge Area (Rm. 150) | 12 | Terry Greenberg | 2629 |
| Procurement Conference Room (Rm. 111) | 20 | Eugenia Spears | 2428 |
| PBX Conference Room (S213) | 30 | Madge Mitas | 3100 |
| X-Ray Laser Conference Rm. (Rm. 245) | 15 | Diane Schulte | 3277 |
| RF Conference Room (Rm. 245) | 15 | Virginia Baunach | 3164 |
| Computer Conference Room (B229) | 30 | Beth Ann Reardon | 2416 |
| New Engineering Wing | | | |
| Conference Room (Rm. 143) | 15 | Jean Salerno | 3003 |
| New Guggenheim | | | |
| Conference Room (Rm. 119) | 30 | Gail Marshall | 3517 |
| Conference Room (Rm. 206) | 15 | Gail Marshall | 3517 |
| Aero Lab | | | |
| Conference Room (Rm. 12) | 20 | Candice Whiteside | 2167 |

*Subject to Director's need

CLASSIFIEDS

For Sale

Hammond Spinnet Organ — Upper keyboard, 44 keys; lower keyboard, 44 keys; pedal keyboard, 13 pedals. 16', 8', and 4' voices including Tibia, Cello, Diapason, Violin, and Trumpet. Four levels of reverb. Three levels of vibrato plus acoustic tremolo (Leslie-type speaker). \$250. Call Carol, ext. 2754.

Desk — Metal desk with typewriter return. \$50 OBO. Call Ellen, ext. 2757.

Found

(To identify and claim the following items, call Verna Wyman, ext. 2501.)

Sweater — Men's slip-on, 100% virgin wool. Found end of October in the New Engineering Wing, conference room 143.

Computer — Radio Shack Pocket computer (without PPPL/government sticker) found in a C-Site garbage bin around the end of August (the time of the College Road move).



Tiger Team Says Thank You

by Johanna Van Wert

"The cooperation we've had from the Princeton Plasma Physics Lab has been the best we've ever seen," Susan R. Brechbill, leader of the Tiger Team, told PPPL escorts and technical counterparts during a meeting on Monday, March 4 to express the Tiger Team's appreciation.

"People here have taken an extremely supportive attitude," she noted, "and you've been a big part of our being able to get our job done well and effectively." Escorts and

technical counterparts provided support in the form of information and resource gathering, scheduling meetings, and word processing, among other activities.

Ms. Brechbill also observed that PPPL staff have taken advantage of the opportunity to increase their expertise in the areas of safety, health, and environmental issues by working with Tiger Team specialists.

In response to her remarks, PPPL Director Ron Davidson observed that the Tiger Team has taken a

helpful, positive approach that has encouraged cooperation and good will from Laboratory staff.

The 50-member Tiger Team has been at PPPL since February 11. Their visit ended March 12 with a closeout meeting and submission of their report. Their goal has been to work with the Laboratory to ensure high standards of safety, environmental protection, and health. Noted Ms. Brechbill, "We have done our best to make a fair, objective assessment, and we hope that staff at PPPL will agree with our recommendations of what needs to be done."

Blood Drive Successful

Because of cooperation by 86 registered donors at the Princeton Plasma Physics Laboratory, the American Red Cross was able to meet 100 percent of their goal, collecting 75 pints of blood at the Lab on Wednesday, March 6. Eileen Mulligan, Recruitment Representative for the American Red Cross, expressed her thanks in a letter to Dr. John Caruso in the Occupational Medicine Office. She said, "Please extend my appreciation to your staff, especially to Faith Robak and Connie Riviera for their help in coordinating the blood drive. Also extend a special thank you to all those employees at Princeton Plasma Physics Laboratory who gave the 'gift of life' during this life-saving event."



Halsey Allen had the distinction of being presented with "The Most Underutilized Escort" award by Susan Brechbill, who joked that he did his best to fulfill his duties despite her independent style. Allen is Associate TFTR Project Manager for Administration.

Photo: John Peoples

Operation Desert Smile

Soldier Sends Thank You Letters

During the war in the Persian Gulf, PPPL employees contributed small gifts to the American troops in Saudi Arabia. Barbara Sobel and Marilyn Hondorp coordinated the effort. Here's a letter of thanks that Barbara received.

Dear Barbara,

February 11, 1991

We were lucky enough to receive your great package, and it was much enjoyed by all my men.

I'm a platoon sergeant in the 1st Infantry Division (The Big Red One), and I distributed your package to my men and read your kind letter to them. There are no women in my unit, so we took the items intended for female soldiers and gave them to the mail handling detachment, who are mostly women. They really appreciated it.

To enjoy the contents of the package was very good, but to know fellow Americans care about us is even better. From all my men and all soldiers away from home, thank you for your kindness and consideration.

Sincerely,
Ernest A. Cook, Jr.
Platoon Sergeant, USA

Phil Efthimion was surprised and pleased to also receive a letter from Sergeant Cook, after the Efthimion family and Phil's in-laws, the Demos contributed many homemade pastries and candies to PPPL's care packages. He shares the letter below.

Dear Families at Home,

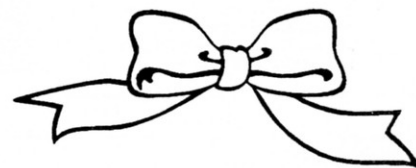
February 11, 1991

I know that's a funny way to start a letter, but I felt it most appropriate in this case. We were lucky enough to receive your package here in the desert, and believe me, it sure cheered us up.

I'm SFC, that's sergeant first class, Ernest A. Cook, and I'm a platoon sergeant in the 1st Infantry Division (The Big Red One). I distributed your package to my men and read them your kind letter. Ya'll have done wonders for the morale of the troops, and I most humbly thank you.

I'm a veteran of the Vietnam conflict, and we never were encouraged or even thought of then as many people think of us now. For all of my men and myself, God bless you and keep you.

Ernest A. Cook, Jr.
P.S. Send me a whole platoon of Ninja Turtles!



Everyone has been deeply affected by the war with Iraq, and we're all grateful that it has ended. Margaret Kevin, who has been working temporarily for Carl Potensky in the Plant Maintenance and Engineering Division, wrote the following poem dedicated to the men and women in the Persian Gulf.

Amidst the Dark

*Amidst the dark
The war bird flies.
Missiles descend
And shatter the earth.*

*We yearn for peace,
Yet destruction flows,
And life loses its breath
In a bloody fashion.*

*Rescue us,
Someone or something!
Bring us peace
And retain our substance.*

By Margaret Kevin

HOTLINE

| | |
|---------------|---------------------------------|
| Editor: | Carol Phillips |
| Writer: | Johanna Van Wert |
| Layout: | Greg Czechowicz |
| Photography: | John Peoples Dietmar Krause |
| Reproduction: | Teri Daynorowicz Dan Klinger |

Our best story ideas for **HOTLINE** come from *you*. So if you have an idea for an article, call Carol Phillips at ext. 2754.

What's Happening at PPPL?

Rabid Raccoon Found on Campus

(Reprinted from the *Princeton Weekly Bulletin*)

On February 8, a member of the Maintenance Department trapped a raccoon near the power plant on the main campus. The animal subsequently tested positive for rabies.

The raccoon had shown himself during the day, behavior which is considered erratic for raccoons, who are usually active at night. In the past few months the Princeton area has seen an epidemic of rabies among raccoons and other animals such as skunks, says Don Robasser of the Office of Occupational Health and Safety.

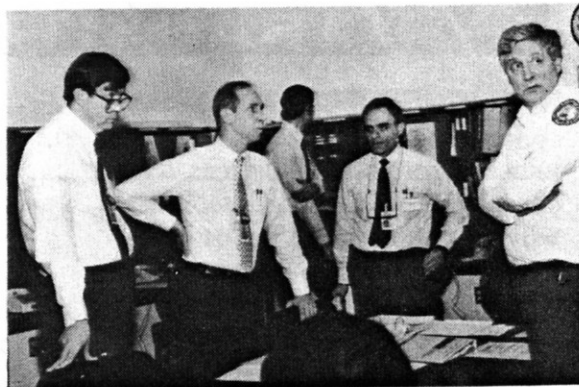
According to Robasser, rabies symptoms may vary from animal to animal. Some animals grow quiet and shy away from contact; others move erratically and become violent.

Members of the campus community would be well advised to stay away from wild animals and should refrain from feeding them, says Robasser. While the rabies epidemic does not yet seem to have affected the squirrel population, food that squirrels leave behind may attract other wild animals. Information about vaccinations for pets can be obtained from municipal health authorities.

If you see an animal that appears to be behaving strangely, please call the Public Safety emergency number (258-3333). Public Safety will notify the appropriate animal control authority. Note: At PPPL, phone 2536.

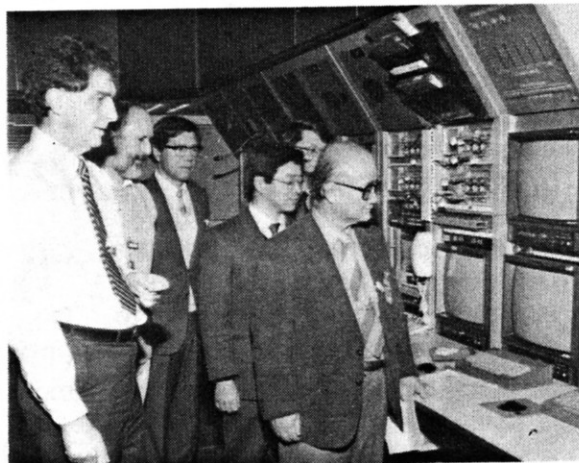
Thirty mechanical engineering students from University Twente in Holland visited PPPL during their three week tour of the U.S. and Canada. According to group leader Robert Leit, the students visit high tech labs and industries as part of their sightseeing activities. Dave Clotti, seated far right, and Jim Faunce, seated far left, were tour guides.

Photo: John Peoples



Rich Hawryluk, John DeLooper, Erik Perry (facing away), Tony DeMeo, and Captain Robert Brown consider possible actions during a practice drill on February 27. During the drill several areas of the Laboratory were evacuated and special operation centers were activated.

Photo: John Peoples



Ken Young and Sid Medley, far left, show the TFTR Control Room to, from left to right, M. Baba, K. Shin, T. Iguchi, and M. Sumita. Professor Sumita and his colleagues visited the Laboratory to talk with PPPL staff about radiation effects on fusion components. Their visit was arranged under the US/Japan international exchange program.

Photo: Dietmar Krause

NEW HIRES

Johanna Van Wert recently joined Information Services as a consultant to write *HOTLINE*. She will be assuming the duties previously held by Ellen Webster, who has taken a full-time position as Assistant to the Editor for the journal *Physics of Fluids B* here at PPPL.

BIRTHS

Tom Goodwin, AC Power Engineering, and his wife Donna are the proud parents of baby daughter Michelle, born February 2, 1991.

Best wishes to **Margaret Jackson**, Maintenance, and husband John on the birth of their son, John C. Jr., born December 16, 1990.

Beth Ann Reardon, Computer Division, gave birth to son Thomas Patrick on March 6. All the best to Beth Ann and her husband Thomas.

Congratulations to **Nathan Schechtman**, Computer Division, and his wife, Nadine, on the arrival of their new daughter, Claire Louisa, January 6, 1991.

Jim Stevens of the Research Department is a proud father. He and his wife Anne welcomed daughter Jennifer on March 11, 1991.

A daughter, Hilary Elizabeth, was born to proud parents **Bill Tighe**, X-ray Laser, and wife Judith on December 28, 1990.

RETIREMENTS

John Boychuk retired January 1, 1991 after 30 years of service. He was a Technical Associate.

Daniel Bonfrancesco retired January 1 after 20 years of service. He was a Planner/Estimator in the Plant Maintenance Section of Administrative Operations.

Jack B. Joyce retired January 1, 1991 after 30 years of service. He was Head of the Engineering Department.

David H. Mullaney retired January 1, 1991 after 35 years of service. He was Head of the Mechanical Engineering Division.

William G. Newman retired January 1, 1991 after 16 years of service. He was an Electrical Engineer in the TFTR Heating Systems Division.

Dolores F. Reiss retired January 4, 1991 after 15 years of service. She was a Payroll Data Entry Clerk in Administrative Operations.

OBITUARIES

Gilbert R. Graydon died on February 6. He was employed at PPPL from 1976 until his retirement in February 1990.

William J. Heim died on November 9, 1990. He was employed at the Laboratory from 1958 until his retirement in 1984.

Thank You

Thank you very much for your many birthday cards, get well cards, and flowers during my illness.

Flo Short

I would like to thank everyone who sent cards, notes, and flowers or who phoned me during my recent illness. It's nice to have such lovely friends.

Thank you!
Pat Zeedyk

Basic Safety

April 1, 15, and 29, 1:00-2:00 p.m.
Safety Trailer Conference Room

This one hour class is **required** for new employees (subcontractors as well) within the first thirty days of employment and subsequently for all employees every two years. The class includes information on general safety items, as well as occurrence reporting, environmental and radiation information and the New Jersey Right-to-Know Law.

Radiation Safety

April 3-5, 8:30 a.m.-12:00 noon
MBG Auditorium

This course teaches radiation safety concepts as well as applications necessary to work with radioactive materials. It is appropriate for employees working in a radiation area. To challenge the test, call the Safety Office, X2600.

Use of Fire Extinguishers

April 17, 9:00-10:00 a.m.
Safety Trailer Conference Room

This course trains employees in the different types and uses of fire extinguishers. It provides guidance as to when to try to fight a fire and when not to. A movie is shown along with a discussion period. The hands-on part of the class has been temporarily excluded.

Confined Space

April 18, 1:30-3:00 p.m.
Safety Trailer Conference Room

This course is designed to instruct employees about the hazards associated with confined spaces and the proper procedures for entering a confined space.

To register for safety courses, call Sue Hill, X2526.

TFTR Sets Safety Record

The TFTR Project has not lost a single man-hour of work due to a "lost-time accident" since October 1987. This totals over 1,500,000 hours of accident-free work by the TFTR staff. "We think their record is outstanding, and it certainly reflects the TFTR Project's dedication to safety," said Milt Johnson, Area Manager of the U.S. Department of Energy's Princeton Area Office.

What this record means is that none of the approximately 250 TFTR employees have had to miss a day's work because of an accident during the last three and a half years. The "lost-time accident" is a measure of the seriousness of an accident. For example, if an employee sprains his ankle, he goes to see the Laboratory doctor. If the doctor says it's OK to come back to work the next day, this would not be counted

as lost time. However, if the Laboratory doctor says that the employee *cannot* work as scheduled the next day because of this sprained ankle, it *would* be considered a lost-time accident.

Says Project Head Dale Meade, "Because TFTR is the largest project at the Lab, and because ours is the first project to use tritium, we are intensely aware of the need to be an example of good environment, safety and health practices. Therefore, we're very conscientious about these issues."

According to Meade, TFTR can be especially proud of this record, since it is a site with moderate hazards. These include such activities as working around incredibly high voltages (up to 100,000 volts); working on TFTR, which is two stories in height; and lifting and

moving large items, such as the 38-ton neutral-beam transformer.

TFTR's Deputy Departmental Safety Officer, Halsey Allen, heads up the group whose job it is to be constantly alert to environment, safety and health issues. He says, "A lot of the credit goes to our 29 Area Safety Coordinators (ASCs) because they pay special attention both to potentially unsafe work practices and to possible hazards in their assigned work areas. Credit also goes to the Cognizant Area Supervisors (CASs), who help ASCs deal with problems."

Allen observes that TFTR regular monthly inspections help keep everyone alert and aware. Participants include the ASCs and CASs, and in addition, a staff member from the Environment, Safety, and Health Division (ES&H).

Joe Stencil, Deputy Head of ES&H says, "Our role is primarily one of oversight; however, we work hand-in-hand with TFTR staff to support them in meeting their goals. In addition to participating in the monthly safety inspections, we're brought into the loop in various other ways. For example, ES&H evaluates all TFTR processes, from conceptual design to project installation and operation to ensure safety and environmental compatibility."

Clearly, constant sensitivity to safety, regular reviews, and individual responsibility are key to the TFTR safety record. Congratulations on this excellent record, and all the best in reaching the future benchmark of the two million man-hour mark without lost hours!

Good Tiger Team Report Prompts Secretary Watkins to Visit Lab

Secretary of Energy James D. Watkins currently plans to visit PPPL on Thursday, May 2. He called PPPL Director Ron Davidson to request the visit as the result of a positive briefing with Tiger Team leader Susan Brechbill on March 22. The Lab received high marks for its self-assessment, positive attitude among staff towards learning from Tiger Team members, and an excellent science education program.

As everyone at PPPL is well aware, the Lab was put through extensive scrutiny between Febru-



**Secretary
Watkins**

ary 11 and March 12 during an assessment of Environment, Safety and Health, and related management issues by a Tiger Team from the U.S. Department of Energy (DOE). The positive briefing reflects the outstanding effort by all PPPL staff during the Self-Assessment and Tiger Team visit.

The atmosphere of cooperation, openness, and willingness to learn,

continued on page 2

Good Tiger Team Report

continued from page 1

combined with a commitment to getting the job done, made this difficult, and sometimes painful assessment process workable and constructive. Many who were involved on a day-and-night basis somehow managed to continue with their usual duties as well, and people are emerging from the process tired, but with a sense of a job well done.

From late October, when the self-assessment process began, up through the Tiger Team wrap-up meeting on March 12, the Lab has been a beehive of activity—planning, preparation, self-assessment, report writing, and response to the findings. A herculean effort has gone into this endeavor under the direction of John DeLooper (Quality Assurance) and Chris Gillars (Material Control). As DeLooper put it “Chris and I were the worriers but the real work was done by the Lab. The extent of the Laboratory’s effort can only be appreciated through retracing the process.

Self-Assessment

DOE facilities typically have about six months to prepare for a Tiger Team visit and conduct an advance self-assessment. By contrast, PPPL began the self-assessment process in late October with the Tiger Team arriving in early February. Time was of the essence. Yet it was crucial that the Self-Assessment be well-planned, thorough, and accurate. Somehow, with incredible cooperation and many long hours, everything was accomplished.

Staff were chosen from throughout the Lab to participate in 28 assessment teams. Some members were from within the area of concern, while others were picked because, as knowledgeable outsiders, they might be able to ask the right

questions. Teams were trained in how to assess appropriately and sent out to conduct interviews, review documents, tour relevant areas, and even (in two instances) conduct unannounced drills.

Each team had a specific area to investigate, for example, ground-water or industrial hygiene. Using a checklist developed in advance, their mandate was to identify existing questionable conditions and investigate their root causes so that difficulties could be corrected and future problems avoided. Wherever possible, problems were rectified immediately.



Former dining hall becomes Tiger Team Headquarters. Photo: Dietmar Krause

Considering the limited time frame, the Self-Assessment was spectacularly successful. Compared to the 19 other DOE facilities visited thus far, PPPL found the highest percentage of problems (72 percent) that would also later be identified by the Tiger Team. The Self-Assessment was also successful by other measures. It proved an excellent exercise in teamwork, with staff from around the Lab having an opportunity to work together in ways they usually would not. It was also educational and informative, as team members learned about areas of the Lab that were new to them.

Perhaps most important, the Self-Assessment gave everyone involved a taste of what it was like to be in an assessment interview, to have problems highlighted, and to think about how to improve conditions. This was excellent practice for the actual Tiger Team visit and undoubtedly increased the efficiency of their assessment process.

Preparing for the Tiger Team

Those involved with Self-Assessment were not the only ones who found themselves extremely busy during the weeks before the Tiger Team arrived. The process was likened to preparing for a month-long visit from wealthy but critical relatives. Major house-cleaning had to be done, and living space had to be prepared.

A special “Spring Cleaning” day was declared January 9, and everyone pitched in (or pitched out!). Camaraderie grew as people unearthed and exchanged treasures, while the serious work of labeling, marking equipment and passing on chemicals to Hazmat was accomplished. For some, weekend work was necessary to get the job done.

In the mean time, Plant Maintenance and Engineering and many others went into high gear to make a home for the 52 Tiger Team members where no office space had existed before. As if by magic, where the dining hall had been, there sprung up walls, partitions, electric and phone wiring, desks and chairs, phones and answering machines. Forty PC computers were ordered through Procurement and coordinated by the Computer Group. A separate room was set up for the eight word processing stations necessary to prepare the Tiger Team

continued on page 3

report. Copiers, laser printers, and office supplies appeared. Unfortunately, yeoman effort and long hours, rather than a magic wand were necessary to put it all together.

A library had to be compiled as well. Feverish activity also accompanied this process, which included pulling together more than 200 documents requested by the Tiger Team. Of these, about 100 had to be compiled and sent out in advance in preparation for the visit. With the help of affected departments, Olga Bennett and her assistant pulled together these priority items—accomplishing in a month what most facilities have six months to do. With support from the Duplication Center and from Shipping and Receiving, and practically around-the-clock work, the Tiger Team was sent everything they had requested—including documents ranging from maps and a history of PPPL to data on surface water, waste management, and a toxic substances inventory. A library of all 200 documents appeared in the Tiger Team work area by the time of their arrival.

For Teri Daynorowicz, the staff of the Duplication Center, and other staff pulled in periodically to help, the deluge of pages to copy was just beginning. During the four-month span of Tiger Team activities, they turned out three-quarters of a million copies—in addition to their regular PPPL workload.

The Tiger Team Visit

All this activity, and the Tiger Team had yet to arrive. When they did come, on February 10, a special station had been set up at the hotel to provide them with identification badges. They were given Site Briefing books to orient them to the Laboratory, the University, and the Princeton area, and each member was greeted by an escort. They were also assigned technical counterparts.

The logistics required boggle the mind.

About 150 escorts, technical counterparts, and alternates were on call to provide logistical support, set up meetings, participate in interviews, and find information for Tiger Team members. The Computer Group answered more than 65 Tiger Team questions. To provide wider input into the investigation, a “complaint line” was available for both PPPL staff and the general public.



Former C-Site Lobby becomes dining hall for staff. Enjoying lunch are Ray Pysher and Mike Leonard (left); Vince Corso and Joe Bonfonti (right).

Photo: Dietmar Krause

Between February 11 and March 12, the Tiger Team examined what must have seemed like every nook and cranny of the Lab. Although interviews occurred with every group, some, such as the Environment, Safety and Health Division, TFTR, management, and Quality Assurance/ Quality Control were more intensively scrutinized because of the nature of their responsibilities.

Because the Tiger Team's primary job was to find problems, the process became grueling at times. However, most of those involved survived with relative ease because they understood that the critique was not personal, and that ultimately it would help them solve their problems more effectively. In addition, most Tiger Team members took a

positive rather than negative approach, making criticism easier to take.

As documents for the Tiger Team report began rolling in, Marilyn Hondorp, four PPPL staff members, and five temporary secretaries, organized and formatted the information. During a two-week period of intense concentration, they worked nearly nonstop to turn out a two-volume, approximately 1000 page report.

On March 12, a wrap-up meeting was held in which Susan Brechbill and Tiger Team subteam leaders summarized their findings. Because the Self-Assessment had been so thorough, most of the findings had previously been identified.

Developing the Action Plan

Now that the Tiger Team draft report is complete, PPPL has six weeks to draft an action plan outlining proposed methods of dealing with each finding. Each department must respond both with a description of how the immediate problem will be rectified and how causal factors (root causes) will be dealt with. Several factors might be involved. Just as an example, (this was not a finding) if a trend were found towards more back injuries, causal factors might include need for training in safe lifting methods, improved access to lifting equipment, and/or additional assistance in lifting.

Pulling together all these findings by the end of April is a mammoth job, but one that Jim Graham and Frank Malinowski of Quality Assurance are well trained for, considering that they compiled the Self-Assessment Report. Also well prepared are Marilyn Hondorp and her word-processing group, who are still up to speed from the Tiger Team Report.

continued on page 6

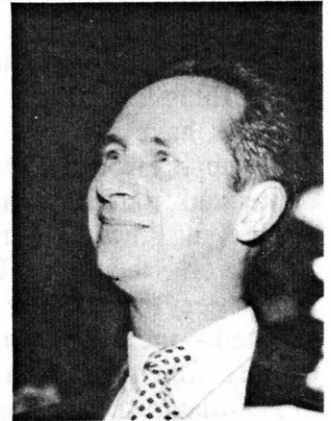
Tiger Team Wrap-Up Interests Staff



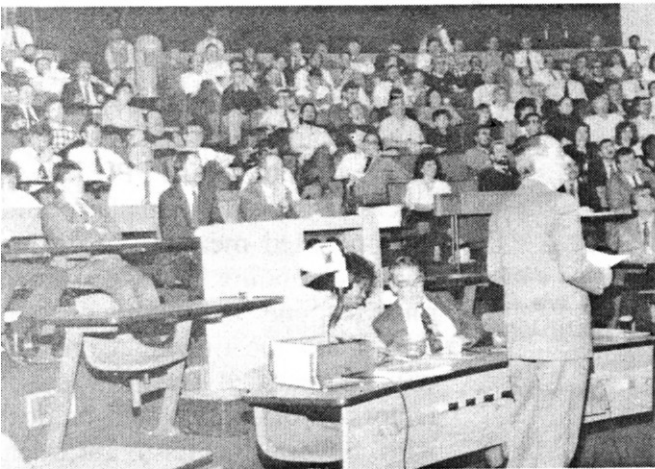
◀ **Tiger Team Subgroup Team Leaders Mike Kilpatrick, Environment (left) and Charles Grua, Safety and Health, listen to the wrap-up.**



**Susan Brechbill
Tiger Team Leader**



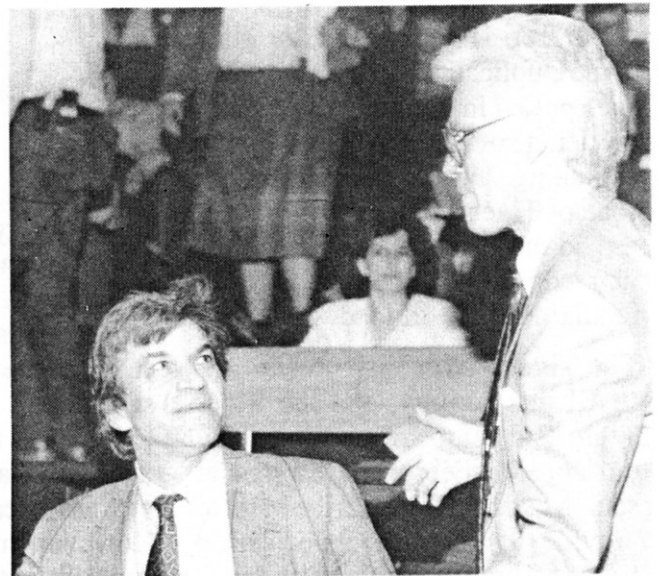
John DeLooper seems pleased to be reaching the wrap-up stage.



The Tiger Team Wrap-Up fills Auditorium.



Greg Zamuda, DOE Tiger Team Coordinator from the Office of Special Projects (left), talks with John DeLooper. Dale Meade is to the right.



Ron Davidson (left) and Milt Johnson consider what has been said.

Photos: John Peoples

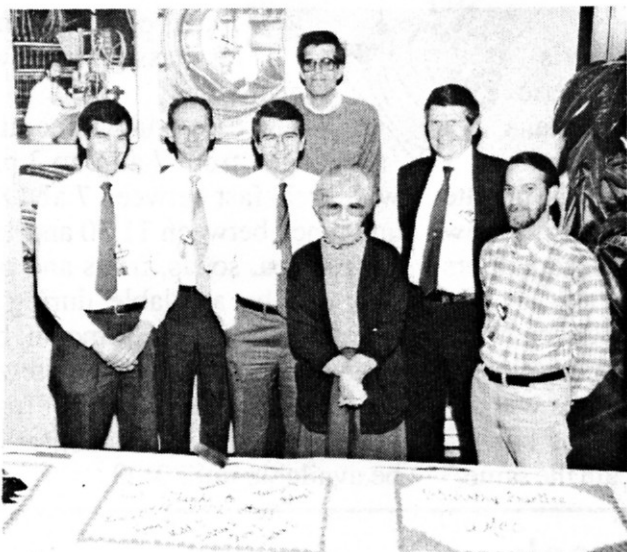
It's a Party! Everyone Celebrates Tiger Team Finish



Shelly Chung and Olga Bennett celebrate after many hours of hard work.



Glenn Pierson, Bill Blanchard, and Chris Vannoy help serve beverages.



(Left to right) Rush Holt, John DeLooper, Chris Gillars, Scott Larson, Jenny Zelenak, Ellis Simon, and Pete DeGandio admire Tiger Team congratulatory cakes.



The combination of Tiger Team Wrap-up, St. Patrick's Day, and TGIF draws a big crowd to the lobby/dining hall.



(Left to right) John Sadovy, Jeff Brian—in green wig for St. Paddy's Day—Gerry Hart, Buzz Bauer, and Walt Weyman enjoy the party.

Photos: Dietmar Krause

Good Report

continued from page 3

The End of the Beginning

Some may imagine that when the draft of the Action Plan is complete, the process will be over. However, in fact, it is not the end, but the beginning of the real work. Once the Tiger Team reviews the draft, PPPL will complete revisions, and continue with the on-going process of putting plans into action. The Tiger Team, according to Susan Brechbill, had as its goal to serve as catalyst to support PPPL in going *beyond* compliance towards the "pursuit of excellence" in standards of environment, safety and health.

The Tiger Team visit signals a change in corporate culture within the DOE and here at PPPL. While it may take time to readjust, assimilate, and integrate these high standards of compliance and documentation, in fact, it has already begun to happen. According to John DeLooper, PPPL is one of the first Labs to have turned the corner from simply planning to making concrete steps towards change.

Director Ron Davidson noted in a memo to staff back in November that, "One of the principal reasons for federal support of research at PPPL is that fusion promises significant environmental benefits for the country and the world. It follows that our operations should be a model of environmentally beneficial behavior." Since November PPPL has taken significant steps towards becoming such a model.

Cafeteria to Have New Vendor Free Cookies This Thursday!

Starting Monday, April 8, PPPL diners can look forward to fresh, homemade cinnamon buns and muffins each morning, a different salad each day, a yogurt machine, a popcorn machine, and an upgraded salad bar, according to Michael De Bonis, who will manage the cafeteria for new vendor Trusthouse Forte. Trusthouse Forte Food Services, Inc. is the largest food service vendor in New Jersey, and one of the largest in the world.

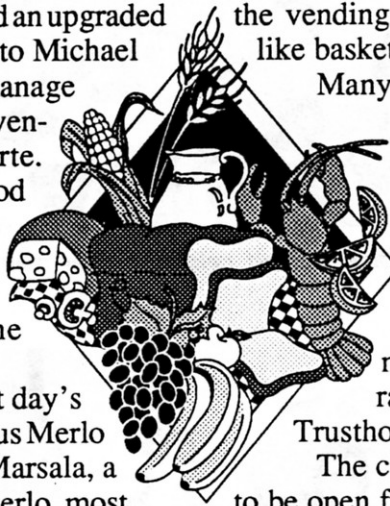
For one of the first day's entrees, new chef Jesus Merlo will serve Chicken Marsala, a speciality of his. Merlo most recently served as chef in the private executive dining room at the New Jersey National Bank Headquarters in Ewing. Previous to that, he was chef for ten years at the Green Acres Country Club in Lawrenceville, NJ.

"New, interesting items will appear on the PPPL menu, but the menu format will remain the same,"

says Manager De Bonis. He adds that prices will remain comparable, although a larger choice of sizes will bring some price changes. De Bonis promises a "fresher look" to the vending area with highlights like baskets of flowers.

Many familiar faces will remain, since the present cafeteria staff may choose to stay on as employees of Trusthouse Forte. Current chef Clarence King will move on to a temporary assignment with Trusthouse.

The cafeteria will continue to be open from 7 a.m. to 3 p.m., with breakfast between 7 and 8:40 and lunch between 11:30 and 1:30. Coffee, tea, sodas, fruits and pastries will be available during the morning. From lunchtime on, beverages, popcorn, cookies, pretzels, ice cream, and one flavor of frozen yogurt (either low fat or nonfat) will be available until 3:00.



Spitzer to Speak

At 4:15 p.m. on Wednesday, April 10, Dr. Lyman Spitzer, Jr. will speak on "Results from the Hubble Space Telescope," which was launched April 24, 1990. In 1946 Spitzer, who is Emeritus Professor of Astronomy at Princeton University, published the paper "Astronomical Advantages of an Extra-Terrestrial Observatory." It described many of the goals for which the Hubble Telescope is designed and which he later worked to make a reality. Dr. Spitzer is well known at PPPL as the visionary who initiated Project Matterhorn and became the first director here. The colloquium will be held in M.B. Gottlieb Auditorium.

Call 243-3800 for ES&H Concerns

Do you have a concern about environment, safety or health (ES&H) or other issues at PPPL? If so, you're encouraged to call 243-3800, any time—24 hours a day, seven days a week. This Hotline number (not to be confused with the PPPL newsletter) was put in place during the Tiger Team visit by the Department of Energy's Princeton Area Office. It has been retained for PPPL employees, who are encouraged to report concerns to PPPL first, so that the Lab may be afforded the opportunity to take corrective action to resolve any problems.

John Peoples—a Snapshot

"The best thing about this job is the variety," says John Peoples, who has been shooting pictures around PPPL since 1958. Peoples, whose retirement dinner was held March 27, has obviously loved being a photographic "jack-of-all-trades" (and master of many).

Peoples describes his many-faceted job, by saying, "Naturally, I've done hundreds of tabletop shots of equipment. They're typically designed for use by engineers who need to see all the details. I've also occasionally done aerial work, and there's been plenty of construction, groundbreaking, and industrial photography. I've really enjoyed the fact that I never knew what kind of job might come in next."

"I've also done lots of people shots—from ID pictures, to portraits, picnics, tour groups, and even dignitaries, like Jimmy and Rosalyn Carter, Neil Armstrong, and Tito. I escorted Phil Donahue around when he was here on a video shoot," he notes.

Any one of these areas of photography is considered a special professional field that requires unique know-how. Yet John has done them all, and done them well. Charlie Bushnell, Senior Engineer, has been one of Peoples' best customers over the years. He says, "John always got the job done—sometimes against great odds. I've seen photo journalists from *Time* and *Life* come in here with Hasselblads, and yet John has come out with shots that were as good or better using only basic equipment."

Bushnell remembers many times when Peoples shot painstaking sequences of photographs illustrating each step as a machine was assembled. "No matter what John was shooting, the results were outstanding," he notes.

John Peoples comes close to being the "Founding Father of Photography" at PPPL. In 1956, after working for the *Trentonian* news-

paper, he joined the photo lab at Forrestal Research where gas dynamics and jet propulsion were studied. But after two years, when the top secret Project Matterhorn was funded through the Forrestal group, he moved into the plasma physics area.

"There was one other photographer here before me for about six months. He kept his negatives in a cigar box, so I guess you could say I put the photo lab on a more professional footing." Peoples remembers his first photo here—it was of the bust of James Forrestal at what is now A and B sites. He observes, "That statue is the only thing still standing that was here then.

All the buildings have been torn down, including an accelerator that lost funding."

Photographer
Dietmar
Krause
has



On the other side of the camera for a change, John Peoples, Photographer at PPPL since 1958, poses for photo.

Photo: Dietmar Krause

worked with Peoples since 1973. "John usually handled the photography while I stayed in the Photo Lab," he remembers. "At one time each of us had an assistant, and there were a total of five on our staff. Getting everything done took a lot of coordination, but John is easy to get along with, so we always worked things out."

Rumor has it that in earlier years John Peoples was something of a hotrod—owning three Corvettes at different times, a white one, a red one, and a gold one. Sailboats, camping with his wife, son and daughter, and fishing have also been favorite pastimes.

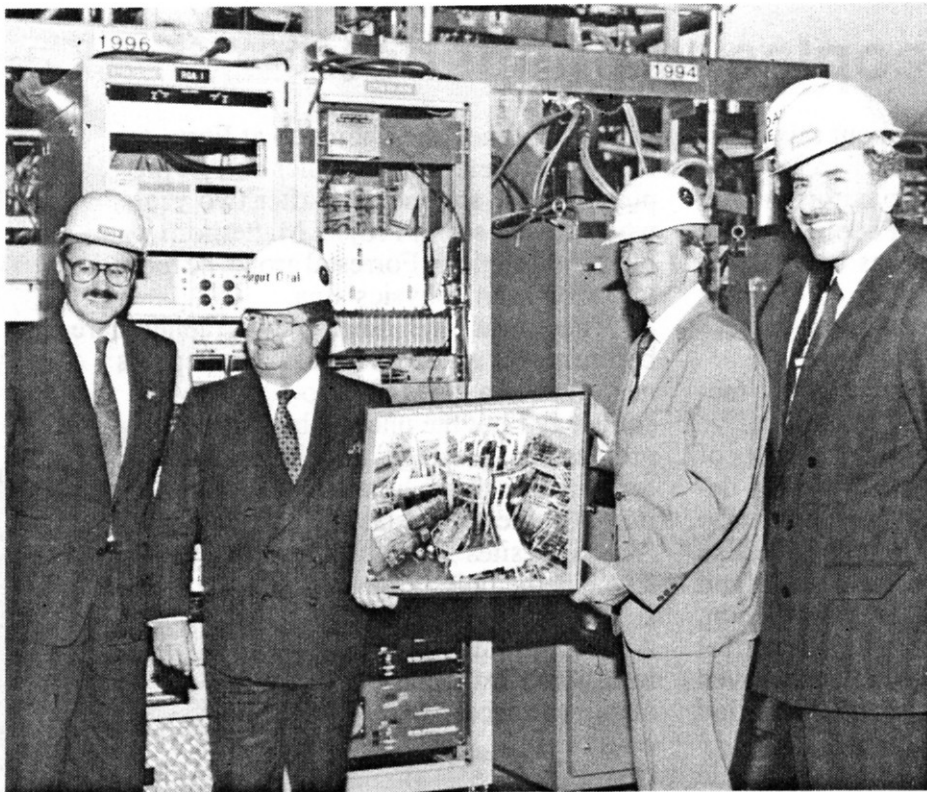
This spring, Peoples looks forward to some trips out into the Atlantic for bluefish, but it's doubtful he'll be able to stay away from photography long. "I'll sure miss the equipment I've had here at the

Lab," he observes. "It'll be back-to-basics with my home darkroom and equipment, but I'll still be out shooting little league games, weddings, Bar Mitzvahs and family gatherings, as well as doing some industrial photography."

Photographer Peoples will certainly be missed around the Lab. "He has a great memory for names and faces," notes Dietmar Krause. "When people call and want to know about sites and photos of people, he's been able to easily pick them out because he knows everybody."

Dale Meade, Head of Experimental Physics, says, "Many people at the Lab are very dedicated, and John Peoples stands out as one of them. When the Lab has needed his services—from shots of technical documentation to dignitaries, you could absolutely count on him to be there."

What's Happening at PPPL?



PPPL Director Ron Davidson presented Turkish President Turgut Özal with a photo of TFTR when Özal toured the TFTR facility during his visit to the University on March 28th. PPPL was the first stop of a day-long visit to Princeton for Özal, who holds a Master's degree in Electrical Engineering from Istanbul Technical University.

Photo: John Peoples

Warkala Certified by NCMA

Sharon Warkala, Subcontractor Administrator in the Procurement Division, was recently awarded certification by the National Contract Management Association (NCMA), according to Rodney Templon, Manager of Subcontracts. He commented, "Through taking a rigorous six-hour essay test, Sharon has demonstrated the depth of her knowledge and experience in the procurement profession, and we want to be sure she gets the recognition she deserves."

Sharon is justifiably proud of her accomplishment, noting that the NCMA is a nationwide organization and that their certification is a standard of excellence well-regarded in the profession.



Johanna Van Wert, new writer for HOTLINE, looks forward to meeting you, hearing your story ideas, and developing articles that are interesting to you. Please call 2757 with your input.

Photo: John Peoples

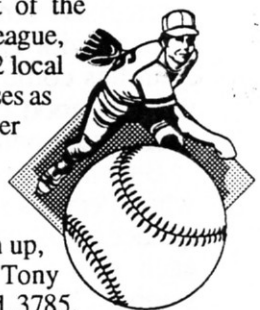
Softball Teams Recruiting—Everyone's Welcome!

There's a place for everyone on the PPPL softball teams, regardless of age, gender, or level of experience. For newcomers, and those men and women who play just for the fun of it, the B team offers you plenty of enjoyment and relaxation. For the "heavy hitter," the competitive A team will give you a chance to test your mettle. In fact, the PPPL A Team has been in playoff games for the past 12 years, according to Bob Raimond of the Computer Division.

Practice started April 2, (but come on out; you're not too late!) All practices and games are Tuesday evenings at the baseball field behind the PPPL Emergency Services Building. Games will begin the end of April.

The PPPL teams are part of the Princeton Business Softball League, which is composed of about 32 local teams, including such businesses as McGraw Hill, Sarnoff, and Carter Wallace, according to Tom Holoman of the Diagnostics Division.

For information and to sign up, call: Tom Holoman, 3221; Tony Bleach, 3621, or Bob Raimond, 3785.



Community Open House

Invite your friends and neighbors! On Thursday, April 18 from 7 to 9 p.m. PPPL will have an Open House for the community, including a presentation on fusion and a tour of the facility.

PROMOTIONS

Susan E. Murphy has been appointed Manager, Certification and Training, reporting to Steven M. Iverson, Head of the Personnel Division. Murphy will be responsible for developing a Laboratory-wide certification and training system and maintaining all training records for the Lab. An important objective for Murphy in her new position is the development of a consistent format and process for all training conducted at PPPL.

RETIREMENTS

Vincent Corso retired February 1, 1991 after 32 years of service. He was a Technical Associate in Technical Operations.

Sidney L. Dorum retired April 1, 1991 after 11 years of service. He was a Storage and Distribution Clerk in Administrative Operations.

Monte A. Frazier retired February 1, 1991 after 26 years of service. He was a Technician in Technical Operations.

Charlotte S. Harrison retired March 1, 1991 after 27 years of service. She was an Administrator in the Engineering Analysis Division of Technical Operations.

Erdman G. Hoffman retired February 1, 1991 after 12 years of service. He was a Machine Technician in Technical Operations.

Walter E. Olkowski retired February 1, 1991 after 10 years of service. He was a Technician in the Heating, Ventilating, and Air Conditioning section of Plant Maintenance and Engineering within Administrative Operations.

Dolores F. Reiss retired April 1, 1991 after 16 years of service. She was an Accounting Assistant in Payroll within Administrative Operations.

Anne M. Romano retired April 1, 1991 after 13 years of service. She was a Laboratory Technician in Technical Operations.

Henry Swiderski retired February 1, 1991 after 12 years of service. He was a Technician in the TFTR Neutral Beam Heating Systems Section.

OBITUARIES

Elizabeth C. Wooden died on March 14. She was employed at PPPL from 1958 until her retirement in 1985.

Safety Training

Use of Fire Extinguishers

April 17, 9:00-10:00 a.m.

Safety Trailer Conference Room

This course trains employees in the different types and uses of fire extinguishers. It provides guidance as to when to try to fight a fire and when not to. A movie is shown along with a discussion period. The hands-on part of the class has been temporarily excluded.

Confined Space

April 18, 1:30-3:00 p.m.

Safety Trailer Conference Room

This course is designed to instruct employees about the hazards associated with confined spaces and the proper procedures for entering a confined space.

To register for safety courses, call Sue Hill, x2526.

Don't Forget Secretaries' Week, April 22-26

Whether it's a card, flowers, a luncheon, or a simple thanks, all those who take care of the details of an office deserve special recognition. Thanks to all the secretaries at PPPL for keeping offices humming around here!

CLASSIFIEDS

For Sale

Commodore 128 Computer—with 5-1/4 inch disc drive, 1200 BPS modum, and printer; software includes games, utilities, and joystick with manuals. Call Stan Troyano, ext. 2199.

13-Inch Color TV—Teknika brand; \$75. Call Sara Flohr, ext. 2882.

Lifetime Fitness Membership—transferable membership to Hamilton Fitness Center in Mercerville includes raquetball, tanning booths, aerobics, Nautilus, saunas, and free weights, inclusive. Monthly fees additional. \$150 value; now \$75 or best offer. Call Ellen, ext. 2424.

1976 Pontiac Grand Safari Wagon—

Runs well, good tires. Asking \$500 or best offer. Call ext. 3372 or 215-493-2302 evenings.



Secretaries' Week

April 22-26, 1991

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Item Description _____

Price _____

HOTLINE, B366, C-Site

HOTLINE

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| Editor: | Carol Phillips |
| Writer: | Johanna Van Wert |
| Layout: | Greg Czechowicz |
| | Terry Birch |
| Photography: | John Peoples |
| | Dietmar Krause |
| Reproduction: | Teri Daynorowicz |
| | Dan Klinger |

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BPX Review Successful

Project moves to next design phase

With the success of the Conceptual Design Review, The Burning Plasma Experiment (BPX) has made it over an important hurdle. "The review panel was very complimentary about the level and quality of the design," said John Schmidt, manager of the BPX project. "We've been working on the conceptual design—looking at various options since 1984, so we're very pleased to now have approval to proceed with detailed design."

For four days, the review panel, experts in plasma physics from the U.S., Japan, the Soviet Union, Great Britain, Italy, Germany, and Canada, deliberated over the design. Chaired by Lee Barry of the Oak Ridge National Laboratory,

the members, observers, and assistants involved met here from March 25-28.

About half the BPX team are PPPL personnel, with the architectural engineering firm, EBASCO, also located here. Other team members are from the Massachusetts Institute of Technology, Oak Ridge, Los Alamos, Idaho National Engineering Laboratory, and various universities and industries.

To prepare for the review, BPX staff expended intensive effort to complete the design, cost estimate, and schedule development. The fact that 6,000 pages of documentation were made available speaks to just how big a job the preparation was. However, the effort was well

Continued on page 2

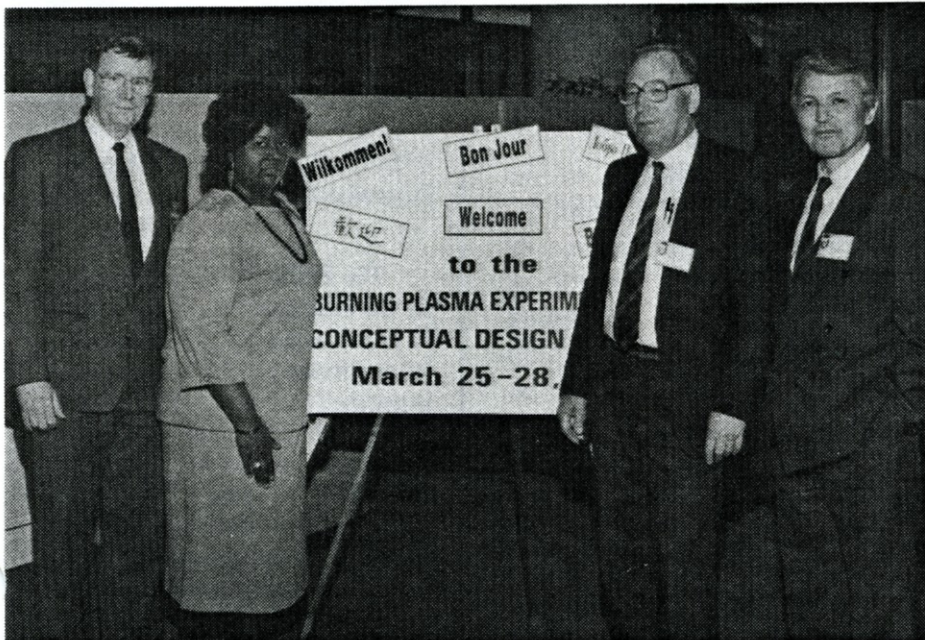
Secretary of Energy to Speak to Staff

Science education highlighted

Secretary of Energy James D. Watkins will speak to the entire staff at PPPL on Thursday, May 2, following a meeting with University President Harold Shapiro and a tour of TFTR. The tentative time of his talk is set at 4:45 p.m. in the M.B. Gottlieb auditorium. His visit here was prompted by the positive report on PPPL that he received from Tiger Team Leader Susan Brechbill.

Earlier in the day, Secretary Watkins will address students at the Trenton Franklin Elementary School, one of the schools participating in the PPPL Science Education Partnership and the District's science magnet school. He will also present certificates to all science fair winners in the school system and meet some of the Trenton teachers who participated in last summer's science education activities at the Lab.

The PPPL Science Education Program was highlighted as a "Noteworthy Practice" in the Tiger Team Report and is of special interest to Secretary Watkins. Through the Partnership with Franklin, speakers from the Lab have visited the school, and equipment has been donated. In addition, students have come to PPPL for presentations and a tour. ■



From left to right: Dr. Hans Conrads, TEXTOR; Gail Lynne Marshall, Receptionist for BPX Project; Dr. Roberto Andrear, Frascati; and Dr. Engler A. Azizov of I.V. Kurchatov, at the BPX Conceptual Design Meeting.

Photo: Dietmar Krause

BPX Design Successful

Continued from page 1

worth it, according to Bob Simmons, Head of the Project Control Section of BPX. He notes that this review is a key element in obtaining construction review by Congress, adding, "We couldn't be more pleased with the results."

The review panel was to answer five questions presented to them by the Department of Energy (DOE). The questions relate to soundness of design, capacity to perform, costs, recommended changes, and other comments. A brief summary of the panel's answers is given below.

- The physics design is sound and is likely to achieve the project's objectives.
- The engineering approach for the BPX device is well-conceived and provides a sound basis for detailed design.
- The cost estimates for the project are sound, with some need for adjustments on the subsystems level.
- Timely development of the project is crucial, because of its importance to the progress of international work in fusion. It is therefore recommended that funds be made available to accelerate the process.
- All reasonable design and physics options should be kept open, so that they remain viable as understanding evolves.

In addition to these points, the panel offered about 100 documented comments (chits) that can be incorporated as part of the next design phase. Schmidt says, "We are enthusiastically beginning to lay out plans to complete the next phase, which is Preliminary De-



BPX TF COIL CENTER LEG PLATE

BPX reviewers, observers and assistants, and Princeton Area Office and Department of Energy personnel with the BPX Toroidal-Field Coil Center Leg Plate. The plate is the first of its kind to be made at full scale. Its production demonstrates that it can be done. It will be cut up and tested against BPX requirements.

Photo: Dietmar Krause

sign. Each subsystem will have its own design schedule, and the entire process is expected to be complete within two years."

Schmidt also observed that the excellent results of the review provide the atmosphere needed to build up engineering expertise to the level necessary for final design, scheduled to begin in fiscal year 1993, and construction, scheduled to start in July of 1994.

The positive response to the project is summarized by John W. Willis, Director of the Division of Confinement Systems, Office of Fusion Energy, Office of Energy Research. In a letter to John Schmidt, dated March 29, he says, "I would like to express my appreciation to you and the whole national design team for the work that went into developing and presenting the Conceptual Design for the Burning Plasma Experiment. We recognize the magnitude of the dedicated and conscientious effort

by the team in bringing about what I believe was an extremely successful review of the Project...the entire Project team should take great pride in the accomplishment of this significant milestone. Well done!"

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Dori Barnes Honored

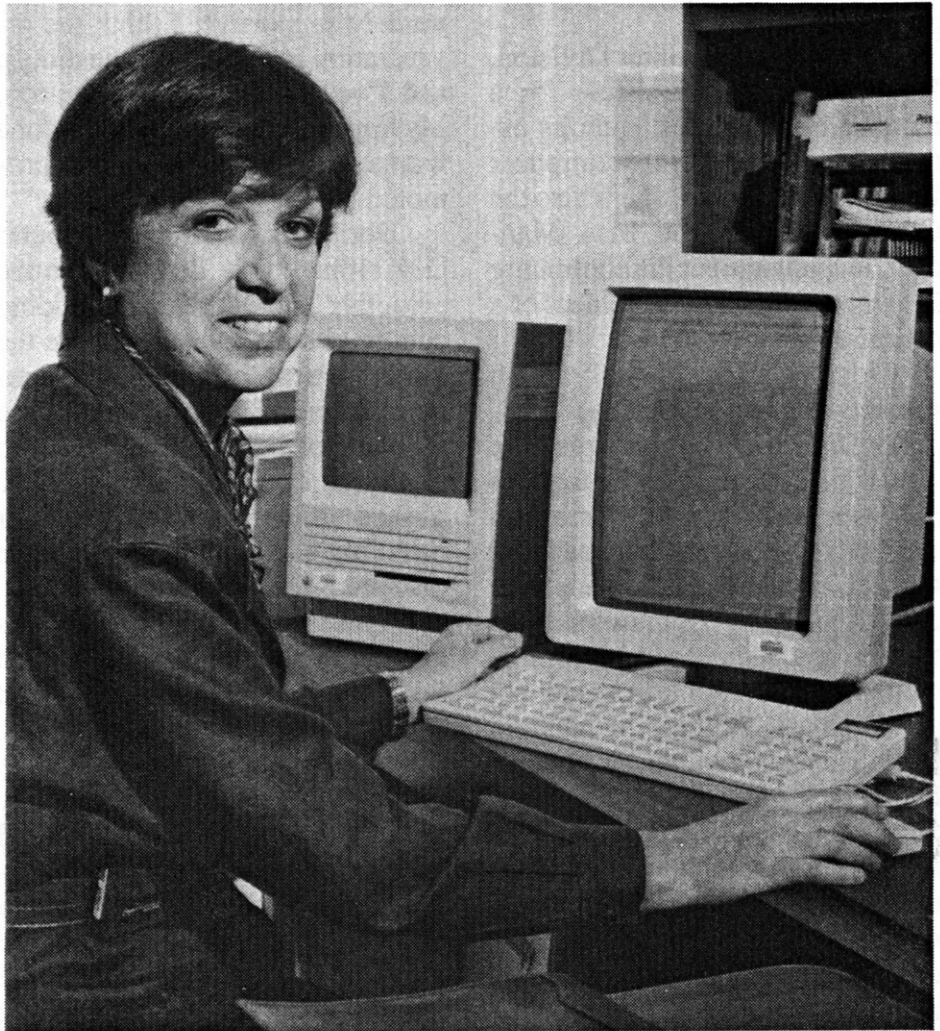
TWIN recognizes career achievements

Dori Barnes, Head of the Computer Division at PPPL, recently received the 1991 Tribute to Women in Industry (TWIN) Achievement Award. TWIN honors women who have made outstanding contributions in their fields and simultaneously recognizes employer firms that have made such success possible. TWIN, a nationwide program of the YWCA, is in its eighth year in the Princeton area. Says Director of Personnel Steve Iverson, "Dori is a most dynamic and respected manager. She truly deserves this award, and I think it's great she won."

A sample of titles of others who have won the award in the past include: Head, Consumer Electronics/Integrated Circuits Research at David Sarnoff Research Center; Director, Geopolitical Industry Issues, Bristol-Myers Squibb; and Treasurer, Rhone-Poulenc, Inc. "A record number of highly qualified women were nominated this year, making the selection of honorees difficult," said Shirley M. Bishop, Chairperson of the TWIN program.

Dori Barnes is well-known and well-liked at PPPL. The Head of one of the largest divisions at the Lab, she manages a staff of 70 engineering and technical staff, with a budget of \$10 million. She handles long-range technical and staff planning for three computer centers containing \$15 million worth of computer hardware.

During her 13 years at the Lab, Dori has served in several roles in the computing area. She started in October, 1977 as a Software Engineer, eventually becoming Section Head for Diagnostic Applications. She moved up to Deputy Branch Head of Software and then to Branch Head of Computer Opera-



Dori Barnes, TWIN award honoree, with the tools of her trade. Photo: Dietmar Krause

tions before achieving her present position.

Comments around the Lab concerning Dori's professional and personal abilities stand out as particularly positive. "She's a super person, with excellent skills. I have nothing but praise for her and her work," says Ginny Zelenak, who was formerly her secretary and is now User Support Coordinator for the Microcomputer User Support Group.

Paul Funk, Manager of Systems Planning and Integration, notes, "I've known Dori a long time, since we've been in the same department

our entire PPPL careers. She's down to earth and not threatened by her subordinates. In fact, she takes advantage of their strengths and really encourages them. She treats everyone as a human being."

That thought is often re-echoed when people describe Dori. "She's always looking out for people," says Sue Murphy, who was recently promoted to Manager of Certification and Training. "She runs an efficient organization, but what makes her such an outstanding manager is that she's more con-

Continued on page 4

Dori Barnes

Continued from page 3

cerned with people than with things."

Within the Computer Division, Dori has been responsible for a number of initiatives, such as establishing The Microcomputer User Support Group. She is also the Computer Protection Plan Manager, responsible for the continuing development and management of a computer security plan.

Dori is often involved in projects that go beyond the Computer Division. For example, she received accolades for the innovative, energetic way she approached the 1990 United Way Campaign at the Lab. Under her direction, the campaign was cut from two months to two days. Preceded by significant publicity, the campaign resulted in a significant increase in funds donated and an increase in number of employees who gave. Says Murphy, "The way Dori ran the United Way Campaign is a good example of her overall style. She's not afraid to experiment with new approaches. Her attitude is, 'Why not? Let's try it!'"

Sometimes her additional projects take up a significant amount of Dori's time. For example, she recently chaired three grievance panels. The panels review employee challenges to dismissal or disciplinary actions. Grievance panels are given top priority, according to Dori. She also serves as Sexual Harassment Officer and is on the Hay Committee, which evaluates administrative job descriptions. Yet she still makes time to work with her Division to mentor high school students and college coop students who work at PPPL.

In reflecting on her rise through the PPPL organization, Dori observes, "It hasn't always been easy,

but some people have been extremely supportive. I think the organization has learned some things, and I've done some learning too. My hope is that it's now easier for a woman to be recognized and promoted than it was 13 years ago."

Dori's vision for the Computer Division is to develop more proactive approaches to providing computer services, such as the establishment of the Microcomputer Users' Support Group. She says one of her current goals is to establish a strategy and begin a phased implementation plan for installing and supporting lab-wide computer connectivity.

If her success in meeting this goal is typical of her success in fulfilling personal aspirations, it will probably happen. She says, "Two of my goals have been to break 100 at golf and to visit all fifty states. Now I've broken 100, and I only have one more state to go—Alaska." Knowing Barnes, she will probably soon visit the land of the midnight sun, lower her golf score while she's there, and at the same time make a lot of new friends.■

A dinner honoring the TWIN award winners will be held on Thursday, May 16, at the Princeton Marriott. Tickets are \$65, and reservations can be made through Mary Ann Brown at extension 3045.



CLASSIFIEDS

For Sale

Ladies' Clothing—size three, like new. BO. Call Carol Hirschman, ext. 3529.

1976 Pontiac Grand Safari Wagon—runs well, good tires. \$500 or BO. Ext. 3372 or evenings 215-493-2302.

Vintage Coke Machine—ideal for recreation room; holds small bottles; takes dimes. \$50 or BO. Ext. 2757 or 609-895-0468, evenings.

Space Heaters—one never-used rectangular kerosene heater, store price \$100, asking \$50; one like-new radiator-type electric heater on wheels; store price \$75, asking \$35. Ext. 2757 or 609-895-0468, evenings.

Moped—Batavus; good condition; needs throttle cable and pedals. Asking \$100. Call Dave Hwang, Ext. 2790.

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What's Happening at PPPL?

NJ Commission to Meet at PPPL

The New Jersey Commission on Science and Technology will be at PPPL for their annual meeting on Tuesday, April 23, according to Assistant Director Rush Holt. The goal of the Commission is to encourage investment that will support scientific and technological endeavors in the state. "The Commission is also committed to working with federal laboratories to stimulate technology transfer activities," according to Associate Director of the Commission Joe Montemarano.

One Commission project has been the sponsorship of the April, 1991 advertising supplement to *Scientific American* magazine titled *New Jersey: the Invention State, Technology for Economic Growth*. This publication includes a discussion of the X-ray laser microscope technology developed here at PPPL.

The Commission includes 17 representatives of public and private businesses and industries as well as legislators, and is chaired by Dr. James F. Mathis, former Vice President for Science and Technology at Exxon. The Vice Chairman is former Chairman of the Board at Bell Laboratories Dr. William O. Baker.

According to Holt, "We invited the Commission to meet here so that they will get to know PPPL better." Commission members and other attenders will have an opportunity to tour the Lab during the day.

Visiting Scientists Needed in Local Schools

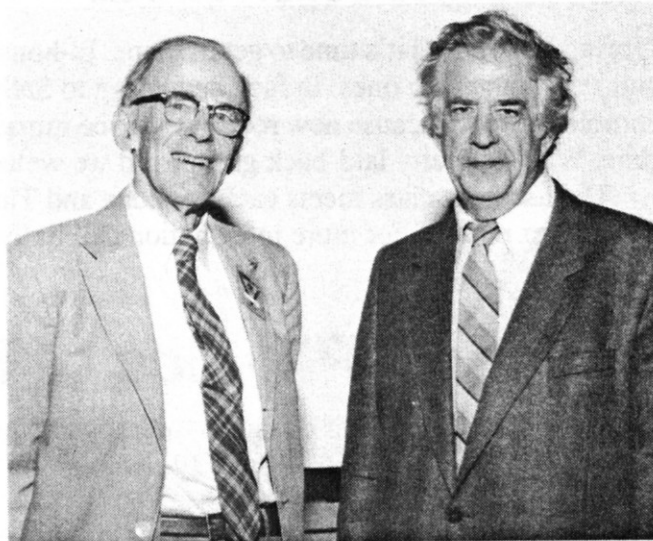
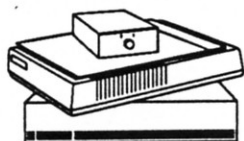
Children are more likely to pursue scientific activities if their interest is stimulated at an early age. That's why three West Windsor elementary schools are starting a Visiting Scientists Program for children in grades K through six, according to Deborah Cohen, Science Consultant and project coordinator for the schools.

"This is an excellent opportunity for PPPL research, engineering, and technical staff to serve the community, especially those who have children in these schools," notes Diane Carroll, Head of the Science Education Program here. She adds, "Speakers may choose a topic of interest to them—whether it be job or hobby-related. Some topic ideas are: fusion, lasers, magnets, energy, electricity, and electric circuits."

Opportunities to speak are available both this spring and during the fall school term. Please call Diane Carroll, extension 2107, for sample activities, materials, and equipment. To sign up for the program, call Deborah Cohen at 275-4742.

Products Show

On Thursday, May 9, a Tektronix Multi-Division Product Show will be held in the second floor LOB Commons area from 9:30 a.m. to 3:00 p.m. State-of-the-art products will be on display, including: digitizers, spectrum analyzers, logic analyzers, pulse generators, and graphic terminals. Engineers and other interested staff are invited.



Dr. Lyman Spitzer, Jr. (left), founder and first Director of PPPL spoke on "Results from the Hubble Space Telescope" on April 10. He is shown with Wolfgang Stodiek, Co-chair of the Colloquium Committee. Photo: Dietmar Krause

American Soldiers Still Need TLC Packages

The Persian Gulf War may be over, but between 200 and 300 thousand American soldiers remain in the Saudi Arabian desert. Undoubtedly they miss the comforts of home more than ever. Marilyn Hondorp and Barbara Sobel are continuing Operation Desert Help—collecting items and sending care packages to American soldiers.

Marilyn says, "Since the war ended the soldiers get less media attention, and we tend to forget that they still need our packages as much as ever. We'd like to send a package every month until at least July, and we hope everyone will contribute as generously as they have in the past."

Because sand fleas get into their clothing, the soldiers appreciate having flea collars to wear around the tops of their boots. **Unscented** soaps and creams are best, because perfumed items attract snakes. Please avoid items that are religious in nature, and do not gift wrap. Also, stay away from meltable items and those that contain alcohol.

Please deliver your contributions for the next package by Friday, May 10 to either Marilyn Hondorp in LOB368, ext. 2656, or to Barbara Sobel in LOB374, ext. 2602. Pickups can also be arranged.

Here's a list of items that would be especially appreciated:

- | | | |
|--|---------------------------------|------------------|
| • Flea Collars, Unscented | • Thermal Long Underwear | • Stationary |
| • Flea Repellant | • T-Shirts | • Envelopes |
| • Chapstick | • Videos | • Stamps |
| • Sunblock | • Blank Cassettes | • Instant Tea |
| • Skin Lotion, (especially with aloe) | • Music Cassettes | • Instant Coffee |
| • Baby Powder | • Batteries for portable radios | • Creamora |
| • Wet Wipes | • Playing Cards | • Kool Aid |
| • Toilet Paper | • Pens and Pencils | • Tang |
| • Personal Hygiene Items | • Crossword Puzzles | • Cookies/Snacks |
| | • Softballs | • Hard Candy/Gum |
| | | • Dried Fruit |

Join Aerobics

New routines begin April 29

Spring is here, and it's time to get in shape. In-house aerobics is a convenient, fun way to break your old routines and start some new ones. In fact, according to Sally Connell, Monday, April 29 is an excellent time to join the aerobics group, because new routines will be introduced. However, she adds, "You can really join aerobics any time. We're a pretty laid-back group, and we welcome newcomers."

The aerobics class meets each Monday and Thursday from 5:15 to 6:15 in the LOB Commons. The cost is \$32.00 per month. For more information call Sally Connell at 3206.

Wanted—Physics of Fluids Classics

Back numbers of Physics of Fluids—reasonable price paid for these issues: Vol. 1 to Vol. 3 (all); Vol. 7, No. 6; Vol. 9, No. 9; Vol. 10, No. 4; Vol. 12, No. 8; Vol. 13, No. 6 and No. 8; Vol. 15, No. 3 and No. 9; Vol. 16, No. 8. Call S. Yoshikawa at ext. 2497.

Secretary of Energy Watkins Speaks to Staff *Sees Fusion as Hope for the Future*

"I'm convinced that fusion is one of mankind's hopes for survival," Secretary of Energy James D. Watkins told a crowd of nearly 400 PPPL staff members during his visit here May 3. Seeing an urgent need for a vision of fusion as an important future energy source, Watkins asked scientists at PPPL to "get vocal" and "put the excitement back in fusion." Otherwise, he fears that future budget caps could "pull defeat from the jaws of victory." He

asserted, "We have to...make sure we don't mortgage the future of this country based on year-in and year-out budgetary concerns."

Of the work here, he said, "TFTR represents a happy marriage between theory and applied technology—the vision to believe we can harness the power of the stars linked with practical acumen and technical expertise." He added, "Albert Einstein would be delighted to see where you're headed today."

Watkins congratulated PPPL on the track records being set on the road to fusion energy, noting that the National Energy Strategy viewed the Laboratory as "technically mature" and ready to move forward with deuterium-tritium.

International Collaboration

"We will need international collaboration in funding and scientific effort to bring fusion research to fruition, so we will have to pull together in a new way," Watkins observed. "You'll see much more effort on our part to bring that about."

Watkins noted that fusion is now in transition from three decades of research to a goal-oriented, cohesive development program—moving through a continuum from TFTR to the Burning Plasma Experiment (BPX) to the International Thermonuclear Experimental Reactor (ITER). He sees the future of fusion energy research as close on the horizon, suggesting that by 2015 feasibility can be proved, by 2025, an operational model can be built, and by 2040 fusion can be available commercially.

As plans unfold, Watkins emphasized the need for early industrial involvement so that commercial enterprises will later have the expertise necessary to make fusion available in the United States. For example, he suggested that by investing 80 percent of BPX dollars in industrial involvement, Ameri-

Continued on page 2



Photo: James Faczak

Secretary Watkins (second from left) presented the Award for Outstanding Safety Achievement to TFTR staff representatives Larry Guttadora (left), Kris Gilton (holding the award), and Mike Anderson. David T. Goldman, Acting Manager of the Department of Energy's Chicago Operations Office, is at right. The award reads, "In recognition of the Tokamak Fusion Test Reactor Project staff's dedication to safety, evidenced by 1,500,000 work-hours without a lost-time accident."

Secretary of Energy Watkins Speaks

Continued from page 1

can commercial motivation can be strongly encouraged.

Safety First

During a tour of TFTR before his talk, Watkins had presented a Safety Award to the TFTR staff for their superior record of no lost-time accidents since October, 1987. He was also shown CAMEO (Computer Aided Management of Emergency Operations), which was designated as "Noteworthy" in the Tiger Team Report. CAMEO significantly aids workers in locating potential hazards during an emergency.

"Worker health and safety are *not* peripheral," Watkins asserted during his talk. He congratulated PPPL on a "very good professional exchange" with the Tiger Team staff. "You are the first to get the message, other than Lawrence Berkeley," he said, expressing his ap-

proval of the 72 percent accuracy rate the Laboratory had in the self-assessment process. He is pleased that PPPL already has an Action Plan in place for correcting problems and looks forward to the time when the Lab has a 90 percent accuracy rate in Self-Assessment. Then, he noted, DOE visits can be less frequent.

Educating Students, Educating the Public

Referring to his visit to Franklin Elementary School in Trenton earlier in the afternoon, Watkins said, "I was witness to heartening evidence of PPPL's involvement in science education at the precollege level." He noted that the Laboratory has made a significant contribution to several schools, and urged further action, "so that our potential Einsteins don't languish unnoticed." He also emphasized the need

for *all* students to receive a strong foundation in basic science and for teachers to receive ongoing support.

Watkins ended his talk by once again encouraging the audience to speak out for fusion. "I can't do it alone," he said. "Help me to educate the larger body politic. Make your views known to your senators and Congress people, and speak to delegations around the country. You're respected by those who hold the purse strings and by the media. Support me in the fight to continue fusion as the hope for mankind's future." ■

A video of Secretary Watkins' talk will be shown on Tuesday, May 14, at 11:30 a.m. and 12:15 p.m. in the MBG Auditorium. Videotapes of the talk are available for loan through the Photo Lab, ext. 2090.

Van Allen to Give Ellis' Memorial Lecture

James A. Van Allen will give the Robert A. Ellis, Jr. Memorial Lecture on Wednesday, May 15, 1991 at 4:15 p.m. in the M.B. Gottlieb Auditorium. He will speak on "The Magnetospheres of the Planets." Bob Ellis was Van Allen's first graduate student.

Van Allen is best known for pioneering work on cosmic radiation, carried out by him and his graduate students at the University of Iowa, first (1953) using balloon-launched rockets and later (1958) using small earth satellites. Former PPPL Director Mel Gottlieb was one of his collaborators.

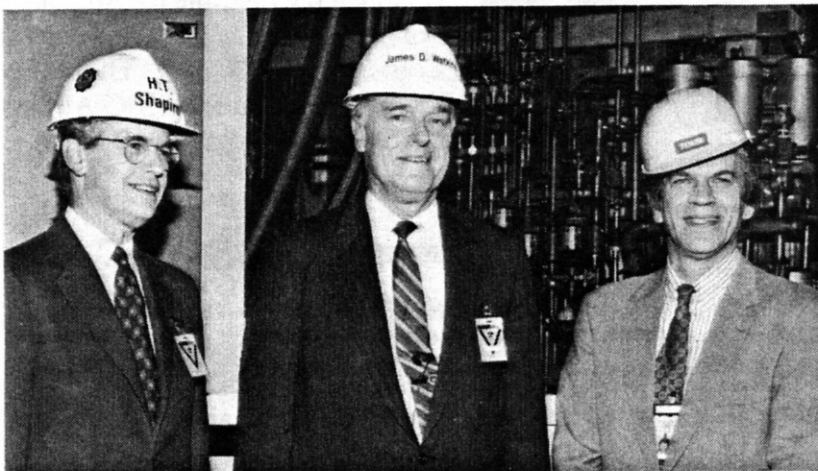
Experiments flown on Explorer I, the first American satellite to orbit the earth, led to the discovery of geomagnetically trapped corpuscular radiation encircling the earth like a belt. This phenomenon was dubbed by Robert Jastrow as the (inner) Van Allen Belt.

Van Allen is editor of *Scientific Uses of Earth Satellites* and a prolific author on such topics as nuclear physics, auroral physics, cosmic rays, solar X-rays, and the magnetospheres of the Earth, Jupiter and Saturn. Van Allen is Professor Emeritus in the Department of Physics and Astronomy at the Uni-

versity of Iowa, where he has served since 1951.

Bob Ellis was one of the pioneers of magnetic fusion research. In 1956, he came to PPPL, then called Project Matterhorn, to begin work in plasma physics. He was Head of the Experimental Projects Division at PPPL, a member of the Laboratory Council, and a Councillor-at-Large of the American Physical Society at the time of his death in December, 1989. During his career, Dr. Ellis served in many capacities related to fusion research both nationally and internationally. ■

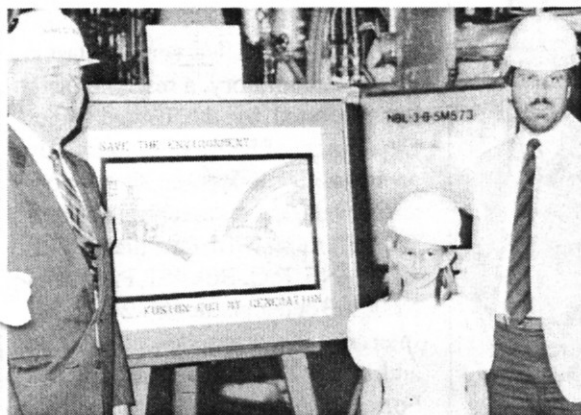
Secretary Watkins Visits PPPL *Highlights*



Princeton University President Harold Shapiro (left) joined Secretary Watkins and PPPL Director Ron Davidson (right) for the tour of TFTR.



Pete Del Gandio (left), Head of Special Projects in the ES&H Division, shows Secretary Watkins the CAMEO system while Mike Spadafora (right), who works with the system, looks on. CAMEO (Computer Aided Management of Emergency Systems) was designated a "Noteworthy Practice" by the Tiger Team.



Christine Williams, winner of a national first prize in the DOE Earth Day Poster Contest for 1990 shows her work to Secretary Watkins during his tour of TFTR.



Photo: James Faczak

During his visit to the Trenton Franklin Elementary School, Secretary Watkins (second from left) watched as science teacher John Hilcovich (left) and students Victor Rodriguez (far right), and Marc Spagnicola demonstrated how an alka seltzer tablet can be used as a circuit breaker in their "flood alarm" science project. Watkins' visit was prompted by the PPPL Science Education Partnership with the school. The Science Education Program here was designated a "Noteworthy Practice" during the Tiger Team visit.



TFTR Project Head Dale Meade (left) discusses TFTR with Secretary Watkins as PPPL Director Ron Davidson and N. Anne Davies, Associate Director, Office of Fusion Energy look on. They are framed by a one-quarter segment mock-up of the TFTR stainless steel vacuum vessel.

Photos: Dietmar Krause

TRANSITIONS

PROMOTIONS

Richard Gallagher has been promoted to Manager, Plant Maintenance and Operations. He was previously a Machine Technical Supervisor in TFTR.

Susan Pontani has been promoted to Supervisor, TFTR Computer Operations. She was previously Senior Computer Operator in the same group.

Edward Simmons has been promoted to Technician VI in the TFTR Neutral Beams Ion Source Assembly Group. He was previously an Electromechanical Technician V in the ICRF Operations Group in TFTR.

Russell Wester has been promoted to Machine Technician Supervisor from his previous position

as Deputy Machine Technician Supervisor in TFTR.

NEW HIRES

James Faczak is Senior Photographer in the Photography Laboratory.

Michael Kalish is a Mechanical Engineer in the Mechanical Engineering Division.

Margaret Kevin is a Data Processing Assistant in the Maintenance Control Branch.

Douglas Matthews is a Janitor in Plant Maintenance.

Deborah Nohstadt is a Secretary in Procurement within the Subcontracts Branch.

George Ochs is a Boiler Operator within Plant Maintenance and Operations.

Coming Colloquium

Wednesday, May 22, Freeman Dyson of the Institute for Advanced Studies will speak on "The Hunt for Comets and Planets." The colloquium will be in the MBG Auditorium and will begin at 4:15 p.m.

CLASSIFIED

FOR SALE—1986 Toyota Celica GT Liftback. Black, five speed, 47,000 miles; new tires, am/fm, cassette, air conditioning, cruise control, power pack; asking \$6800. Call Kenny Silber, ext. 2544.

Don't Forget Our Troops!

Please bring your contributions, ASAP, for a Care Package to be sent to Saudi Arabia to Marilyn Hondorp, LOB 368, ext. 2656, or to Barbara Sobel, LOB374, ext. 2602.



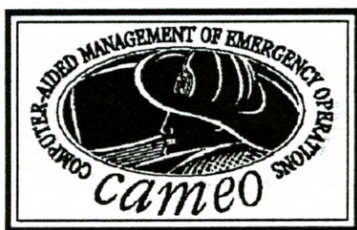
Recently hired employees enjoy a moment in the sun of the PPPL C-Site Courtyard. Left to right are: (front row), Margaret Kevin, Deborah Nohstadt, and George Ochs; (second row), Douglas Matthews, Jim Faczak, and Michael Kalish.

Photo: Dietmar Krause

HOTLINE

| | |
|---------------|---------------------------------|
| Editor: | Carol Phillips |
| Writer: | Johanna Van Wert |
| Layout: | Joseph L. Belica |
| Photography: | Dietmar Krause James Faczak |
| Reproduction: | Teri Daynorowicz Dan Klinger |

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CAMEO Puts Lab at Forefront for Emergency Preparedness

*Designated a Noteworthy
Practice by the Tiger Team*

An electrical fire occurs at PPPL. How do the firefighters extinguish the blaze when water conducts electricity, and they could be electrocuted? Naturally, they throw the electrical breakers to isolate the area. But how can they quickly find the relevant switches, especially when smoke makes it impossible to see? And how can they know what other consequences shutting off the electricity will have?

The answer is CAMEO (Computer Aided Management of Emergency Operations), an emergency operations data base that runs on a Macintosh computer. The fire captain (or other trained operator) sitting in the Command Vehicle has immediate access to the CAMEO and its information.

The fire captain calls up and prints out a map that gives a bird's eye view of the affected area. Another printout shows exactly where the isolating devices are located, and it can be used as a checklist. The fire captain then consults with "qualified electrical persons" who go in and operate the isolating devices, removing the electrical hazard. (They can also retrieve information from CAMEO on how throwing a particular switch will affect overall Laboratory operations—a very serious issue when TFTR is running.)



Mike Spadafora (at the computer) consults with Pete Del Gandio on the many uses of CAMEO to enhance Lab safety.
Photo : James Faczak

Now firefighters can enter the fire zone without fear of an electric shock. At the same time, with the aid of the CAMEO data base, they are made aware of the location of flammable materials, chemicals, and other potential hazards.

With such an important safety role to play, it's no wonder that the use of the enhanced CAMEO program at PPPL was designated a "Noteworthy Practice" by the Tiger Team.

Data at your Fingertips

Peter Del Gandio, Head of Special Projects in the Environment,

Safety, and Health (ES&H) Division, modified and redesigned an existing CAMEO software program to respond to *any* fire or chemical hazard situation that may occur at PPPL, including the firefighting capability described in the above scenario. He explains, "Typically, when a sudden emergency occurs, you don't have all the information you need at your fingertips, and if you have a telephone-book size manual to look through, it's not very efficient. CAMEO helps to

Continued on page 2

CAMEO Puts Lab at Forefront

Continued from page 1

rectify that situation because we can retrieve crucial information within seconds."

Gregg Tompkins, PPPL Fire Captain, notes that the firefighting and safety teams are very pleased to have CAMEO as a resource. "You can call up a list of all the chemicals stored in a given area with their Material Safety Data Sheet (MSDS) information, including potential hazards and remedies. If there's a chemical spill, you can call up a list of the protective clothing required and a map of the storm sewers in the area to see just where the run-off would be. The evacuation zones are also defined."

Tompkins also notes that CAMEO can make a big difference in how quickly and efficiently certain incidents get handled, though it wouldn't be required in every case.

He says, "We have many drills here, especially for the twenty-four TFTR fire zones, and we employ CAMEO information there."

In addition, other emergency management information is also available on CAMEO. Data includes, for example, emergency management plans and procedures, contingency plans, site evacuation plans, and demographic information.

Keeping Current

The job of researching the required information and keeping it up to date is enormous. Jack Anderson of the Emergency Services Unit has been charged with the task of surveying all the sites, room by room, and identifying all potential hazards that could impact employees, fire fighters and/or the environment. Allen Stevens, of AC Power, has been providing all information regarding isolating devices and their impacts to the Lab.

The fact that their work on C-Site took about nine months reflects just how considerable the task of providing that information was. All fire detection and suppression equipment, flammable chemical cabinets and their contents, compressed gas cylinders, cryogenic materials, and electrical components are part of these surveys. Michael Spadafora, of ES&H, reviews all this information, after which he enters it into the CAMEO data base.

To keep information current, hazardous materials will be registered in their current positions. Then, before items such as chemicals and cylinders can be moved, ES&H

must be notified so appropriate updates can be made in CAMEO.

"Developing a CAMEO data base for PPPL is really a vigorous undertaking," observes Tompkins. "It takes dedicated people to build up the information and continually fine tune it." Clearly, Pete Del Gandio and Mike Spadafora are dedicated to CAMEO. In addition, Del Gandio currently serves as president of the Mid-Atlantic CAMEO Users Group. They are willing to pour so much time and effort into it because they understand that during emergencies, accurate, specific information can make the difference between life and death.

Spreading the Word

According to Del Gandio, he originally read about CAMEO in a software magazine ad in 1986. With backing from his boss, Joe Stencil, Deputy Division Head, ES&H, who recognized its potential, Del Gandio ordered the program and has been modifying it ever since.

CAMEO was originally designed as a tool to help local community emergency planners and first responders to safely handle chemical accidents. It was developed by the National Oceanic and Atmospheric Administration and the Chemical Emergency Preparedness Program of the Environmental Protection Agency.

Now, with data custom-developed for the Lab and upgrades that include firefighting information, PPPL's version of CAMEO is at the forefront of Emergency Preparedness for DOE facilities. Perhaps, with the help and expertise from PPPL, other DOE facilities will also be given the opportunity to profit from this truly noteworthy program. ■

HOTLINE

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PPPL Hosts Materials Management Workshop

The 35th Annual Materials Management Workshop, held here April 29 to May 2, brought together Materials Management staff from DOE facilities nationwide. Presentations by PPPL staff included: "Packaging and Transportation," by Chris Gillars, Head of the Mate-

riel Control Division; "Statistical Sampling for Property and Stores Assets," by Trevor Bayes, Property Administration Supervisor, also of Materiel Control; and "The CAMEO System," by Peter Del Gandio, Head of Special Projects in the Environment, Safety, and Health Division.

Tony DeMeo, Head, Information Services, presented an overview of PPPL.

The last time the Workshop was held at PPPL was in 1980, according to Bill McCreedy, Manager of Stores Operations, who hosted this year's Workshop. He observed, "The workshops are an extremely valuable way for materials managers to meet, exchange ideas, and increase expertise about Lab supply functions."

He noted that one of the major topics of the 1991 Workshop was systems contracting. Systems contracting is sometimes referred to as "Just in Time" because needed materials may be shipped to the site only 48 hours before they will be used. One example familiar to everyone is the way office supplies are ordered at the Lab. "Systems contracting cuts down on inventory and storage problems," explained McCreedy. "At PPPL we manage 15 contracts that employ the "Just in Time" concept." ■



Materials Management Staff from DOE Laboratories throughout the US are shown in front of the fountain at the Princeton Marriot during the Materials Management Workshop held here April 29 to May 2. PPPL staff are: Jim Conover, Store Supervisor (second row, third from left), Bill McCreedy, Manager, Stores Operations, and Chris Gillars, Head, Materiel Control Division (third row, fourth and fifth from left, respectively.)

Photo: Dietmar Krause

Volunteer Teachers Encourage Students

Thanks to the efforts of a group of PPPL employees, the Lloyd McCorkle Training School for Boys and Girls, a state-run facility in Skillman for incarcerated youths from throughout New Jersey up to age 18, has a custom-made course in soldering and wiring assembly. On Monday nights, Mark Oldaker and another volunteer, Bill Ludt, (not from the Lab) teach, and on Tuesday nights Gene Baker and Hal Anderson work with the four boys in the course. Gary Damico and Art Kolupanowich are back-up instructors.

Dave O'Neill originated the course three years ago and continues

to coordinate the program. Betty Aramburu, a teacher and the Volunteer Coordinator at McCorkle, remembers, "Dave got the equipment and tools together. All we did was supply the space, lighting, and of course, the boys. And it's been a true success. It's a chance for them to do something that's not available at our school, and they love it."

Gene Baker observes, "I've been pretty impressed with the kids in the course. They are often bright and talented. They've just been steered wrong." Adds Hal Anderson, "The students have endless questions, and even with two instructors to four stu-



Mel Gensamer looks on as Mark follows a wiring diagram.

Photo: John Peoples

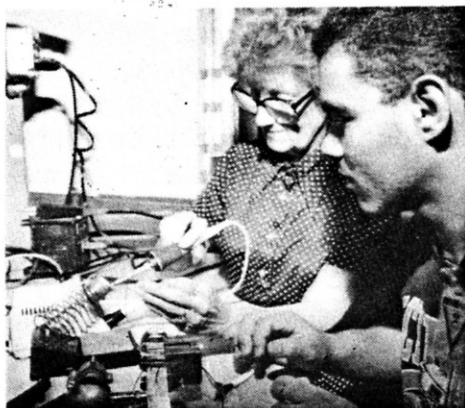
Continued on page 4

Volunteer Teachers

Continued from page 3

dents, it's hard to keep up with them. But the ones who are quicker take pride in helping the others, which supports everyone."

During the course, which spans three months, the students begin soldering training on a "garbage" or practice board. Once they've mastered the basics, they're given boards designed by Mark Oldaker. These boards allow them to develop an operating circuit with eight light-emitting



During their visit to the Lab in December, McCorkle students put the finishing touches on their boards. Madeline Michlowski helps Isaa with his soldering and wiring project. Photo: John Peoples

ting diodes triggered by sound volume.

At the end of the course, students visit the Lab, where they complete the display portion of their projects, working under the direction of Mel Gensamer and Madeline Michalowski in the electronic shop. In addition, Madeline, a M1-STD-2000 Instructor/Examiner category "C," inspects to industrial standards the workmanship of the boys' boards. While here, they also have lunch and a tour of PPPL. This trip has proven to be a highlight of the course.

Some McCorkle students have become so enthusiastic that they have wanted to pursue electronics as a career. The course has become so popular that about 25 youths apply to be in it, although only four can be accepted.

Despite the fact that the volunteers must commit one night a week to the course for three-month periods, they also seem very pleased with the experience. Says Gene Baker, "I wanted to do something in the community, and this is a pretty nice way to do it."

"Other PPPL volunteers are wel-



Volunteer teachers at the Lloyd McCorkle Training School for Boys and Girls are (front) Dave O'Neill, Mark Oldaker; (center) Hal Anderson, Gene Baker; (back) Art Kolupanowich, Gary Damico. Photo: John Peoples

come to become involved at McCorkle," says Aramburu. "We need tutors in reading, math, life skills such as job interviewing, cooking, sewing, and driving. We'd be pleased to have courses in virtually anything that could help them get a job." Dave O'Neill will be glad to talk to anyone who wants to design a course, for example, in home carpentry. For information about volunteering at McCorkle, call Betty Aramburu at 466-2200. ■

Retirees Honored

At the April 18th Annual Retirement Recognition and Awards Ceremony, retirees representing a total of 459 years of service at PPPL were honored.

Those honored included: Harry Anderson, Henry Bornkamp, Uffe Christensen, Hsi Feng, Elsie Ferreras, Helen Glover, John Grabowski, Gil Graydon (posthumously), Sam Hand, George Hill, Willie Mae Holman, Joseph Kittel, Gioietta Kuo-Petravic, Frank Lawn, Paul McCann, Arthur Miller, Henry Miller, Carl Oberman, Chester Ptak, Michael Silvestri, Joseph Solivoda, Joseph Stevenson, Eugene Steward, and Leo Ulatowski.



Spence Holcombe (left), joins recent retirees Marie Steer and Helen Glover in chatting with Ron Davidson (standing), during the reception following the Retirement Recognition and Award Ceremony held at PPPL on April 18. Gary Kater and Bobbie Forcier are seated in the background. Photo: James Faczak

During the ceremony, Director Ron Davidson presented each retiree

with a Seiko mantle clock in recognition of service to the Laboratory.

35 Inventors Recognized at Patents Dinner

"Everything that can be invented has been invented."

—Charles H. Duell, Director of the U.S. Patent Office, 1889

"Heavier than air flying machines are impossible."

—Lord Kelvin, President, Royal Society, c. 1895

"There is no likelihood man can ever tap the power of the atom."

—Robert Millikan, Nobel Prize in Physics, 1923



Twenty-five of the 35 PPPL inventors who participated in the Patent Awareness Program stand behind Prospect House where the annual dinner honoring them was held. Kneeling, left to right are: Tim Bennett, Doug Darrow, Charles Skinner, Roy Rosser, Schweickhard von Goeler, Joe Stencel, Fulvio Zonca, Eric Fredrickson, Mike Vocaturo, Alan Ramsey, and Kevin McGuire; standing, left to right are: Masayuki Ono, Sam Cohen, Greg Lemunyan, John Timberlake, Lew Meixler, Charlie Staloff, Harold Furth, Szymon Suckewer, Larry Guttadora, Joe Bartolick, Ken Hill, Hulbert Hsuan, Nathaniel Fisch, and Shoichi Yoshikawa.

Photo: James Faczak

With these quotations to emphasize the need for optimism and imagination in pursuing inventions, Director Ron Davidson opened his remarks to the tenth annual Patent Awareness Program dinner, held May 14 at Prospect House. The US Department of Energy hosted the dinner, honoring the 35 PPPL inventors who participated in the Patent Program in fiscal year 1990.

During the awards ceremony, Davidson presented each inventor with a Certificate of Recognition. Just before Christmas, the Committee on Inventions presented cash awards to the inventors for their novel ideas. For an invention disclosure, each inventor receives \$100, up to a maximum of \$300 per disclosure. If there are more than three inventors, the award is shared.

Additional monies—\$200 per inventor—are awarded when the Department of Energy files a patent application. For a statutory invention registration, \$200 is awarded each inventor. During fiscal year 1990, inventors were awarded \$4000. More than \$64,000 has been awarded since the program began.

According to John Johnson, who has chaired the Committee since its inception, "The Patent Awareness Program was established to recognize creative inventors, foster invention disclosures, and raise the awareness of Laboratory staff about the importance of patents."

Adds Johnson, "PPPL staff have good reason for giving the patent process serious thought, because in recent years there has been an increase in the possibility of patents

providing economic gain for the University, the Laboratory, and the individual inventor." He observes, "The program was originally provided as a means to encourage the disclosure of inventions as is required by our contract with the Department of Energy. This aspect of the program is still important, and all employees should remain aware of this responsibility."

For fiscal year 1990, one patent and one statutory invention registration (SRI) were issued. An SRI is awarded for an invention that does not have enough commercial value to warrant a patent, but is registered in order to avoid patent by others. Also for 1990, three patent applications were filed, and 13 inventions were disclosed.

Continued on page 2

Inventors

Continued from page 1

Marilyn Hondorp, who is a member of the Committee on Inventions, was commended by Chairman Johnson for her "heroic efforts" in organizing the dinner. Other committee members are: Peter Bonanos, Joseph File, Richard Rossi, Charles Staloff, and Schweickhard von Goeler.

Patent Activity Fiscal Year 1990

Patent Issued

Differential Atmospheric Tritium Sampler

Otto Griesbach
Joe Stencil

Statutory Invention Registration

Method of Sustaining a Radial Electric Field and Poloidal Plasma Rotation Over Most of the Cross Section of a Tokamak

Douglass Darrow
Masayuki Ono

Patents Applications

Fiber Optic Current Monitor

George Renda

Method of Measuring the DC Electric Field and Other Tokamak Parameters

Nathaniel Fisch
Arnold Kritz

An Optically Pumped CH₃OH Laser with a Stark Tuning Capability and with a Fluid-Cooled Cavity

Dennis Mansfield
Michael Vocaturo
Lawrence Guttadora

Inventions Disclosed

Imaging Two-Color Pyrometer

George Renda
Gregory Lemunyan
John Lowrance

Entry Reader

Shoichi Yoshikawa



Members of PPPL Council join members of the Committee on Inventions before the annual Patents dinner at Prospect House. First row, left to right are: Schweickhard von Goeler, Peter Bonanos, John Schmidt, John Johnson, Marilyn Hondorp, Richard Rossi, Paul Rutherford, and Ron Davidson; second row, left to right are: Ned Sauthoff, Rush Holt, and Dale Meade.

Photo: James Faczak

Plasma Momentum Meter for Momentum Flux Measurements

Fulvio Zonca
Sam Cohen
Timothy Bennett
John Timberlake

An Automated Way of Check Sorting

Shoichi Yoshikawa

Bi-directional, Co-axial Sightline Device

Alan Ramsey
Joseph Bartolick

Fast Tangential Soft X-ray Camera for Fluctuation Studies on Toroidal Plasma Confinement Devices

Schweickhard von Goeler
Manfred Bitter
Ray Fonck
Eric Fredrickson
Kenneth Hill
Hulbert Hsuan
Kevin McGuire

Toroidal Magnetic Detector for High Resolution Measurement of Muon Momenta

Peter Bonanos

Impurity Line Fluctuation Diagnostics

Schweickhard von Goeler
Manfred Bitter
Eric Fredrickson
Kenneth Hill
Hulbert Hsuan
Elnar Hinnov
Gerd Fussmann
Kevin McGuire

Multiple Target Conveyor System

David Voorhees

Injection of Electrons with Predominantly Perpendicular Energy into an Area of Toroidal Field Ripple in a Tokamak Plasma to Improve Plasma Confinement

Masayuki Ono
Harold Furth

Reflection Soft X-ray Microscope

Szymon Suckewer
Roy Rosser
Charles Skinner

Linear Position Measurement System

Lewis Meixler

Low Flow Meter

Lewis Meixler

Stencel Appointed to NJ Siting Board

Joseph R. Stencel, Deputy Head of the Environment, Safety and Health Division at PPPL, has been appointed a member of the Low-Level Radioactive Waste Disposal Facility Siting Board. Based on a nomination by his peers in the New Jersey Department of Environmental Protection, Governor Jim Florio made the Stencel appointment, which was then confirmed by the State Senate. In his letter of appointment to Stencel, Governor Florio wrote, "I am confident that you will fulfill the duties and responsibilities of this position with competence and integrity. I am pleased to have you join me in working to achieve the best New Jersey for all our citizens."

The Siting Board was created based on actions by the federal government mandating that all states

must provide their own low-level radioactive waste sites or join compacts that include other states. New Jersey and Connecticut are together in the two-state Northeast Compact.

Since PPPL is a federally funded facility, any radioactive waste generated at the Lab goes to the federal facility at Hanford, Washington. However, the Siting Board decisions will be important to biological research at Princeton University, hospital treatment centers, power plants, industrial users, and others.

Stencel says, "I appreciate the confidence placed in me by my peers and the Laboratory's support of this effort. This Siting Board is one of the more difficult boards to be on because of the NIMBY (Not in My Back Yard) syndrome." He adds, "Being on the board will provide



Joseph R. Stencel Photo: James Faczak

me a new experience in public relations, because we will probably have to deal with some hostile reactions."



All four PPPL Directors were together for the first time when they came to hear James Van Allen give the Robert A. Ellis Memorial Lecture on May 15. At rear are (left) Lyman Spitzer, Jr., founder of Project Matterhorn (later PPPL) and Director from 1951 through 1960, and Melvin B. Gottlieb, Director from 1961 through 1980. In front are (left) Harold P. Furth, Director 1981 through 1990, and current Director Ronald C. Davidson.

Photo: Dietmar Krause

HOTLINE

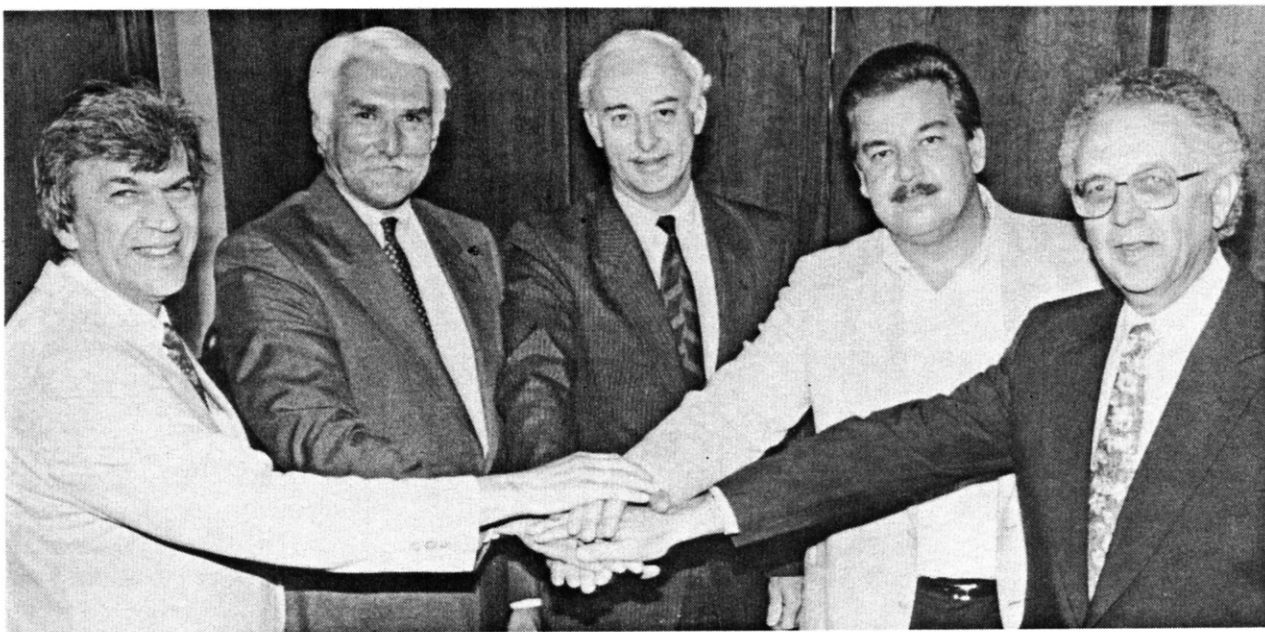
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Staff Get Credit for Business Course

PPPL staff became students during the "Business Organization and Management" course recently completed on Tuesdays and Thursdays at the Lab. Student Betty Carey says, "It's been fun, but difficult, and I learned some things I can use in my job." Such courses, taught through Mercer County Community College, and part of the PPPL Employee Development Program, can be taken for credit—half during lunch hour and half on Lab time. Some students plan to apply their credit towards a degree. Exposure to the subjects taught here may help them decide what they want to major in later.

Richard Myslinski, Dolores Bergmann, and Gloria Cain have a word with Professor Joseph Kasian (right) in preparation for a "Business Organization and Management" test. Photo: Dietmar Krause



The Princeton Plasma Physics Laboratory recently formed a partnership with Mercer County Community College, the General Motors Inland Fisher Guide Division in Ewing, and St. Francis Medical Center in Trenton to participate in a new experimental program to help employees develop skills needed to meet changing technological requirements in the workplace. Called "Skills for Tomorrow—NOW (New Opportunities in the Workplace)," the program is partially funded by a grant from the U.S. Department of Education. Representing the members of the partnership are (left to right): Ronald C. Davidson, Director, Princeton Plasma Physics Laboratory; Patrick F. Roche, President, St. Francis Medical Center; Thomas S. Sepe, Vice President, Chief Academic Officer, Mercer County Community College; Pete Korlanko, Shop Chairman, General Motors Inland Fisher Guide Division; and Robert Bowns, Plant Manager, General Motors.

Fusion Power Associates to Meet Here

Fusion Power Associates (FPA) will hold their annual meeting and symposium June 25-26 at PPPL. The symposium theme is "Fusion Facilities Planning for the 1990s." New facilities capabilities for tritium experiments in TFTR and facilities for the Burning Plasma Experiment (BPX) at PPPL will be discussed.

Other topics include: facilities for the International Thermonuclear Experimental Reactor (ITER); the NOVA laser upgrade; the OMEGA laser upgrade; the NIKE Krypton-Fluoride laser project; and proposed supporting facilities such as a Steady State Tokamak, neutron sources for materials testing, and divertor testing facilities.

Other program options, such as upgraded or new light and heavy ion fusion facilities, will be discussed. In addition, systems and design studies of future facilities such as the Laboratory Microfusion Facility, pilot plant and demonstration reactors, and commercial magnetic and inertial fusion reactions will be on the agenda. For further information or registration, contact Ruth Watkins at FPA, (301) 258-0545.

Bowling Awards

The Princeton University Mixed Bowling League held their ninth annual banquet at MAX's 1893 in Hopewell on May 10. The League champs were the Low Rollers. Here are the final standings.

First Place, **Low Rollers**: Matt Lawson, John Luckie, Kim Prutky, Andy Vanisko, Jerry Siminoff

Second Place, **Half-Keglers**: Keith Sapp, Laura Marshall, Jerry Gething, Lori Camaioni, Don Grove

Third through eighth place teams, in order, were: **Fusion Busters**, **Tornadoes**, **Lost In Space**, **Gutter Dusters**, **Strike Force**, and **Head Pins**.

Next year's Bowling League officers will be: President, Matt Lawson; Vice President, George Renda; Secretary, Elmer Fredd; and Treasurer, Bobbie Forcier. If you are interested in joining the League, please contact one of these officers.

New Jersey's 11th District Congressman Dean Gallo (third from right) recently visited the Lab and toured TFTR. Because of Representative Gallo's strong support as a member of the Energy and Water Subcommittee, the House Appropriations Committee recommended that the President's request of \$337.1 for fusion energy in fiscal year 1992 be approved by the House of Representatives. Full funding was approved on May 29. Shown with Congressman Gallo are (left to right): Nan Wells, Director of Princeton University's Office of Governmental Affairs; Rich Hawryluk, TFTR Project Head; Dale Meade, PPPL Deputy Director; Representative Gallo; Ronald Davidson, PPPL Director; and Rush Holt, PPPL Assistant Director.

Photo: Dietmar Krause



TFTR in *National Geographic*

An article on nuclear energy, by Peter Miller, is planned for the August 1991 *National Geographic*. The story is expected to include a photo of the TFTR vacuum vessel.

Blood Tests

The Occupational Medicine Office recently began providing blood studies tests on Wednesday mornings between 8:30 and 9:30 a.m. A phlebotomist from Roche Laboratories comes onsite to draw the blood.

Persons interested in having their blood tested must make an appointment and must have had a physical at the Laboratory in the last

six months. Participants will be required to fast from 12:00 midnight until after the blood has been drawn. For more information and/or to make an appointment, call the Dispensary at extension 3200.

Animals Need Your Help

A local state-licensed wildlife refuge needs your old blankets and towels for animal bedding. The animals also enjoy Apple Jacks and Fruit Loops cereals. Can you contribute? For more information or help relocating problem wildlife, contact Sara Papier at 799-2422 or Marilyn Hondorp at ext. 2656 (evenings at 426-0372). Marilyn also has discount forms for having your pet spayed or neutered.

For Sale

Air Conditioners—Beat the summer rush! Two nearly new units—one a window unit using standard house current; the other a sleeve unit using 220 Volt service, 8,000-10,000 BTU range. Both having original boxes. Discount price on purchase of two. Call Don at 3717.

Buy, Sell, Trade or Give Away

Send your ad to **HOTLINE**

Name _____

Extension _____

Item _____

Price _____

HOTLINE, B366, C-Site

TRANSITIONS

Promotion

Dietmar Krause has been promoted to the position of Head of Photographic Services.

Transfer

Sue Hill has transferred to the Personnel Division. She will be working for Sue Murphy in Certification and Training.

Retirement

Marie Steer, Inventory Control Coordinator in Materiel Control, officially retired on June 1, after 10 years of employment at PPPL.

Thank You

I would like to thank everyone for their cards, gifts, and best wishes given in honor of my retirement.
Marie Steer

Remember JUNE 16;



It's Father's Day!

Grad Students Receive Honors

Two PPPL graduate students in the Astrophysical Sciences Department, Alex MacAulay and John Reynders, have been honored for outstanding achievements during their graduate studies, according to Thomas Stix, Director of Graduate Studies at PPPL. "We're delighted to have this recognition of excellence from the University for two of our students in the plasma physics program," said Dr. Stix.

MacAulay Awarded Procter Fellowship

MacAulay has been awarded a Charlotte Elizabeth Procter Fellowship for 1991-1992. Only 11 honorific fellowships from Princeton University are awarded yearly. The Procter Fellowship is designed both to recognize outstanding performance and to provide a stipend to support the completion of the degree.

MacAulay's thesis advisor, Steve Cowley, commented, "Alex is a bright, innovative, and independent thinker who shows a lot of initiative. In addition to his excellent academic contributions, he is also completing a second year as assistant master in Forbes College, a position he was selected for on the recommendation of the master."

MacAulay's thesis research explores the process of pellet evaporation and the resulting plasma response.



Alex MacAulay (left) and John Reynders Photo: Dietmar Krause

He says, "I wanted to work on something that will have a practical application. My hope is that a fuller understanding of how pellets work will help clarify the requirements of pellet injection."

In regard to the fellowship award, MacAulay comments, "I'm very happy to have received the fellowship, because I know it represents strong support from a lot of people. I'm especially grateful to Steve Cowley, Tom Stix, and to Forbes College for their support."

Reynders Receives Grimm Prize

John Reynders was awarded the Raymond C. Grimm Memorial Prize, given annually to a Princeton University graduate student for significant

achievement in computational physics.

The prize was established to honor Raymond C. Grimm for his important contributions to the area of computational plasma physics and his support of the National Magnetic Fusion Energy Computer Center. Grimm worked at the Lab from 1972 to 1984.

According to his thesis advisor, Wei-li Lee, "John is a very intelligent, enterprising young man. He has pioneered the uses of parallel computer architecture using particle simulation techniques,

where he explored the most efficient ways for the CPU units to communicate with each other. He is one of the few authorities on parallel computers who also has a solid physics background."

Reynders was awarded an Office of Naval Research fellowship for his first four years of graduate study. It is one of 50 awarded annually to civilians. He notes, "Through the Naval Research Lab in Washington D.C., I've had the opportunity to work first with the CM-1 and then the CM-2 parallel computer."

Unlike the more familiar serial computer, which analyzes data in a linear way, the parallel computer is able to analyze many bits of information at the same time. It's comparable

Continued on page 2

Grad Students

Continued from page 1

to having one very fast check-out line in the grocery store versus many somewhat slower check-out lines. Parallel computer architecture sets up many CPUs which act as "check-out lines," according to Reynders.

"Dr. Lee has been a superb advi-

sor," notes Reynders. "He has put in a great deal of time teaching me gyrokinetic theory and discussing physics issues. Now we're able to use the parallel computer to simultaneously follow millions of particles and attack much larger fusion related problems."

When he had more leisure, Reynders enjoyed being the social

chairman of the graduate college and playing the pipe organ. Lately though, he's dedicated himself almost exclusively to his thesis research, for which one might dub him a "particle pusher." But whatever he's called, Dr. Lee observes, "John's project is relevant and highly visible. People are very excited about what he's doing." ■

Are You an Expert? You Too Can Teach!

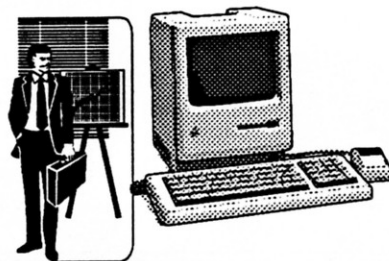
Let's say you've been at PPPL ten or 20 years, and you've been recertified in the same course three, four, or even five times. Even more important, you've been *using* the course information day in and day out to do your job.

Or, let's say you're a Red Cross volunteer or volunteer fireman or woman in your community. You may know first aid or other safety skills. Or maybe there are subjects you studied outside the Lab that are useful to you here.

Although you may never have thought of yourself as one, you may be an expert (or at least very knowledgeable) in certain areas. And chances are, you could actually teach the relevant course *yourself*—with logistical and organizational support, and maybe a little coaching, of course.

If you think you may have special knowledge or skills, Susan Murphy is looking for you! Murphy, Manager, Certification and Training, says, "I know there are many people around the Lab who could enrich our training program greatly with their understanding and experience. I hope they will identify themselves, and then we can work with them to develop and/or upgrade courses."

Adds Murphy, "People who are



very good at what they do may still be hesitant to teach. However, their hesitancy may be unfounded, because I will help any potential teacher design a course, develop an outline, and choose materials. Even if someone has never taught before, I'm confident we can support him or her in preparing to do so."

Possible course topics range from **A** for "Area Safety Coordinator Training," **B** for "Basic First Aid," and **C** for "Confined Space Entry" all the way to **T** for "Technical Writing," and **W** for "Weld-

ing," or "Word Processing." Since courses are typically only two or three hours a day for one or two days, the preparation time is reasonable.

Murphy comments, "I really want to encourage people to consider the contribution they can make, as well as the experience they will gain in teaching a course. In certain cases, we may even be able to send staff members for further training, so that they can better teach a course here. Right now our highest priorities are environment, safety, and health-related, but I hope anyone with a good idea will call or send in the form. I hope they will also encourage their colleagues to consider teaching."

Anyone who wants to explore the possibilities is welcome to call Susan Murphy at extension 2224 or send her the form below at Room A113, C Site. ■

I am interested in exploring the possibility of teaching a course (courses) in:

I have an idea for a course or courses upgrade, but I may not be interested in teaching it myself.

The course is:

Name: _____ Extension: _____

Hazmat Coordinator

Jim Scott has recently joined PPPL in the newly created position of Hazmat Coordinator. He will manage the day to day activities of the Hazardous Materials Section and participate in developing policies and procedures. "Jim is the designated person to contact for day to day employee needs regarding hazardous waste disposal, spill response, and clean up," says Scott Larson, Manager of the Transportation and Hazardous Materials Branch.

"I look forward to working closely with those at the Lab who generate waste," notes Hazmat Coordinator Scott. "We will need their help in the major task of gathering information for data bases that track chemicals from the time they arrive at the Lab until they move into the waste stream."

He adds, "We plan to streamline the paper flow so that those who generate waste won't have to repetitively fill out forms. To do this, we need to know exactly what will be in



New Hazmat Coordinator Jim Scott (left) and Scott Larson, Manager of the Transportation and Hazardous Materials Branch, review regulations prior to a hazardous waste shipment.

Photo: Dietmar Krause

a particular hazardous waste stream, the process which generates the waste. If a different hazardous waste is added, we will ask the generating group to notify us."

"To increase Lab waste reduction activities, we will also work closely with Virginia Finley, the Environ-

mental Engineer in the Environment, Safety, and Health Division. If we at the Lab all work together, we can minimize waste, reduce environmental impact, avoid fines, and enhance our reputation as an environmentally conscious facility," observes Scott. ■

Asbestos Survey Underway

A survey of the locations of asbestos, to be followed by an analysis of the potential hazard, is now being done at PPPL through contractors from BCM Engineering. It is being coordinated by Industrial Hygienist Bill Slaven of Environment, Safety and Health.

"We've undertaken this survey to identify the location of all asbestos and the hazard range of asbestos throughout the Laboratory," explains Scott Larson, Manager of the Transportation and Hazardous Materials Branch. He adds, "Once we have the asbestos report, we will set about correcting the most hazardous areas first, with the goal of assuring employee safety in the workplace."

The survey will impact employees only minimally. First, BCM engi-

neers will review the history of the building or area, including as-built drawings. Then they will do a visual survey and take samples for analysis from suspected areas. Once analyzed, these samples will help determine which areas require immediate remediation.

Says Larson, "We've been gradually removing asbestos from the Lab for years, and we had begun to take a more systematic approach before the Tiger Team came. Their findings corroborated our belief that we needed to complete the survey and work towards maximum employee safety."

For further information contact Scott Larson or the new Hazmat Coordinator Jim Scott. ■

HOTLINE

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| Editor: | Carol Phillips |
| Writer: | Johanna Van Wert |
| Layout: | Joseph L. Belica |
| Photography: | Dietmar Krause James Faczak |
| Reproduction: | Teri Daynorowicz Dan Klinger |

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Employees Active in Professional Society

Two Health Physicists in the Health Physics Branch of the Environment, Safety, and Health Division (ES&H) at PPPL have recently been elected to posts in the New Jersey Chapter of the Health Physics Society.

Joseph Greco will serve as President-Elect for the 1991-92 year (September to May) and as President for the 1992-93 term. Joe was Secretary of the Chapter in 1987-88.

David Hwang was elected Treasurer for a two-year term (1991-1993), after having just completed a term as Secretary.

"We are extremely proud that members of ES&H, such as Joe and Dave, are willing to put out the extra effort to be leaders in their field. It's good for them professionally, and it bodes well for the Laboratory," commented Joe Stencel, Deputy Head, ES&H.

The New Jersey Chapter is one of 40 that make up the Health Physics Society in the U.S. As a society of professional health physicists, their stated primary objective is "...the development of scientific knowledge and practical means for protection of man and his environment from harmful effects of radiation, thus providing for its utilization for the benefit of mankind." ■

Some of the 14 PPPL corporate award winners for the National Energy Foundation sponsored Student Exposition on Energy Resources (SEER) look at the one-quarter segment mock-up of the TFTR stainless steel vacuum vessel during their tour of the Lab, given by Richard Daugert, Engineering and Scientific staff. Mary Ann Brown, Executive Secretary to Head of the Engineering Department Mike Williams, served as a judge for SEER. The students were chosen based on the excellence of energy-related projects they researched and designed and were awarded PPPL ribbons, plaques, and a letter of commendation by Mary Ann Brown during Exposition events. In addition, winners toured the Lab and attended a Science Award Luncheon on May 24 in the PPPL Director's Conference Room. Many corporations provide awards, including such businesses as AT&T Bell Laboratories, PSE&G, and Warner-Lambert Company.



Photo: James Faczak

When President George Bush visited Princeton University's main campus on May 10, the PPPL Crash Fire Rescue Crew was standing by for arrival and departure of the five helicopters carrying the Bush entourage. The crew, with Marine One Helicopter in the background, are: (standing, left to right) Greg Tompkins, Gary Stines, Suzanne Willitts, Harris Kohen, Steve Scholey, and Tom Ruffin; (kneeling) Wes Foraker, Gene Mitman, and Tom Furman.



TFTR Run to Start in September!

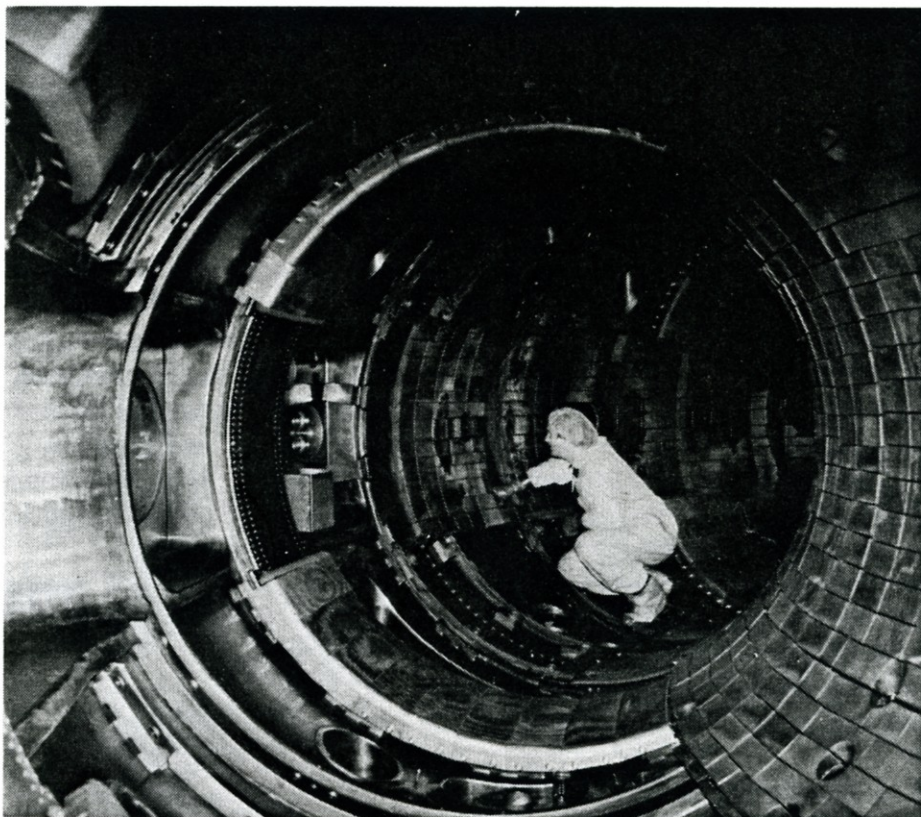
Deuterium-Tritium on Schedule for 1993-94

After a nine-month shutdown, TFTR is completing final preparations for an exciting three-month run starting September 3, according to Dale Meade, Deputy Director, PPPL.

Says Ken Young, Head, TFTR Diagnostics, "The overall physics purpose for the upcoming run is to study the transport properties of the plasma—that is, how the energy is transported across the magnetic field. In addition, we will be studying wall conditioning technique to find ways of reaching higher values of Q, and we will be increasing the ICRF (ion cyclotron range of frequencies) heating power."

On June 27 pumpdown began, with bakeout and systems tests in late July/early August, followed by neutral beam, ICRF, and machine conditioning in August. High power begin in experiments in September. (See Pumpdown Schedule on page 8.) If all goes as planned, the target date for introduction of tritium will remain firm for fiscal year (FY) 1993.

During the last run, and during the shutdown, TFTR staff has continued to extend their outstanding safety record to 3.5 years and two million work hours without a lost time accident. A number of achievements highlighted the last run, which was from April to October 1990. Several significant records were achieved during that run, both in physics and in machine operation.



Shown here is a view of bumper limiter tiles from a neutral beam port. The approximately 2000 tiles were removed for feathering and sanding during the shutdown, and then reassembled on the TFTR walls.

Photo: Dietmar Krause

■ **Ten thousand plasma shots were fired during FY90** (October 1989–September 1990) nearly three times as many high power shots as during previous years. The high reliability of the power systems (see below) allows more high power shots. Better quality and an increased number of shots in turn provides the physicists with more useful data to understand the underlying transport process and develop methods to improve performance.

■ **The power systems operated at 96 percent availability.** Advances in power system reliability have been made yearly. For example, reliability was about 90 percent for FY89 and 80-85 percent for FY88.

Mike Williams is former Head of the TFTR Heating Systems Division (now Head of the Engineering Department.) He observes, "Reaching 96 percent power reliability is a phenomenal achievement for this

Continued on page 2

TFTR Run to Start

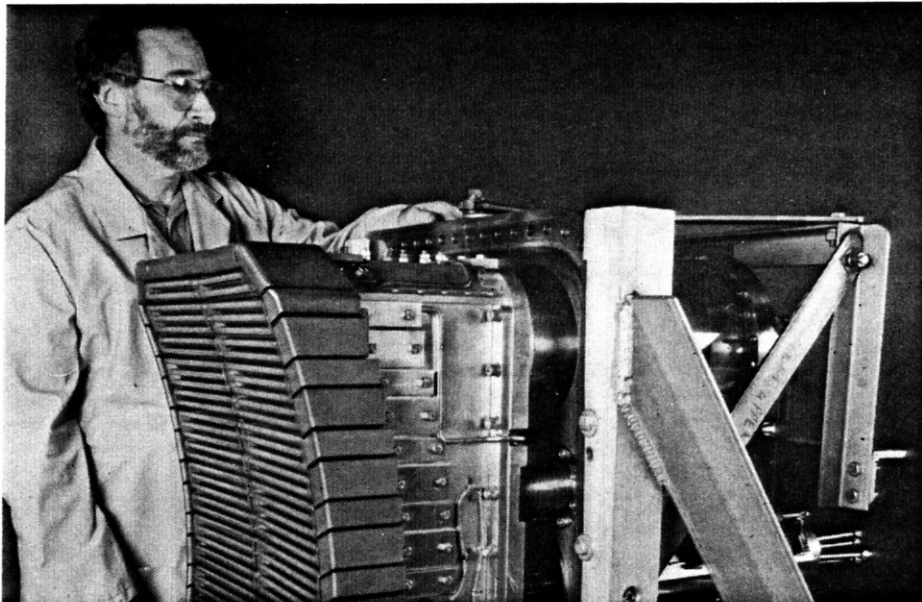
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group. They have systematically addressed problem areas, and worked out the problems that have cropped up during operation."

■ **Neutral beam reliability remained high in FY 1990.** The neutral beam system provided world record power of 33 million watts—a remarkable achievement. Says Williams, "It took many small improvements by Neutral Beam staff to push the power up to the 33 MW (megawatt) level. This is more than we ever expected to get from TFTR."

■ **The Ion Cyclotron Range of Frequencies (ICRF) met the DOE level-one milestone of 6.3 MW—the highest ICRF power yet achieved in the United States.** The ICRF is a relatively new system, having been in operation for only two years and is in the process of maturing and achieving improved reliability. The upgrade project underway during the present shutdown will approximately double present ICRF power. (See shutdown section pp. 4 and 5 for details on the ICRF upgrade.)

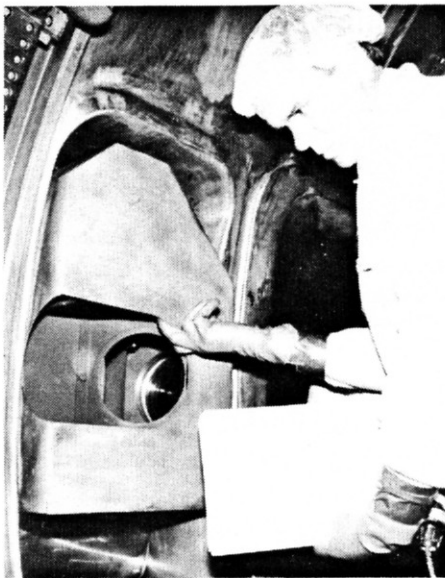
■ **A new world record was set for deuterium-deuterium (D-D) fusion power output.** D-D fusion power of 60 kW was produced, about 25 percent more than JET (Joint European Torus)—TFTR's major competition. Q values entered the 0.3-0.7 range when projected for what would happen in a deuterium-tritium (D-T) reaction. The Q value is the ratio of fusion-power output to auxiliary heating-power input. Breakeven is achieved when the fusion power obtained from the plasma is equal to the auxiliary power required to heat the plasma.



Joe Frangiapani, Senior RF Technician, checks the primary seal surface on an RF antenna cover plate. Radio waves, directed into the plasma by the antennas, act as a heating source.

Photo: Dietmar Krause

■ **The introduction of lithium pellets to condition the TFTR vacuum vessel walls has produced an unexpected major advance,** according to Rich Hawryluk, Head of the TFTR Project. In fact, the new world record for D-D, described above, was made possible in part by



Inside the vacuum vessel, Doug Loesser, Tokamak Operations Engineer, checks the beam emission spectroscopy diagnostic. The shield is in the open position as it would be for viewing the plasma.

Photo: Dietmar Krause

the fact that the injection of lithium pellets reduced carbon content in the plasma. Reduced influx of carbon impurities in turn has increased neutron flux by 20 percent. According to Joe Snipes, who collaborates with PPPL from a Massachusetts Institute of Technology (MIT) group, lithium comes out of the plasma and coats the limiter, which reduces carbon influx from the walls. The original purpose of introducing lithium pellets was to measure magnetic field profiles in the plasma.

■ **A new diagnostic that measures fluctuations in plasma density was used for the first time on TFTR during FY90.** The diagnostic—beam emission spectroscopy (BES) is a collaboration between Ray Fonck of the University of Wisconsin and PPPL. It measures plasma density fluctuations by observing fluctuations in the light emitted from an energetic neutral beam as it undergoes collisional excitation with the plasma ions.

Continued on page 3

TFTR Run to Start

Continued from page 2

The brightest line in the visible spectrum is observed. Says Steve Paul, "The fact that the light being detected is in the visible region permits use of a high-throughput lens and spectrometer system, which is very important in achieving the signals required for measurement of low-amplitude fluctuations. Visible

imaging also permits the use of fiber optics, which transmit the light away from the tokamak, so that diagnostic development can continue when TFTR is operating."

■ **A prototypical measurement using a single channel of the microwave reflectometer was carried out.** This preliminary assessment determined that microwave reflectometry is a powerful tech-

nique for measuring plasma density fluctuations in tokamaks. Important information about plasma stability and transport can be derived through comparison of electron density fluctuations measured at different locations and detected by the reflectometer, beam emission spectroscopy, and microwave scattering. Ernesto Mazzucato heads the group working on reflectometry.

Major Projects Completed during Busy Shutdown

During this long shutdown period several major projects have been completed. Harry Bush, TFTR Shutdown Manager, noted, "We have tried to complete as many tasks as we possibly could, to minimize the amount of work to be done during the next shutdown." He adds, "The process of working with the Tiger Team was a major project in itself, and we committed much time, energy, and resources to that during this shutdown. We are pleased to have been able to do that work and still accomplish our shutdown goals."

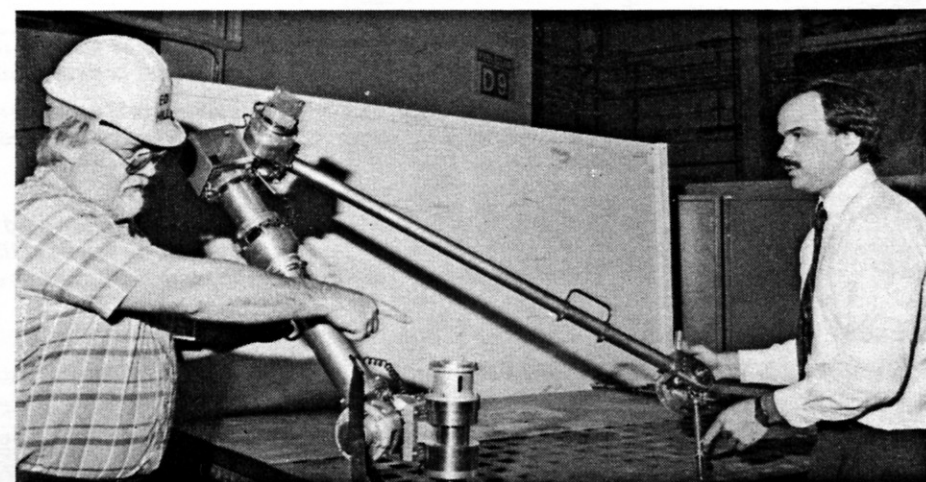
Tasks completed since November that are described here are: upgrading the ICRF limiter; detailed measurements of the bumper limiter; sanding the bumper limiter tiles; upgrading the RF limiters; repairing the toroidal field (TF) coil leaks; and rebuilding the neutral beam transformers.

A new diagnostic was added, the Motional Stark Effect, and other diagnostics were enhanced and maintained.

Naturally, many other tasks have been completed behind the scenes.

Limiter System Projects

The TFTR limiter system is made up of two separate groups of carbon-carbon (and some graphite)



Ed Hill, 3rd (left) and Doug Loesser calibrate the measuring arm prior to use in the vacuum vessel.

Photo: Dietmar Krause

tiles—the bumper limiter group, and the radio-frequency (RF) limiter group. These tiles are called "limiters" because they limit the size and shape of the plasma and absorb all power put into the plasma.

The Bumper Limiter

The TFTR bumper limiter is a toroidal belt limiter that covers the small major radius side of the vacuum vessel. Improvements in its design during recent years have allowed production of plasmas with auxiliary heating power over 30 MW for one second and over 20 MW for two seconds without large bursts of carbon influx due to limiter tile damage.

Design improvements have included: shaping the limiter to be circular at the midplane within 0.5 mm; shaping tiles near diagnostic cutouts to reduce local power flux; and replacing graphite tiles in areas prone to disruption damage with carbon-fiber composite tiles.

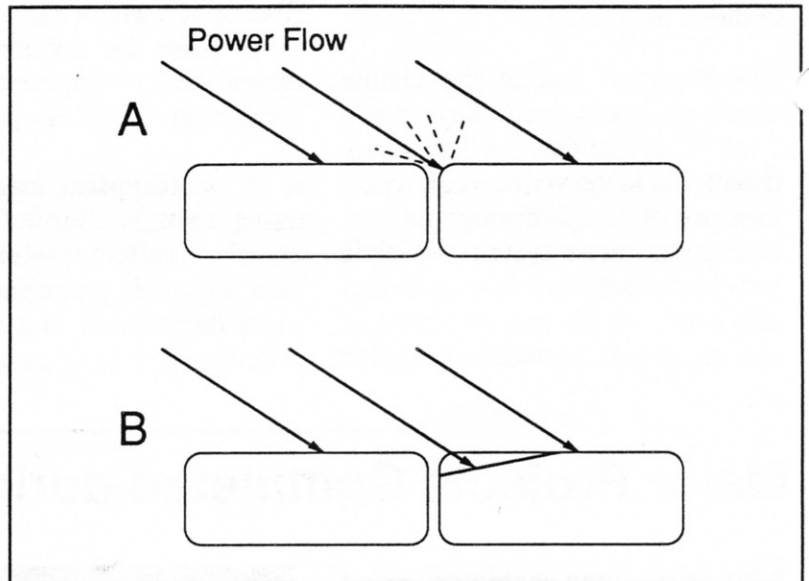
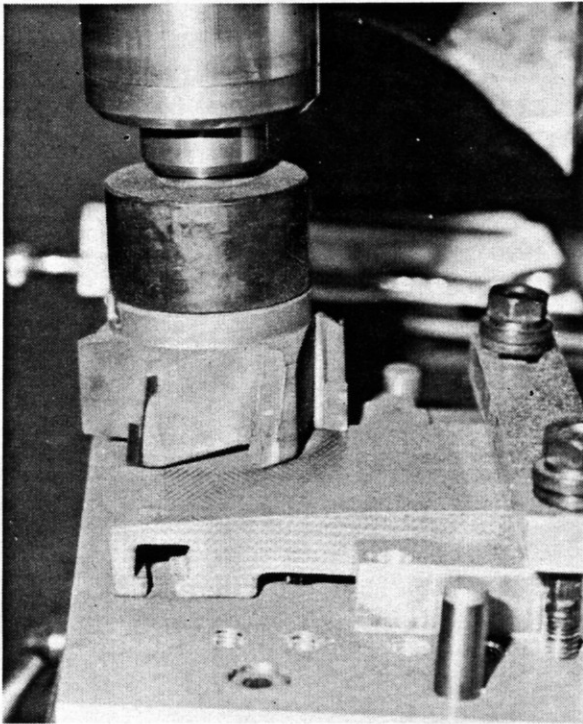
Alignment Measured

Now the question becomes, can the bumper limiter withstand 50 MW of power input for two seconds? To answer this question, the shape and location of the limiter with the respect to the toroidal magnetic field must be known, according to physicist Kingston Owens,

Continued on page 4

Major Projects Completed

Continued from page 3



A. The corner of the tile receives a higher heat flow than the upper surface and is overheated.

B. Beveling the tile puts the edge in the shadow of the next tile over. The heat flow to the beveled surface is lower and overheating does not occur.

Drawing: Kingston Owens

◀ Here a tile is being beveled (or feathered) to lower the edge so that it will be protected by the next tile (see illustration above). The tile is resting on a jig, while a cutter bevels the edge.

Photo: Dietmar Krause

Leader of the Bumper Limiter Alignment activity. (If part of the limiter protrudes slightly into the plasma, it could overheat at powers below 50 MW, and release impurities into the plasma.

Owens, along with Tokamak Operations Engineer Doug Loesser, performed these measurements during the last opening. Explains Owens, "We took magnetic and mechanical measurements inside the vessel using a measuring arm to determine the position and orientation of all the approximately 2000 tiles on the bumper limiter and the RF limiter to an accuracy of plus or minus 0.75 mm or better. Using these measurements, we can calculate the local power flux to the limiter, permitting us to estimate limiter performance at the 50-MW power levels."

Bumper Limiter Tiles Sanded and Machined

Once the initial measuring was complete, the sanding and machin-

ing of the TFTR bumper limiter tiles was undertaken. Sanding the tiles and feathering the exposed tile edges eroded by the plasma during the last run is part of the effort to reduce the carbon influx into the plasma. Edges are sanded so that they are lower than the adjoining tile, and are thus protected from plasma bombardment.

According to Jim Chrzanowski, Lead Engineer for Tokamak Operations, this was a major job, because each of these approximately 2000 tiles had to be removed. However, before removal, the tiles whose edges were to be feathered had to be mapped and marked for proper modification. Of the tiles, 1200 were: (1) feathered to remove sharp edges to further decrease heat flux; (2) sanded to remove all traces of metal buildup from the previous run; (3) polished with scotchbrite; (4) handwiped with alcohol; (5) cleaned ultrasonically with an alcohol bath; and (6) baked out at high

temperatures. The remaining tiles underwent all processes excepted feathering.

All this was accomplished in a machine shop set up inside the Test Cell just for this purpose. For protection from radiation and carbon dust hazards, all the work was done in glove boxes with special filters and vacuum cleaners to remove all residue. Once cleaning was completed, the tiles were placed in their individual compartments in their "egg carton" crates for transport back to the vacuum vessel. The machinist crew did an exceptionally accurate and fast job, completing all machining two weeks ahead of schedule.

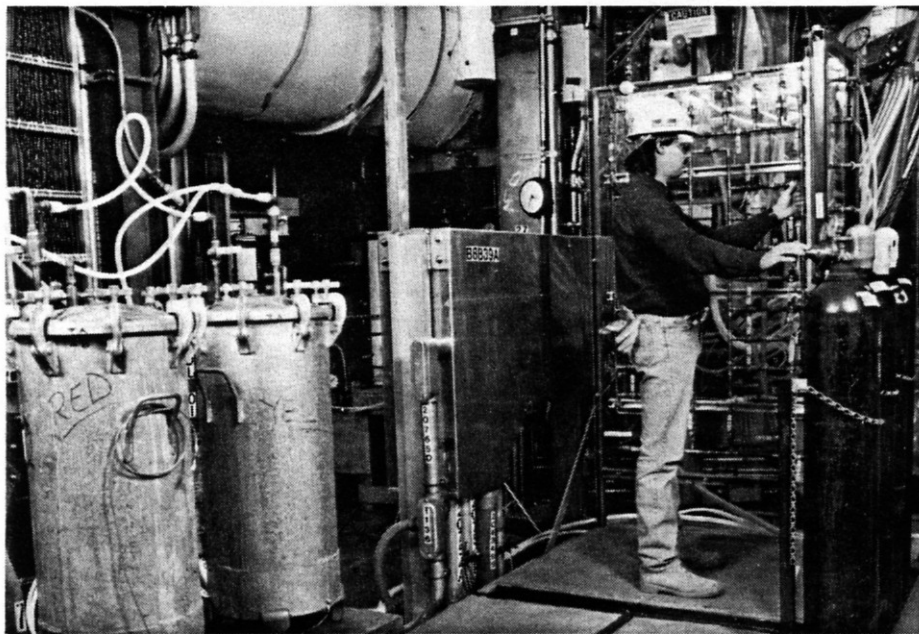
RF Limiters Upgraded to New Configuration

The Ion Cyclotron Range of Frequencies (ICRF) is a plasma heating source that uses high-powered radio

Continued on Page 5

Major Projects Completed

Continued from page 4



TFTR Technician Mike Anderson checks the nitrogen pressure on the sealant injection equipment during epoxy injection into a toroidal field coil to seal water leaks. The two epoxy tanks are at left. Nitrogen cylinders (right) draw epoxy into the coil.

Photo: Dietmar Krause

transmitters to introduce energy into the plasma in the form of radio waves. Radio-frequency heating is particularly useful in reaching the center of the plasma, especially for high plasma density—where neutral beams tend to deposit energy further out. At present, two RF antennas positioned on the vacuum vessel direct the radio waves into the plasma.

RF limiters, which are partial poloidal rings, protect the antennas from bombardment by the plasma. During the shutdown, a major upgrade was made to the RF limiter system, increasing the number of rings from two to eight. The new rings have carbon-carbon tiles—nine above and nine below the vacuum vessel midplane.

According to Doug Loesser, who oversaw the process, a room with assembly benches was set up right in the Test Cell to accomplish the upgrade.

Explains Randy Wilson, Head,

RF Antenna Operations, "These new RF limiters were installed partially in preparation for two additional ICRF antennas that will be added during the next opening. We now have eight rings of limiters placed approximately equidistant around the vessel. New ICRF transmission lines have also been added to provide power for the two additional antennas. Once one additional RF limiter ring and all four antennas

are put in place in early 1992, we hope to be able to reach 12.5 MW of ICRF power." (The highest reached with two antennas has been 6.3 MW.)

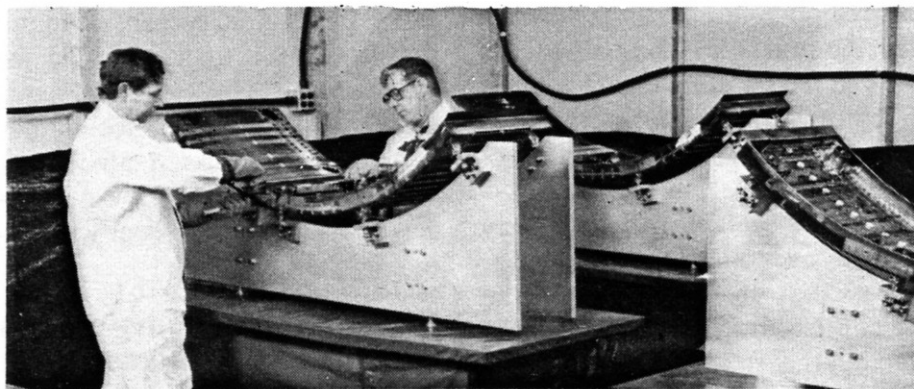
In addition, the two existing RF limiter rings were upgraded to the same configuration that the new rings have, and supporting mounts have been redesigned and strengthened. Explains Wilson, "The purpose of the upgrades is to better protect the vessel wall and the two RF antennas from higher amounts of power to be reached in the future—up to 50 MW of auxiliary input during two second time periods of plasma operation."

Coil Leaks Repaired

In TFTR, 20 doughnut-shaped coils surround the vacuum vessel. These toroidal field (TF) coils provide a strong magnetic field which stabilizes the plasma. To cool the coils, water runs through 1500 feet of copper conductor inside each coil. A miniscule leak that allows water to escape into the insulation and degrade it could make the coil malfunction. In such a high-voltage environment, any water leakage could also be damaging.

Jim Chrzanowski was the cognizant engineer for coil leak repair during this shutdown. He remembers

Continued on page 6

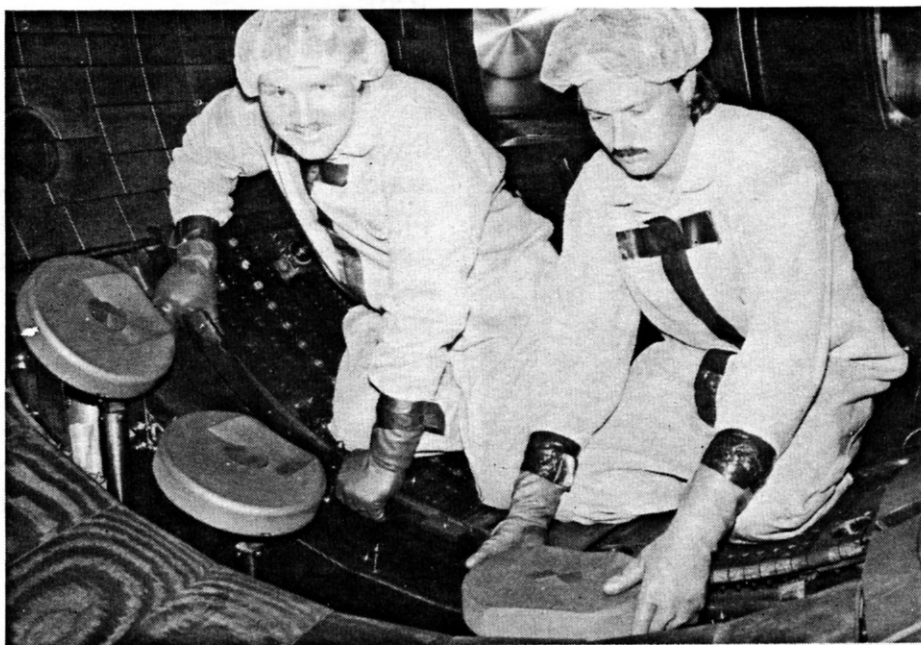


In the assembly room especially set up in the TFTR Test Cell, Bob Mucha (left) and Bob Shoemaker adjust the tile mounts on one of four templates used to assemble the new RF limiter segments.

Photo: Dietmar Krause

Major Projects Completed

Continued from page 5



Inside the vacuum vessel, Bob Horner (left) and Mike Anderson check the Escaping Alpha Ray diagnostic, which measures the rate that alpha particles leave the plasma. During shutdown, all diagnostics were checked and adjusted.

Photo: Dietmar Krause

that in 1989, when the first coil leak was detected via droplets of water exiting the coil, anxiety ran high. TFTR Operations were stopped, and an unscheduled opening lasting six months occurred, while a technique was developed to stop the leak. Many people from the Lab worked together with outside vendors to develop a solution.

Explains Chrzanowski, "Because tiny leaks deep inside the 1500 feet of conductor are nearly impossible to pinpoint, it was decided to treat the entire coil. The technique is derived from a simple concept, but it requires great care to perform. However, it can be completed rather quickly."

First, a sealant made of epoxy and clay is fed into the coil, which takes about 45 minutes. Then the coil is pressurized for about an hour, forcing the sealant into any tiny cracks that may be (or become) leaks. Next, excess sealant is flushed out with water, and the coil is allowed to

cure at room temperature for 48 hours.

In one instance, another technique was used because the leak was reachable from the outside. A tiny crack had formed in the TF coil coolant passage. It was found by extending a boroscope—a small camera on a flexible arm—into the area. The crack could then be filled with sealant from the outside.

Since the first leak in 1989, five of the 20 coils have been treated for leaks. During the present opening, two have been treated. While the development of leaks in the TF coils remains a concern, the techniques developed have proven satisfactory thus far, and a trained crew of technicians is on hand to deal with future leaks.

Neutral Beam Transformers Rebuilt, Other Upgrades Made

Many of the components of the TFTR Neutral Beam (NB) injection system were designed for a ten-

year lifespan. Therefore, to prepare for the future, and especially for the introduction of D-T operation, many system upgrades and much preventive maintenance will be required. According to Al von Halle, Head, Neutral Beam Operations Branch, "During the last run, the TFTR neutral beam system had the highest system availability and shot-to-shot reliability ever. Yet further improvement is still necessary to optimize for tritium operation."

The beam group has made great strides towards improvement during the shutdown. For example, notes von Halle, "By the end of July all of the 13 transformer rectifiers rated at 12 MVA (megavolt amperes) each were dismantled, upgraded, and rebuilt to address a problem found when one unit failed during the last run. In conjunction with this, all 12 of the coaxial cables that deliver the 180 kilovolt (kV) output of each transformer rectifier to the power conversion building were replaced after degradation of the insulation on five of the cables was discovered."

"Many of the internal beamline components were also upgraded, including the four beamline calorimeters and the second of the four ion dumps," adds von Halle. "Also, we improved the efficiency of the helium refrigerator with a new heat exchanger and upgraded the neutral beam water systems with new flow switches. These upgrades are examples of our constant efforts to fine tune all systems for increased reliability and repeatability."

Diagnostics Added, Upgraded

At present, close to 50 diagnostics are used to measure a wide variety of plasma properties, according to George Labik, Section Head, Diagnostics Engineering Branch. The detailed analysis of

Continued on page 8

TFTR Prepares for Upcoming Run

Pumpdown Is Now Underway

After a flurry of last-minute activities, TFTR was closed on June 27 so that final start-up activities could be completed. According to Start-Up Coordinator Bill Blanchard, "The goal of many of these activities is to clean the machine of impurities—such as water, CO and CO₂. The idea is to create a vacuum that is as clean as possible, thus preparing the way for plasmas that are as free of contamination as is feasible."

In addition to the operations described here, staff for various subsystems have been at work behind the scenes during the shutdown preparing for experimental operations. These systems are large and complex, and personnel must complete more than 50 procedures in preparation for operations. They include: the Torus Vacuum Pumping System (TVPS); the Energy Conversion System (ECS); the Water Systems; the Motor Generators (MGs); CICADA, (the computer system); and various diagnostics.

The activities outlined below will be completed this summer, in the approximate order in which they are listed.

TFTR Start-Up Activities

Pumpdown evacuates the air from the vacuum vessel, bringing it from atmospheric pressure to a high vacuum. Initially, the air is pumped down to about 50 mTorr with mechanical and blower pumps. Eight turbo molecular pumps then bring the torus to a high vacuum. Finally, the vessel is leak-checked and air leaks are sealed.

Tokamak Scrub involves a thorough cleaning (scrub) of the machine. Every area is checked for such items as nuts or bolts that might have been dropped. In addition, every aspect of the tokamak is checked to make sure it is in its proper configuration. For example, if a cable is slightly askew, it is put in its place.

Bakeout heats the vacuum vessel up to 150 degrees centigrade, driving out impurities that have collected on the internal surfaces during shutdown.

Glow Discharge Cleaning (GDC) cleans internal surfaces of the vacuum vessel by bombarding the inside walls of the vessel with helium atoms to knock out impurities.

Diboronization is done by applying boron to the internal surfaces of the

vacuum vessel—again using a GDC process. The coating reduces the release of impurities from the walls during plasma shots. During the last run period diboronization reduced the time needed for Pulse Discharge Cleaning (PDC) from 11 days to one day. This increased the time available to do experiments. It is expected that diboronization will continue to reduce or eliminate PDC time.

Coil Testing of the Toroidal Field Coils and Poloidal Field Coils is accomplished by running current through them to be certain that the Energy Conversion System is working as it should. During coil testing, many of the other subsystems, such as CICADA, Water Systems, and MGs, are also in full operation and are being tested for reliable operation.

Pulse Discharge Cleaning (PDC) achieves two types of cleaning. First, low-powered plasmas are pulsed out every few seconds, impinging on the limiter and the walls and cleaning off impurities. At the same time, this process heats the bumper limiters to 250 degrees centigrade, effectively "degassing" or boiling the gases out of the walls.

Disruptive Discharge Cleaning (DDC) is similar to PDC, except that energy from *high-powered* plasmas is released into the limiters in a controlled fashion to drive out any additional wall impurities.

Neutral Beam Injection (NBI) Testing and Operations is where the neutral beam heating systems are conditioned up to high power and are given a trial run to make certain all systems are fully operational and to condition ion sources up to the levels required for injection operations.

Helium Conditioning is a process where helium plasmas are run in order to deplete the limiters of deuterium. (Deuterium is absorbed into the bumper limiter tiles during D-D runs.) Helium conditioning is necessary to avoid the release of the deuterium from the limiters during supershot experiments.

ICRF Conditioning prepares the Ion Cyclotron Range of Frequencies (ICRF) antennas for high power operations.

Experimental Operations — TFTR run begins!

Major Projects Completed

Continued from page 6

plasma properties is carried out to compare the overall behavior with its theoretical expectations. Says Labik, "A number of additional new and upgraded diagnostics designs are to be put in place before the D-T operations phase. In addition, to prepare for D-T operations, diagnostics that are now being used are being fine-tuned, and preventive maintenance is being done."

New Diagnostic Installed

During this shutdown period, a new major diagnostic, the **Motional Stark Effect (MSE)**, was added. According to Ken Young, Head, TFTR Diagnostics, the MSE data will fill an important gap in information needed to relate experimental observations to theoretical predictions concerning fluctuations in plasma stability. He notes, "The MSE provides us, for the first time, with the ability to measure the shape of the magnetic field so that we can begin to see how the plasma affects it."

Explains MSE Project Head Fred Levinton, "The motion of neutral beam particles across the magnetic field creates an electric field on the beam atoms. The electric field orients the atoms so that emitted light from the atoms is polarized along the electric field direction. The MSE diagnostic measures the

magnetic field pitch angle from the orientation of the polarized light emitted from the neutral beam."

He adds, "This angle tells us what the distribution of the current is in the plasma. This current distribution, which determines the magnetic field shape, is important to know because it can affect the plasma stability and confinement. MSE measurements may also be able to help us distinguish the various sources of current—such as from neutral beams, ohmic heating, and bootstrap current."

The MSE diagnostic is being developed in conjunction with Fusion Physics and Technology. It was first developed on PBX-M.

Other Diagnostics

In addition to the usual enhancing and maintenance work, a variety of other diagnostics-related work also occurred during shutdown.

■ **The Microwave Reflectometer** was upgraded by increasing the number of channels from one to three. The reflectometer measures fluctuations in electron density at different locations across the major radius of the plasma.

■ **Additional MIRNOV Loops**—a diagnostic used to measure magnetic fluctuations—were also installed.

■ An upgrade was made to the **Beam Emission Spectroscopy (BES)** Diagnostic described on page 2. The BES measures plasma turbulence.

■ **Hundreds of Thermocouples** located around TFTR were mapped and their functioning checked, according to Research Physicist Alan Janos. A thermocouple is a device that measures temperature, helping TFTR staff monitor how hot a given area of the machine gets during a plasma shot.

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PPPL to Celebrate 40th Anniversary *Carl Sagan Will Speak*

PPPL will celebrate its 40th Anniversary during a week of activities, kicking off with a Staff, Family, and Community Day on Saturday, October 26.

Well-known astronomer Carl Sagan has been invited to speak on

the topic "Fusion and the Environment" at a banquet on Thursday, October 31, and tickets will be available to all PPPL employees. PPPL Founder Lyman Spitzer will be honored.

"A questionnaire about banquet

choices has already been sent out, and response has been very good," says Dori Barnes, who directs the Banquet Subcommittee. "We are considering the responses carefully as we plan the banquet."

Continued on page 2

Logo Contest Response Enthusiastic

Four Winners Chosen

"The response to the call for PPPL 40th Anniversary Logo designs was wonderful, with 50 entries submitted," says Jim Gorman, chair of the Souvenirs and Decorations Committee. "Because so many entries were excellent, and because we can use the logos for a variety of purposes, four winners were chosen—rather than one, as originally announced."

The four winners are: Greg Czechowicz, Karen McKee, Teri Daynorowicz, and Jim and Tay Mueller. Each will be awarded a \$50 savings bond during the 40th Anniversary festivities.



Greg Czechowicz



Karen McKee



Teri Daynorowicz



Jim and Tay Mueller

PPPL to Celebrate

Continued from page 1

Other highlights will include a program on the past, present, and future of plasma physics on October 31, and awards and ceremonies on November 1. World leaders in plasma physics and other dignitaries will participate, and the programs will be of interest to a broad audience.

"We're very excited about this special occasion, and we have many committees working hard to make it enjoyable and memorable," says Rush Holt, Assistant Director of the PPPL Office of External Affairs and Chair of the Celebration.

According to Holt, additional volunteers are encouraged to join the committees. Please contact the appropriate subcommittee chair given below if you would like to participate.

Sally Connell and Pete Del Gandio direct the following subcommittees, which are listed with their chairs:

Logistics: Chris Gillars, Rich Gallagher

Displays, Demos, Tours:
Halsey Allen

Food: Bobbie Forcier

Dori Barnes directs the following subcommittees:

Publications: Carol Phillips

Souvenirs, Decorations:
Jim Gorman

Banquet: Jeff Gettelfinger

Educational Activities:
Diane Carroll

Publicity: Tony DeMeo

Rush Holt is the overall chair for the following subcommittees:

Scientific Program/Celebration Awards:

Rush Holt

Invitations:

John Johnson

Teachers, Students Broaden Science Horizons

This summer, through the Science Education Program, PPPL has once again hosted three educational programs for teachers and students—the Teacher Research Associates Program (TRAC) for high school teachers; the Summer Teachers' Institute for elementary school teachers; and the Summer Science Awards Program for high school students.

High School Teachers

This summer, three of the PPPL staff members who acted as mentors were Mike Ulrickson, Head, TFTR Limiter Impurity Control Section; John Timberlake, Engineering and Scientific Staff, Surface Physics; and Dennis Manos, Branch Head, Surface Physics.

The three TRAC teachers assisting them were: Chuen-Chin Hsu Chen of West Windsor-Plainsboro (WW-P) High School, Ron Saunders of Trenton Central High, and Michele Herzer, of Neshaminy High. They were involved in the search for more efficient, safer ways to coat the TFTR bumper limiter and/or in work related to the Atomic Beam Experiment.

These teachers were among the 11 TRAC participants chosen from 50 teachers who applied for the eight-week paid assistantships that began July 1. All had PPPL mentors who are scientists and engineers. The teachers were involved in many research projects, ranging from plasma diagnostics, microcomputers, and data visualization, to health physics, surface science, and lasers.

Benefits of the program have proven wide-ranging for the teachers. For example, Trenton High



Mentor Boris Grek works with Rajini Ramakrishnan, a Summer Science Awards student, on a TFTR Laser Diagnostics problem. Photo: Denise Applewhite

chemistry teacher Flossie Jackson observed, "While here, I've noticed that many excellent technicians gain their experience through on-the-job training, and I look forward to telling my students that there *are* good jobs out there for technicians with a high school diploma. I think all of us are learning that a wide variety of careers are available in the sciences." Says Rick Gaston, math teacher at WW-P High, "The TRAC experience has helped me gain further perspective on what the research process involves and to learn more about new applications and recent developments in various fields."

Elementary School Teachers

A total of 40 teachers have attended the Summer Teachers' Institute during two eight-day sessions.

Multiplying this by 25 students per classroom, a minimum of 1000 students will benefit from their teachers' experiences in the coming school year alone. As part of the Trenton School Partnership, the second session was specifically for teachers from the Trenton School District.

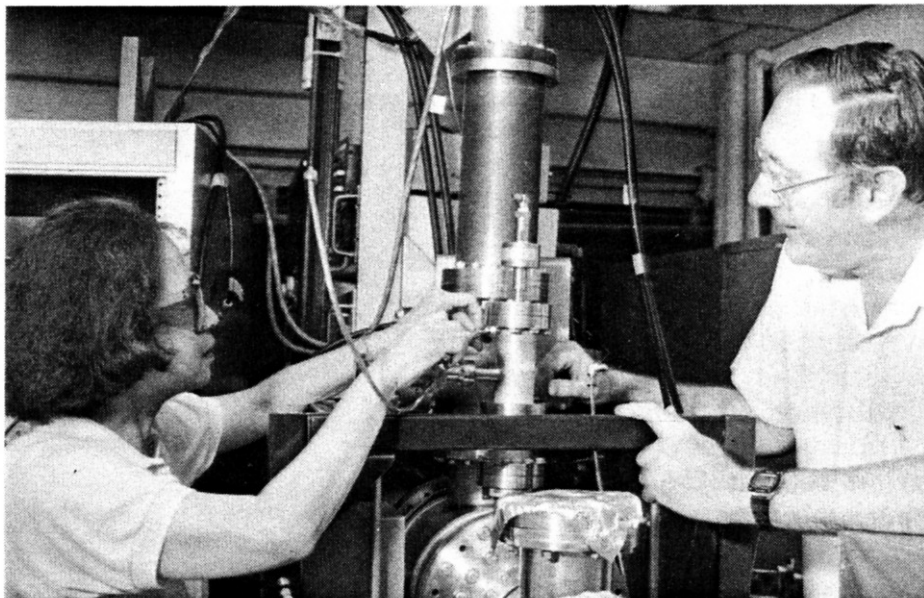
Said Diane Carroll, Head of the PPPL Science Education Program, "It's important to get students excited about science while they're young. Our goal is to provide teachers with the tools they need to inspire students' interest and confidence in their ability to do science projects relevant to their lives."

"The STI participants teach grades 4, 5, and 6. The focus is on creative approaches to making physics more real for these young students. by using a hands-on approach," according to Institute Director Yvette Van Hise. For example, teachers were challenged during a "Physics Olympics," to create an efficient paper airplane using sound aerodynamic principles. Courses are taught by experienced science education teachers trained through the American Institute of Physics.

High School Students

"When we first began the Summer Science Awards Program, PPPL staff were reluctant to work with high school juniors and seniors, because they had the idea they might break something. But after seven years of the program, the students are in great demand," observes Carroll.

And no wonder. The 15 students participating this summer were chosen from about 150 applicants, so they were well-prepared and very talented. At PPPL they have been exposed to a wide variety of scientific endeavors, ranging from data



TRAC teacher Chuen-Chin Hsu Chen adjusts bolts on the high-vacuum system while mentor John Timberlake looks on.
Photo: Denise Applewhite



During the Physics Olympics, Summer Teachers' Institute participant Gayle Mills-Holmes throws her paper airplane to test its adherence to aerodynamic principles while two other Trenton elementary school teachers, Beverly Hill and Mary Andrews, watch. Interested PPPL staff launched a few paper airplanes of their own out the third floor windows of LOB, but unfortunately, they won no prizes because their entries were unofficial.
Photo: Denise Applewhite

analysis to materials testing, applied physics and engineering.

For example, Mark Herschberg of WW-P High has been examining meteorological data for accuracy. Ken Monahan of Hightstown High and Rajini Ramakrishnan, also from

WW-P High, have, among other activities, been plotting graphs that show the path of lasers when they are shot into the plasma in TFTR. "What we're doing here shows real application to what we studied in high school," Ramakrishnan noted.

Training Advisory Committee Develops New Strategies

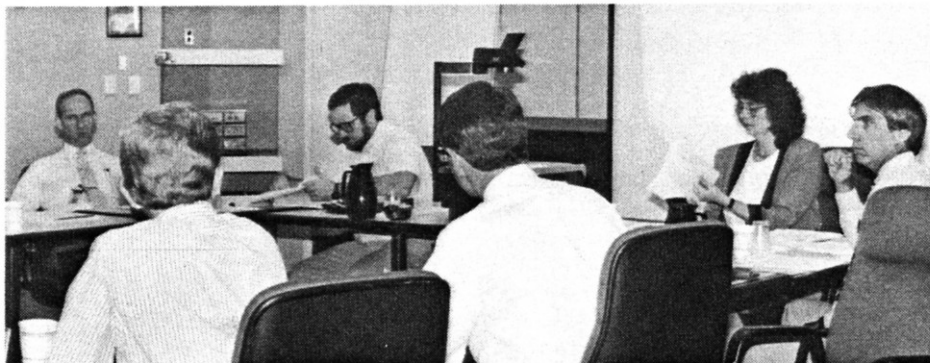
During their initial eight-hour meeting on June 19, the revised Training Advisory Committee developed a charter which defines their scope and purpose.

Said Sue Murphy, Manager, Certification and Training, "Our job is to centralize and focus training, so that it can most effectively meet the needs of Laboratory employees. This new committee replaces a previous training subcommittee and enlarges its scope."

Representatives of PPPL groups most concerned with training rolled up their sleeves to hammer out this important baseline document. They included: J.W. Anderson, Head of Security and Emergency Preparedness, Dori Barnes, Head of the Computer Division, John DeLooper, Associate Director of Environment, Safety, and Health and Quality Assurance, Rich Gallagher, Plant Maintenance and Operations, Chris Gillars, Division Head, Materiel Control, Steve Iverson, Head, Department of Personnel and Administration, Mike Williams, Head of the Engineering Department, Ned Sauthoff and Steve Jardin, Head and Deputy Head, respectively, of the Physics Department. Aaron Lemonick, acting as a consultant, also attended.

The purpose of the charter reads, in part:

The Training Advisory Committee has been established to review and assess the Laboratory-wide training program in light of the standards set forth in Laboratory Policy. In addition, its function is to recommend to the Director on: the extent, scope and appropriate budget for the training



John DeLooper (left, facing camera), Mike Leonard, Sue Murphy, and Ned Sauthoff confer with J.W. Anderson and Chris Gillars (backs to camera) and others during the initial meeting of the Training Advisory Committee June 19.

Photo: Dori Barnes

program; the priorities among various training initiatives; and the process and procedure for qualifying and, where appropriate, certifying PPPL employees and subcontractor employees.

The charter also specifies that the Training Advisory Committee, (TAC) will meet monthly and will consist of representatives of the following departments: BPX; Engineering; ES&H/QA, Physics, TFTR, the Office of Resource Management, and the Office of Personnel and Administration. Two resource members from the Lab at large will be included, and the Head of the Office of Certification and Training will chair the meetings. Representatives may be department heads or others nominated by them.

Mike Leonard spoke at the meeting about the parameters of a DOE order concerning training that must be implemented in preparation for the introduction of tritium.

During a second meeting on July 25, the Training Advisory Committee reviewed the charter, which is now in the approval stages. In addition, an outline was developed

for a General Employee Training Program. The Program, to be introduced in October, will replace Basic Safety Training and will begin to implement the DOE order discussed by Leonard. If you have ideas or concerns regarding any aspect of training at the Lab, Sue Murphy is available to assist you.

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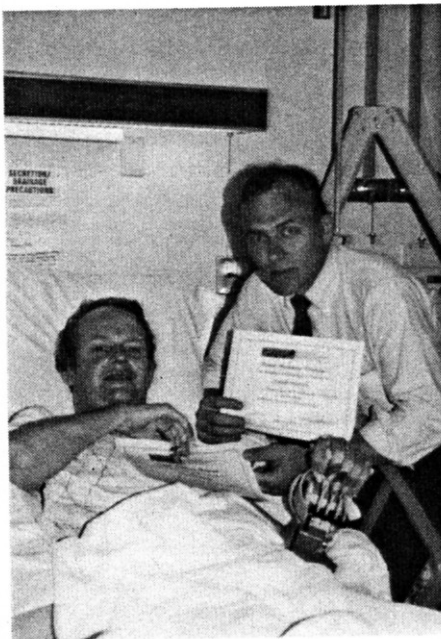
Invention Puts Lab at Forefront of Safety in Tritium Monitoring

The Differential Atmospheric Tritium Sampler is an environmental monitor for detecting tritium in the air. The device, which was awarded a patent in 1990, was invented by Otto Griesbach and Joe Stencel, both of the Environment, Safety, and Health (ES&H) Division.

Says Stencel, "We first tested the Sampler out during the Canadian tritium release experiment in 1987, and we now use it for environmental measurements here at the Lab. With the use of the monitor, I believe we now have more data concerning tritium in the environment than any other facility in New Jersey, including the Department of Environmental Protection."

"Otto was the real brains behind this invention," adds Stencel. "He has been ill, and we miss having him here at the Lab. He helped put PPPL at the forefront of environmental tritium monitoring." Stencel recently gave Griesbach his Certificate of Recognition for the patent while visiting him at a Philadelphia hospital. Griesbach is undergoing rehabilitation therapy for an illness.

The Differential Atmospheric Tritium Sampler was recently described in the Department of



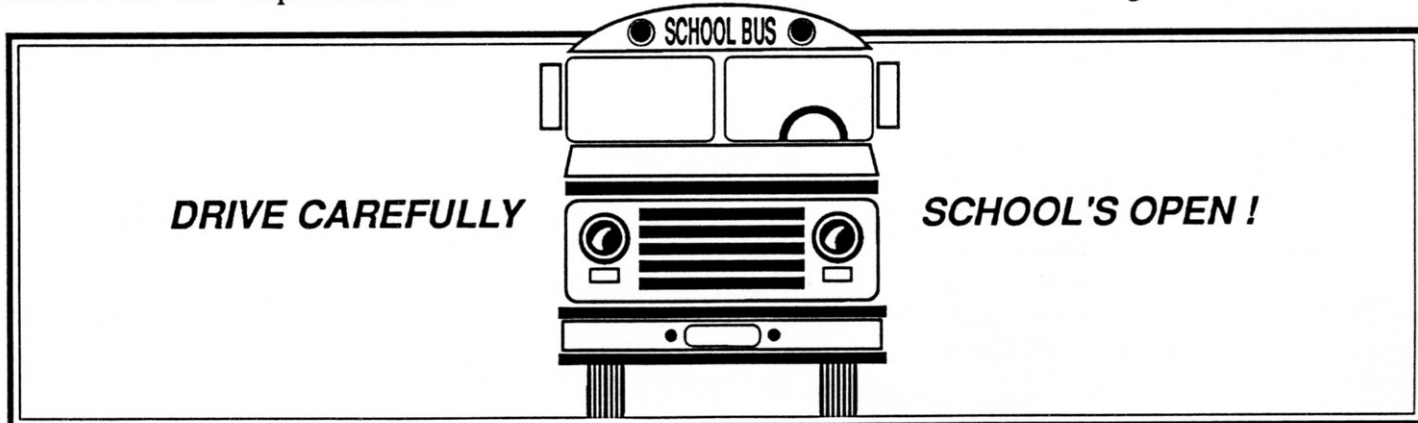
Otto Griesbach (left), and Joe Stencel are pleased to have had a patent issued on their invention. After the Patents Dinner in May, Stencel brought Griesbach his Certificate of Recognition to the Pennsylvania hospital where he has been undergoing rehabilitation therapy.

Energy's Technology '90, an R&D Technology Transfer Program, along with several other PPPL technology transfer ideas. During operation of the Sampler, air is passed through a series of three traps

called molecular sieves to remove moisture and any tritiated water—water with tritium in it. A palladium catalyst combusts any hydrogen or tritium gas present and deposits it in the third trap. The word "Differential" in the title indicates that the monitor has the ability to differentiate between the tritiated water and hydrogen or helium gas.

The uniqueness of the Sampler lies in its use of a carrier gas to fuel the catalyst. The carrier gas also provides an efficiency check on the process.

Stencel explains, "We purchase carrier gas that has been analyzed to ensure that it is below an explosive mixture for hydrogen. Also, we specify our source of hydrogen to be a petroleum by-product, which is normally obtained from deep wells and therefore has essentially zero tritium concentration. Last year we received some tanks of gas in which the hydrogen was obtained by electrolysis of surface water in upstate New York. Tritium is a form of hydrogen, and surface water contains low levels of tritium; because of the monitor's sensitivity, we saw the tritium in the carrier gas before it was used."



PPPL Employees Honored at Two Service Award Events

The length of the list of those honored at two service awards ceremonies this summer attests to the large number of employees who chose to work at PPPL for many years. A total of 197 staff members were honored with service awards, and 26 retirees were honored. All awards were for calendar year 1990.

All-University Celebration

Lab employees and retirees participated in a Princeton University ceremony on June 19 at Forbes College. During the festivities, those retiring with ten or more years of service received a silver gift. In addition, those with 25 years of service who continue to work at Princeton received a traditional rocking chair. PPPL retirees have been listed in earlier editions of the HOTLINE. PPPL employees who have worked at the Lab for 25 years include: John Gennuso, Daniel Huttar, Donald Knutson, Richard Neindorff, Robert Persons, Eleanor Schmitt, and Willie Wicker.

Some of the PPPL honorees who attended the Princeton University June 19th Retirement/Service Awards Ceremony at Forbes College gathered afterwards for a picture. They are listed with years of service and, if retired, with an R. First row, left to right are: Marie Steer-11,R; Anne Romano-13,R; Charles Beach, Jr.-27,R; Samuel Hand, Jr.-34,R; Richard Shamon-33,R; David Mullaney-35,R; John Gennuso-25; Charlotte Harrison-26,R; second row includes: Walter Olkowski-10,R; Robert Persons-25; Daniel Huttar-25; Monte Frazier-27,R; Henry Fallon-27,R; John Boychuck-29,R; Richard Neindorff-25; Joseph Mayercak-31,R; and Eleanor Schmitt-25.

Photo: Robert P. Matthews



PPPL Celebration

Honored on July 11 were 197 PPPL staff members with five to thirty-five years of service. Deputy Director Dale Meade presented the awards during the ceremony held in the M.B. Gottlieb Auditorium. Those honored chose their awards from a variety of possible selections. Honorees are listed below.

Years of Service

Five Years

Bert Allen
Donald Bumgardner
Alexander DeSantis
Rae Federico
Jerry Gilbert
Yvonne Harris
Sue Hill
John Johnson
Cheryl Miller
Sophie Monaghan
Cecelia O'Brien
Constance Riviera
Catherine Saville
Steven Scott
Wayne Snyder
Gary Stines
Brentley Stratton
William Tighe
Richard Weisel

Ten Years

Vytautas Abraitis
Harold Anderson
John Anderson
Dieu Au
Alan Bara
Jeffrey Barnard
Joseph Bartolick
Michael Bell
William Blanchard
Carl Bunting
Edward Bush
Theodore Cashel
Lloyd Ciebia
Lawrence Corl
Danny Crook
Mark Cropper
Robert Cwiler
David Cylinder
Thomas Czeizinger
William Davis
Thomas Deverell
Frances Dimmick
Sidney Dorum
Lawrence Dudek
George Fleming
Wesley Foraker
Rosemarie Fuchs
Jerry Gething
Christian Gillars
Kristopher Gilton
Thaddeus Golian
Theresa Greenberg
Robert Gulay
Donald Harnsberger
Stephen Hayes
Marilyn Hondorp
Aleksandar Ilic

Alan Janos
Frances Jenner
Stephan Jurczynski
George Kalescky
Stanley Kaye
Eugene Kearns
Mark Kijek
Gregory Klank
Harry Krotz
William Langer
Scott Larson
Philip Larue
Dolores Lawson
Walford Little
G. Douglas Loesser
Jason Lynn
Milton Machalek
Elizabeth Manuel
Michael McCarthy

William McCreedy
Kevin McGuire
David Miller
John Mount
Robert Mucha
Harold Nastelin
David O'Neill
Joanne Ofgant
Walter Olkowski
Robert Persing
Michael Quigley
Dorothy Quinn
Eileen Rabiger
Louis Raics
Martha Redi
William Richardson
Edward Rogers, Jr.
Phyllis Roney

Continued on page 7

PPPL Employees Honored

Continued from page 6

Ten years

Guy Rossi
Craig Salmon
Barbara Sarfaty
Nadirah Shakir
Patricia Shangle
Carol Silvester
Jerry Siminoff
Edward Simmons
Charles Skinner
Marie Steer
Allan Stevens
Gale Stevens
James Stevens
Cheryl Such
Charles Sule
Rodney Templon
Clarence Thompson
Robert Tucker
Stephen Tureikas
Andrew Vanisko
Richard VanKirk
Michael Viola
Alfred Von Halle
George Walton
Frederick Wasylenko
Russell Wester
Justine Whitley
Jack Wills
James Wilson
Irving Zatz

■ ■ ■

Fifteen Years

Gregory Bates
Jeffrey Bennett
Joseph Carson
Chio Cheng
James Chrzanowski
Sally Connell
Anthony DeMeo
James Dickinson
Michael Dudas
Hartmut Gentzik
Roger Gould
Leon Green
James Greenhough
Douglas Gunn
David Johnson
Edmund Kaminsky
Gary Kater
Michael Knorr
John Lawson
Stephen Lengyel
Janardhan Manickam
Lewis Meixler
Donald Monticello
Robert Mosley
Frank Polom
Robert Popp
Ramon Pressburger

Kenneth Quadland
Stephen Ragolia
Gregory Rewoldt
Ned Sauthoff
Thomas Sereni
Rosemarie Shangle-Johnson
Florence Short
Robert Sorenson
James Strachan
Szymon Suckewer
Hironori Takahashi
Kenneth Tindall
Charlene Totaro
Harry Towner
Michael Ulrickson
Silvester Vinson, Jr.
Robert Walls
Robert Walsh
John Wheeler

■ ■ ■

Twenty Years

Daniel Bonfrancesco
John Clark
Edmond McBride
Hector Morales
Hideo Okuda
Denis Shaltis

■ ■ ■

Twenty-Five Years

John Gennuso
Daniel Huttar
Donald Knutson
Richard Neindorff
Robert Persons
Eleanor Schmitt
Willie Wicker

■ ■ ■

Thirty Years

Herbert Fishman
Joseph Frangipani
Leslie Gereg
Edward Hall
Jack Joyce
Thomas Lupich
John Semler
Robert Shoemaker
Harry Smith

■ ■ ■

Thirty-Five Years

George Martin
Carl Oberman
Richard Palladino
Louise Schaufler
Daniel Zydorski

■ ■ ■

TRANSITIONS

Promotions

Kay Collins has been promoted from Secretary 8 to Administrator I in the Deputy Director's Office.

Tom Furman has been promoted from Emergency Driver to Fire Captain in the Emergency Services Unit.

Geoffrey Gettelfinger has been promoted from Staff Engineer to Section Head in PBX-M Engineering.

Alex Juhasz has been promoted from Technician V to Technician VI in Quality Assurance.

Barbara Nini has been promoted from Executive Secretary to Administrative Secretary in the office of the TFTR Project Head.

Tom Sines has been promoted from Technician IV to Technician V in Tokamak Operations.

New Hires

Welcome to the many new members of PPPL staff hired in the following areas:

Plant Maintenance and Operations (PM&O)

William Allard, Plumber

Francesco Amodeo, HVAC Technician

Diane Griffin, Janitor

John Jackson, Electrician

Continued on page 8

Continued from page 7

New Hires

Jorge Micolta, HVAC Technician
Candis Seals, Staff Assistant
Kenneth Shaffer, Electrician

Materiel Control

Patricia Potts, Storage and Distribution Clerk

James Scott, Hazmat Coordinator
Timothy Vavricka, Shipping Clerk

Security

Mark Buscavage, Security
Daniel Tomalin, Security

Safety Office

Joan deVastey, Industrial Hygienist
James Grouss, Health Physics Technician

Ed Panik, REML Technician

Quality Assurance, Quality Control (QA/QC)

George Peak, Quality Control Inspector

Pat Vallese, Technician

Procurement

Linda Damon, Buyer
Linda Stone, Buyer

Computer Division

Frank Bauer, Computer Operator
Michael Campbell, Computer Operator

William Yuen, Computer Operator

Technical Shop Mechanical Group

Doug Blanchard, Technician

Robert Cook, Technician

Other Categories

Denise Applewhite, Technician in Photo Lab

John Collins, Vacuum Engineer in TFTR

Richard Kaeser, Attorney
Amelia Marrero, Accounting Clerk in Accounting

Retirements

Anthony Dutton, a Technician in the Heating Systems Division of Systems Engineering, retired on June 21, after 12 years at PPPL.

Charles Emerson, Technical Associate in Research, retired after 15 years at the Lab on August 16.

Joe Hengeli, Technical Associate in Engineering, was with PPPL for 34 years before his retirement on July 31.

Ken Hobson, Technical Associate in Engineering, retired June 30, after 33 years at the Lab.

Richard Rossi, Associate Director of Administration, served at PPPL for 24 years before retiring as of June 30.

Louise Schaufler, Administrator V in Engineering, was with the Lab for 36 years before her retirement June 30.

Marie Steer, Staff Assistant Material Control, retired May 24, after 10 1/2 years at the Lab.

William Steer, a Technical Assistant in Engineering, retired July 4, after 14 years at the Lab.

Pat Terraciano, a Technician in Engineering was at PPPL 15 years before retiring May 31.

Obituaries

George Beauregard died June 19. He retired from the Laboratory on December 30, 1983 after 24 years of service.

Charles A. Johnson died on June 19. He had been employed at PPPL as a TFTR Technician since 1959.

Marge Potter died on July 27. She had been employed in Facilities Engineering since 1986.

Jerome West died on August 18. He had been employed in Facilities Engineering since 1972.

Florence Short died June 15. She had been employed at PPPL for the past 15 years. Memorial contributions may be made to the American Cancer Society, 3076 Princeton Pike, Lawrenceville, NJ, 08648, or to St. Jude's Cancer Research, 505 N. Parkway, Memphis, TN 33103.

Birth

Best wishes to **Andy Vanisko** of Quality Assurance and his wife Valerie on the birth of their son Andrew on June 13.

CLASSIFIEDS

For Sale

Entertainment '92 Discount Books. Two-for-one offers on restaurants, sports, movies and more. New Improved Central New Jersey Edition will be available in September. Still only \$35. Call Greg at ext. 3370.

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HOTLINE, B366, C-Site

University Honors Stix *Distinguished Teaching Award Given*

Professor Thomas H. Stix was recognized for his contributions to academics with the first annual University Award for Distinguished Teaching during Princeton's Opening Exercises at the University Chapel on September 15. Stix has been a professor of Astrophysical Sciences since 1962, was Associate Chair of the Department from 1981 until this September, and has served as PPPL's Associate Director for Academic Affairs since 1980.

At the award ceremony, University President Harold T. Shapiro said, in part, "*Professor Stix led the graduate program in plasma physics*

ics with style and grace, maintaining a deep interest in the personal and professional well being of each student. His research has offered his students a powerful statement of the vitality of creativity; and by his example and encouragement he has won to the field many who themselves have gone on to be leaders in the plasma physics community."

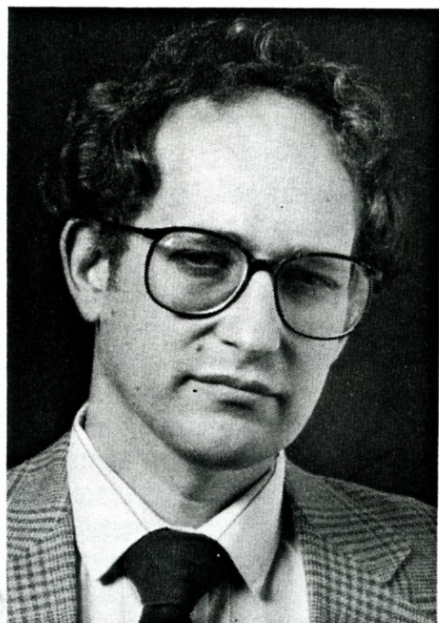
Director of PPPL Ronald C. Davidson said, "Professor Stix's distinguished career as educator and intellectual leader of the Graduate Program in Plasma Physics dates back to when I was a graduate stu-



Professor Thomas H. Stix, winner of the first annual University Award for Distinguished Teaching. Photo: John Peoples

Continued on page 2

Fisch to Direct Graduate Studies



Professor Nathaniel Fisch, recently appointed Director of Graduate Studies and Director of the Program in Plasma Physics. Photo: Denise Applewhite

Professor Nathaniel Fisch has been appointed Director of Graduate Studies and Director of the Program in Plasma Physics in the Department of Astrophysical Sciences.

Said PPPL Director Ronald C. Davidson, "Education of many of the Nation's leading plasma physicists is one of the most important contributions to plasma science and technology made by the faculty and research staff at PPPL. I am delighted with Professor Fisch's appointment as Director of Graduate Studies, and I am confident that he will provide outstanding leadership to the Program in Plasma Physics during the years ahead."

Fisch, who joined PPPL in 1978, received his B.A., M.A., and Ph.D. from the Massachusetts Institute of

Technology, as well as completing post-doctoral work there.

Fisch is known for his suggestion that lower-hybrid and other waves could be used to generate continuously and at low cost the toroidal current in a tokamak plasma. Once controversial, Fisch's theories of current generation were confirmed in tokamak experiments worldwide, including, in the early 1980's, a particularly significant series of experiments on the PLT tokamak (Princeton Large Torus) at PPPL. Fisch was granted four patents on various ways of generating currents in tokamaks, and designs for economical fusion reactors generally now incorporate some means of generating steady-state current.

Continued on page 3

Stix Honored

Continued from page 1

dent in the mid-1960's. I can think of no more deserving recipient of the University's Distinguished Teaching Award than Tom Stix. This award brings great honor both to Tom and to the Graduate Program which he was so instrumental in establishing and nurturing."

Stix was one of two senior faculty members to receive this first-time award, which included a certificate and a check for \$2,500. Two junior faculty members were also recognized.

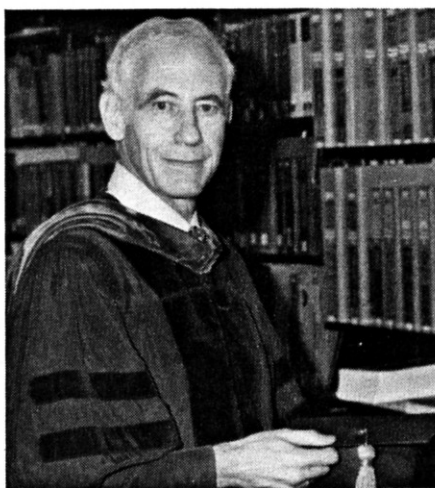
When receiving the award, Stix noted that he was accepting it not only for himself, but as a representative of the faculty for Princeton's Graduate School and of the Plasma Physics Section of the Department of Astrophysical Sciences. Said Stix, "Princeton has an outstanding graduate program in plasma physics, and I take this as an opportunity to recognize the superb teachers and graduate students that we have." Stix, now the most senior scientific staff member at PPPL, joined the Lab in 1953, after completing his Ph.D. in Physics at Princeton. He had received his B.S. from the California Institute of Technology in 1948. Over the years, he has served as Head and Co-Head of the Experimental Division and Head of the Basic Plasma Physics Group.

A member of the original Project Matterhorn team assembled by Professor Lyman Spitzer, Jr., Stix started his plasma physics career as a full-time experimentalist. Since then, in addition to many articles, he has published the book *The Theory of Plasma Waves*, 1962, and is now completing his second book on the subject, *Waves in Plasmas*, due out this year.

Teaching Plasma Physics

Dr. Stix remembers, "The teaching program for plasma physics began in 1959, when I taught the first course on waves in plasmas through the Department of Electrical Engineering. In 1961, a separate graduate program was established, with four tenured professors: Edward A. Frieman, Melvin B. Gottlieb, Martin D. Kruskal, and myself. Since then, the number of doctoral degrees awarded in our program has grown to more than 140."

Fourth-year graduate student Bill Dorland has been very pleased with the support he has received



Professor Thomas H. Stix dressed in academic regalia in preparation for Princeton's Opening Exercises on September 15, when he received the first Annual Award for Distinguished Teaching.

Photo: Denise Applewhite

from Dr. Stix. "He's really been like a father figure for all of us, and I've appreciated his flexible approach to what a graduate school experience should be. Students come to the Plasma Physics Program with a wide variety of backgrounds, and it's difficult to meet all their needs, but Tom has made that possible."

Barbara Sarfaty, Administrative Assistant in the Graduate Studies Office, says, "Tom has made working in Graduate Studies an exciting and challenging experience.

It's clear that he loves the Program and has dedicated himself to it. His door has always been open, and students have felt very comfortable talking with him. He wants the program to flourish so that young scientists entering the workforce will have the best training possible."

Scientific Contributions

During his career, Stix has made significant contributions in the areas of plasma waves and radio-frequency heating. Much of today's highly successful utilization of ICRF (ion cyclotron range of frequencies) plasma heating finds its origins in Stix' early experiments and calculations. Other areas in which he pioneered include: the first divertor experiments (1956); the first US tokamak-geometry experiments (1957); theoretical work on plasma-wave mode conversion (1965); magnetoelectric plasma confinement (1970), plasma heating by intense neutral-beam injection (1972), and magnetic stochasticity and enhanced heat transport (1973-78). He has also worked on the problems of ozone depletion and greenhouse warming.

Stix, who has been listed in Who's Who in America since 1965, has been active in professional societies, and received recognition in numerous ways. He served as Chairman for the American Physical Society Division of Plasma Physics in 1962-63, was a John Simon Guggenheim Memorial Foundation Fellow during his 1969-70 sabbatical year at the Weismann Institute of Science, and was awarded the 1980 James Clerk Maxwell Prize in Plasma Physics by the American Physical Society for his work on waves in plasma and on radio frequency heating. He has also served as associate editor for several physics journals as a member of the APS Panel on Public Affairs, and in 1985 chaired the APS Committee on the International Freedom of Scientists.

Fisch to Direct Grad Studies

Continued from page 1

Fisch is also known for his theoretical calculations of the conductivity and other fundamental quantities associated with an externally heated plasma. In 1985, together with Charles Karney, Fisch explained certain otherwise very puzzling experiments on PLT in which a very large fraction of wave energy had been converted to magnetic field energy.

In 1983, for the lay audience, Fisch wrote in *American Scientist*, "Pushing Particles with Waves." Fisch, a consultant to Exxon Research and Engineering since 1981, spent a sabbatical year at IBM, in 1986, as a Guggenheim Fellow, where he worked on machine learning. In the graduate program, he has taught *Irreversible Processes in Plasmas*, the last in the sequence of required graduate courses, and *General Plasma Physics I*, the introductory graduate course.

Says Fisch, "I'm fortunate to have inherited a top program. I will work hard to preserve and improve it. I would like to distinguish, however, the privilege of inheriting a great program from the achievement of building a great program. The building was accomplished by Tom Stix."

Stix, who has directed the graduate program since 1970, is leaving the post to pursue research and writing.

Fisch adds, "PPPL is the leading U.S. research institution in magnetic confinement of plasma. We're able to recruit excellent students because we have the greatest concentration of top scientists and the leading tokamak facility in the United States. Greatly attractive to students also is the faculty responsible for the teaching program, who are world renowned for their classic textbooks and research papers in the field of plasma physics."

"The Graduate Program, although in personnel a relatively small part of

PPPL, carries an immensely important cultural influence to the Lab. Seasoned researchers are surely excited by new discoveries, but the presence of young minds greatly enhances that excitement," notes Fisch.

Diverse Possibilities

Fisch sees a primary challenge of the Graduate Program as anticipating trends so that graduate students can be guided effectively. He observes, "Since our ability to predict trends is limited, we need to teach general skills that can be used to work on a wide variety of problems."

Fisch adds, "We want the skills that students learn now to serve them well ten years hence. Some students will concentrate on mathematical and numerical skills, while others will concentrate on experimental techniques. We want students to be aware of the diversity of possibilities in applying these skills—in fields ranging from fusion to lasers, from plasma processing and plasma propulsion to astrophysics."

Fisch notes, "In this regard, strengthening ties with other University Programs will be beneficial. At the same time, it will be equally beneficial to strengthen ties between the Graduate Program and the main Laboratory Program; The Laboratory Program is now entering an exciting and telling phase, as we solve the problems of burning plasmas and construct tokamak reactors."

The Plasma Physics Program

About 40 graduate students are presently enrolled in the Plasma Physics Program, with seven or eight students admitted yearly. The first two years students take general physics courses, most on main campus. During the first year, they complete an experimental project and pass prelims. During year two, students com-

plete a theory project and then pass generals. During years three through five, they complete a thesis.

Fisch notes that a major advantage of graduate studies at PPPL is that students are free to pursue projects with any of the 120 staff members who hold Ph.Ds—in contrast with some programs where students are chosen on a grant basis to work exclusively on a specific project.

One-hundred and forty-seven students have received doctorates since the inception of graduate studies in plasma physics in 1959. Says Fisch, "Students who graduate from here typically do very well—finding employment in industry, in national laboratories, and in academia. It is, in fact, a source of great pride to us that for three decades the graduate program at Princeton has provided for the field of plasma physics a disproportionately large number of its scientific leaders."

HOTLINE

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|---------------|-------------------------------------|
| Editor: | Carol Phillips |
| Writer: | Johanna Van Wert |
| Layout: | Joseph L. Belica |
| Photography: | Dietmar Krause Denise Applewhite |
| Reproduction: | Teri Daynorowicz Dan Klinger |

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Kids Invited to Do Poster or Essay for Lab's 40th

Children of PPPL employees as well as all other students in grades four through twelve are invited to create a poster or essay for the Lab's 40th Anniversary Celebration.

The poster or essay should express the creator's thoughts on the question *"Considering the environmental and political stresses that present energy sources place on our planet, what do you think will provide the energy required for the world's homes and industries during your lifetime and beyond?"*

A \$50 US Savings Bond is the prize for the winning poster and winning essay in each category: Grades 4-6, 7-9, and 10-12. In addition, participants will receive a certificate and entries will be displayed at the PPPL 40th Anniversary Community Open House, to which the public is invited on Saturday, October 26, 1991.

Entries must be submitted with a cover sheet stating: entrant's name, address, phone number, school, teacher, and grade. Essays must be 500 words or less, and entries from grades 10-12 must be typewritten. Submit entries by Thursday, October 3, to the Science Education Program Office, Room B137, LOB.

Judges Needed

Says Robert Redding, who is coordinating the contest, "We have sent invitations to participate to 200 area schools, and we expect a big response, so everyone who enters should consider the competition and do their very best!"

He adds, "We need good judges, and we are looking for volunteers from the Lab. Please call me at 2107 if you can help."

Weird Science to Invade Lab

Get ready for some fun! Three "weird science" teachers are coming to PPPL. The three, who have appeared on "Late Night with David Letterman," are Dwayne Lieneman, Bob Lewis, and Bill West, who teach in suburban Chicago schools.

On Friday, September 27, at 2 PM, they will present "Talking to Kids about Science." On Saturday, September 28, at 10 AM, they will present the **Weird Science Show**.

Says Robert Redding, who is coordinating the visit for PPPL's Science Education Program, "These presentations are especially for those who teach science to kids, and we encourage all the Lab scientists and engineers who visit schools as well as interested parents who are on staff to come. Children will also enjoy the Weird Science Show on Saturday."

Participants in the Teacher Research Associates Program (TRAC) and the Summer Teachers' Institute, both sponsored by the Science Education Program here, will be returning to the Lab for these programs.

To attend, *please make a reservation*. Be sure to identify yourself as a PPPL employee. Call Robert Redding at the Science Education Program Office, ext. 2107.

Ray Jeanes (left), an Air Force pilot of C-5 transport planes, and Bert Allen (center), a Marine Sergeant in artillery, received recognition for their service during Operation Desert Shield/Desert Storm. In a ceremony on September 5, Milton Johnson (right), Manager of the Princeton Area Office, presented them a certificate signed by Secretary of Energy James D. Watkins and a medal "...in token of appreciation for the sacrifices made by you in behalf of our country." Ray Jeanes, a Fire Protection Engineer at PPPL, flew large equipment, such as tanks and helicopters, between the United States and the Middle East. Bert Allen, of the Lab's Emergency Services Unit, was part of a Marine Battalion sent to Okinawa to replace troops sent to Saudi Arabia. The battalion was on standby to move to combat positions in the Middle East when the war ended.

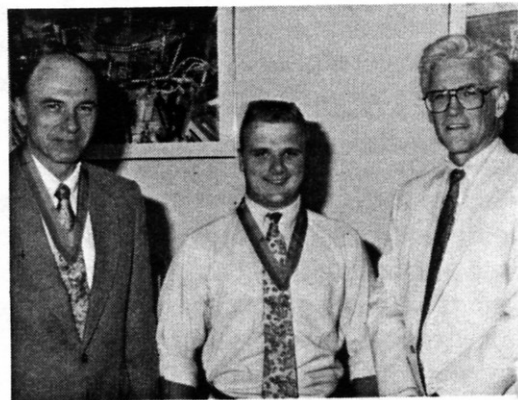


Photo: Denise Applewhite

Annual Tennis Tournament Slated

Time to enjoy the high energy that brisk fall weather brings, and play some tennis! Hiro Takahashi, who founded and has organized the Melvin B. Gottlieb Tennis Tournament for most of the last 14 years, says, "We encourage everyone who's interested to play—employees, spouses and children alike—as long as they are recreational players. The competition is friendly and not very serious, and we have both A and B Divisions, so everyone can play with someone at their own level."

Come on out for the two initial rounds on Saturday and Sunday September 21 and 22 to be held at the Pagoda courts next to Baker Skating Rink on Princeton's main campus.

Winners of the initial rounds will be placed in A Division, and everyone else will join B Division. Everyone gets to play at least two matches. After the initial rounds, contestants arrange their own times to play.

If you're not a tennis player, you can enjoy the competition as a spectator as contestants vie for first and



Photo: Denise Applewhite

Winners of the 1990 M.B. Gottlieb Tennis Tournament are shown here with their trophies. Left to right, they are: Division A winner Hiro Takahashi, a Research Physicist for PBX-M; Division B runner-up Janet Roberts, of the Diagnostics Division; and Division A runner-up Jim Bialek, from Engineering Analysis. Division B winner Mark Bannister (not shown), is a graduate student at PPPL.

second place prizes in both divisions. More than thirty contestants typically turn out, so there's plenty of opportunity to watch every level of play. We plan to hold finals on Saturday, October 20.

After the first year of the tournament, when Sandy Dreskin was the

overall winner, Hiro Takahashi and Jim Bialek have volleyed back and forth for first place. In 1991, will a new winner emerge from the ranks? Takahashi offers the challenge, saying, "We're looking for new, fresh champions to come on out and say 'Move over, I'm here!'"

Oops, We Goofed!

In the photo of the Training Advisory Committee in HOTLINE 15, Steve Jardin was misidentified as Ned Sauthoff. Apologies to both.

Training Specialist Brian Trombley consults with Summer Science Awards student Radha Venkat on a computer-based training application. (In HOTLINE 15, the wrong photo caption was included, misidentifying them as Boris Grek and Rajini Ramakrishnan. Apologies to all concerned.)



Ideas Needed

Got a hot tip for HOTLINE? Your story and photo ideas are what make your newsletter lively and relevant, so please call Carol Phillips at 2754 or fill out the coupon, and we'll work with you to get your idea in print.

Name _____

Extension _____

Story and/or photo idea _____

Volunteers Needed for Family Day

We need you to participate in celebrating the 40th Anniversary of the fusion effort at Princeton.

Our celebration will begin with a Family Day and Open House on Saturday, October 26. The event will run from 10 AM to 4 PM. Volunteers are needed from 9 AM to 5 PM to help serve food, hand out souvenirs, direct tours, etc. If you can participate for *two, three, four or more hours*, please complete this slip and return it to Peter Del Gandio in the Safety Office.



Yes! I volunteer to help make the 40th Anniversary Family Day a great success. Please sign me up for:

Number of Hours: _____

Morning _____ Afternoon _____ No Time Preference _____

Name: _____

Extension: _____ Home Phone: _____

Send to: Peter Del Gandio, Safety Office, D-Site

Banquet Tickets On Sale

Get your tickets now for the gala 40th Anniversary Banquet on Thursday, October 31. Good company, delicious food, and a talk by well-known astronomer Carl Sagan promise to make this a very special evening.

All PPPL employees and their immediate families are invited. Tick-

ets are \$25 and are on sale in the LOB lobby daily between 11:30 and 1:00. *Last day of ticket sales is Friday, October 4.*

Thanks for your cooperation in buying tickets early, so that the best location can be chosen and food plans made.

TRANSITIONS

Promotion

Cheryl Such has been promoted to Manager of the Operations/Information Center. She was previously Staff Assistant in the Center.

Retirement

Charles Emerson, a Technical Associate in Research who has been employed at PPPL since 1976, retired September 1.

Obituary

Richard D. Farley died on September 1. He was Lead Engineer in AC Power and had been with the Lab since 1956. Contributions in his memory can be made to: Holy Angels Mission Society, c/o The Rev. Michael Walsh, 1733 S. Broad St., Trenton, New Jersey, 08610.

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For Sale

Entertainment '92 discount books with 50% reductions on restaurants, stores, movies, etc in Central Jersey. Still only \$35. Books now available for pickup. Call Greg at 3370.

Honda Accord LXI—white; four doors; power sun roof; AC; AM/FM stereo cassette; power antenna; cloth interior; \$8999. Call Don Greene at 3717.

1968 Mercedes-Benz—Model 230 Finback in excellent condition; 135,000 miles; \$5000. Call Eric after 6 PM at 609-921-7093.

Computer Equipment:

- **Franklin Ace 500 Computer**—Apple IIC compatible with 256 KB RAM, 164 KB floppy disk drive; 90 keyboard serial and parallel ports;
- **Thompson 4120 RGB Monitor**—13 inch color monitor;
- **Laser FD 100CC Floppy Disk Drive**—external floppy disk drive 160 KB.

All computer items in excellent condition; good set up for home use/youngster to get started. Call Dar Kungl at 3002.