



# HOTLINE

PRINCETON PLASMA PHYSICS LABORATORY

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January 21, 1982

## Testing Continues On TFTR Rectifier

Phase I testing of the first ECS thyristor-rectifier, the first of twenty which will power the TF field coils on TFTR, was successfully completed by the Rectifier Section of the Energy Systems Branch December 16.

According to project engineer Charles Ancher, the 44-MW rectifier was received at PPL May 15. After some retrofitting work, testing of the unit's basic design parameters and protective systems began. The testing program was conducted with CICADA computer control.

The high-power testing, which was done in the TFTR Field Coil Power Conversion Building, involved installing the rectifier, connecting the power and control cables, providing a cooling water system, and energizing the unit in a carefully preplanned sequence of steps. "We wanted to find out whether the unit could operate successfully under certain failure conditions, and it came through the testing quite well," Ancher said. He added that "The rectifier had successfully carried 22 kiloamps at 2,000 volts during testing, and had also survived a line-to-line short circuit test."

This was the first time the unit had been tested, and Ancher said the entire resistor yard behind the FCPC building was used as a load because a place was needed to dump that much energy. "We knew we were successful when a cloud came from the resistor bank on a rainy day, like steam from a steam iron," he reported.

Testing was conducted by Charles Neumeyer, Charles Ancher, Vernon Covey, Frank Dreher, Peter Haney, Fred Kloiber, Frank Lawn and John Opperman.



*The group that tested the ECS thyristor-rectifier included (front, left to right) John Opperman, Peter Haney, (rear, left to right) Charles Neumeyer, Vernon Covey, Charles Ancher and Fred Kloiber.*

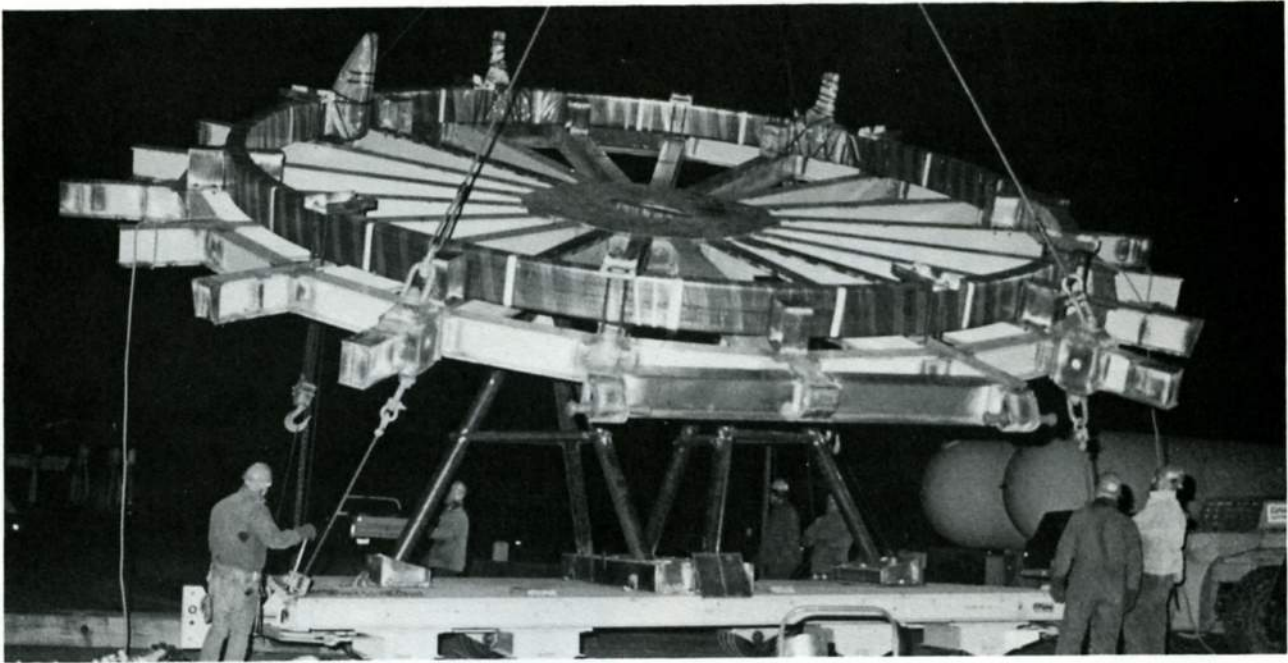
The unit will now be prepared for Phase II testing, which will determine the unit's capabilities under operating conditions involving 24,000 amps at 2,000 volts. Testing of units two and three, installed at the FCPC building last month, will begin in mid-January. A total of 39 units will be installed for TFTR operations.

## New Hours

In order to better schedule work flow, the A-site petty cash area (Room 107, Bldg. 1-E) will only be open from 9 to 10 a.m. and from 2 to 3 p.m. daily.



## TFTR Coils Moved



*A tilting frame, to which Stack 8-B of the TFTR poloidal coil system is attached, is lifted before being tilted through the door at the test cell. The stack, which has a 26 foot diameter and weighs approximately nine tons, is the first of four stacks fabricated at the PPL Coil Shop to be moved to the TFTR site.*

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## Policy Manual

As a result of one-and-a-half years of effort by various committees in conjunction with the Personnel Department, the laboratory now has its first personnel policy and practices manual pertaining to all staffs.

Although the Personnel Department was responsible for the manual's initial development, the Administrative Operations Committee, the Employee Representatives Committee, the Engineering and Scientific Staff Advisory Committee, the Laboratory Council and the University Oversight Committee all provided input during the formulation of the manual.

Director of Personnel Services Steve Iverson said the manual was developed as a tool to help supervisors manage their departments. He added that the manual provides "a common base" for all supervisors, as well as a "uniform set of policies and procedures". It is extremely important that all employees are assured of consistent treatment in the management decision making process.

"In the past," Iverson said, "some of the laboratory's practices were not spelled out in a written format. As a result, a significant number of supervisors and employees were never really certain whether or not their actions were consistent with the policies and intent of the management of the laboratory. This manual permits supervisors and employees to know what policies and procedures are in existence at the laboratory."

The manual encompasses approximately 30 policies in the areas of employment, benefits, compensation, employee relations, training and services, and replaces related University policies contained in the various University handbooks. All policies are written in "plain English", and new policies will be added to the manuals as they are approved. Distribution of manuals will be recorded by the Personnel Office in order that all holders receive all updated information.

While the policies are modeled after University policies, several reflect "the unique nature of the

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## Manual cont'd

laboratory's operations," Iverson continued. "Such policies include provisions for flex-time, performance appraisal, service awards, allocation of overtime, and so on."

Manuals have been distributed to all supervisors, and workshops are being held to assist supervisors in understanding and interpreting various policies. Employees interested in examining the manual should direct requests to their supervisors.

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## T.O.U.R.S.



Our post-Christmas praises go to the 14 hardy souls who led visitors through PPL's halls in January. Thanks go to Dick Palladino, Bob Applebaugh, Al von Halle, Suzen Bayer, Sid Medly, Stu Foote, Felix Ullrich, Bob Krawchuck, Pat Colestock, Diane Carroll, Halsey Allen, Harold Eubank, George Martin and Al Swain for their help!

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## Cafeteria Changeover

A three-year subcontract, covering the operations of the C-Site cafeteria and vending machines, has been granted to Interstate United of South Plainfield. The company, which also provides food service for FMC Corporation and E. R. Squibb & Sons, is scheduled to take over cafeteria operations January 25.

The firm was selected from four companies screened by the Ad Hoc Cafeteria Committee, composed of chairperson Nancy Jones, Olga Bernett, Don Muschal and Louise Tindall. Committee members visited several area companies where prospective vendors operate to assess their programs prior to making recommendations. Victor Gambino of Procurement worked closely with the committee.

In addition to unanimously recommending Interstate United, the group also suggested that a committee of regular cafeteria users be appointed to work with liaison Ruth Donald and Robert Smart, Associate Head, Administration Department, to monitor user satisfaction with the new service.

More information on the cafeteria change over will be available in the next edition of the HOTLINE.

## Safety Glasses Program



Starting February 2, an optician from the Fend-All Company of Clifton will make a monthly visit to PPL as part of the employee safety glasses program.

The optician will be available from 10:30 a.m. to noon in Room B-137, LOB on the first Tuesday of each month. Employees may purchase safety glasses, as well as dress glasses and sunglasses, through the program. Glasses brought through the program cost approximately 40 percent less than retail glasses.

Employees participating in the program should consult the frame style and lens price lists posted on bulletin boards throughout the lab. After choosing a frame and lens type, employees should bring their prescription to the optician. Prescriptions can also be taken from a current set of glasses by the optician.

A deposit equalling the price of the lenses will be required at the preliminary visit to the optician. Glasses will be delivered the following month, when the balance will be due. Those wishing to receive their glasses immediately may pay the entire cost at the time of their first fitting, and have the glasses shipped directly to their home.

Any adjustments in the glasses, or verification of the prescription, can be made by the optician at the time of delivery and final fitting.

Further information about the program is available from Dick Carlese of Health and Safety, ext. 2533.

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## Singles Social

The Princeton University League will hold its monthly singles wine and cheese social February 11 in the Fine Tower faculty room. All single members of the University faculty and staff are invited to attend.

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



## Blairstown Weekends

Continuing a successful three-year tradition, the Princeton Education Center at Blairstown will be open to the University community for two Family Winter Weekends, February 13 and 14 and Feb. 27 and 28. The Center is located 65 miles northwest of Princeton.

Faculty, students, staff and their family and friends are invited to the Center to enjoy comfortable lodging in wood-heated cabins. The solar bathhouse provides a sun-heated shower, and hearty meals will be served in the skylighted log dining hall.

Weekend activities include ice skating and cross-country skiing on a weather-permitting basis. Instructions are free, and rentals are available nearby. Games will also be available, as will guided explorations of the winter woods, bird watching, tracking and ice fishing. Special activities encompass sessions on wood, wood stoves and wood-splitting, energy conservation ideas for the home, and winter activities for children.

Stargazers can take advantage of the Center's telescope and star finder. Those interested in more sybaritic pursuits can relax in front of the large fireplace in the Headquarters Building.

Activities during the second weekend will be similar to those of the first, with the addition of optional sessions in winter skills, survival and adventure. Guests will also be permitted to go through the Center's challenge courses.

Cost per person is \$30 for adults, \$15 for children under 16 and five dollars for children two and under. Fees include lodging and meals from Saturday noon through Sunday brunch. Those interested in arriving Friday evening may choose to do so at an additional charge of eight dollars per person for lodging and Saturday breakfast.

Reservations must be postmarked by Feb. 5 for the Valentine's Day weekend, and by Feb. 10 for the second weekend. All reservations will be accepted on a "first come, first served" basis, with a limit of 50 per weekend.

To receive a reservation flyer with further information, contact the Center's office at Maclean House, Princeton University, 452-3340.

## Apprenticeship Program

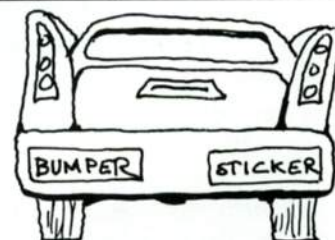
The PPL Employment Section, in conjunction with Mercer County Community College, is sponsoring a skilled crafts apprenticeship program at the lab.

According to Barry Cohen and Chris Legaard of the Employment Section, the program allows laboratory craftspeople to upgrade their skills in professional craft categories such as welding, metalsmithing or electronics. A nationally recognized journeyman certificate is granted upon successful completion of the program, with registration fees and course costs paid by PPL.

Terms of apprenticeships vary with the skills involved. Apprentices attend evening classes at local schools for theory background, testing and some hands-on work. Further hands-on experience in conjunction with the apprentice's skill area is provided at the laboratory. "That's so people will know why they're doing things as they do," Barry explained. "The employee then becomes more proficient, so the program affords growth potential for both PPL and its employees."

Anyone interested in further information on the program should call Barry at ext. 2037 or Chris at ext. 2401.

## Bumper Stickers



A new bumper sticker with the slogan "Positrons Are Another Matter" is now available from the Astronomical Society of the Pacific.

The Society also produces a whole series of astronomical bumper stickers, which include such slogans as "Black Holes Are Out of Sight" and "Supernovae Are a Blast." Income from the sale of these stickers is used to support the non-profit Society.

For a complete catalog of their bumper stickers and other astronomical materials, please send a stamped self-addressed envelope to Astronomical Catalog, A.S.P., 1290 24th Avenue, San Francisco, CA 94122.



## TFTR Parking

PPL employees—especially those who have occasion to work at the TFTR site—should note that general parking is not available on the site. Because of the “exclusion area” concept, long-term plans for the site provide only a few short-term parking spaces near buildings. The existing open areas still belong to the construction contractors, for their exclusive use for storage and parking for their own employees.

In order to accommodate the necessary movement of tools, equipment and materials into and out of the TFTR buildings, six parking spaces have been provided. If you must park outside of a designated space, be sure to leave a note on the windshield for the Security Officer. Any special problems involving parking or other access to the TFTR site should be referred to Halsey Allen or the Security Office.

The shuttle route has been altered to pass between the TFTR site and the Tech Shop, RF and Maintenance Buildings. We expect to provide some additional walkways in the vicinity of the cooling towers.

Taking occupancy of the buildings at the TFTR site is a significant milestone in our progress toward the goal of an operational tokamak. Everyone's cooperation and assistance in working out the “bugs” that will inevitably occur as we proceed is most appreciated.

## Dance Classes



The popular ballroom dance instructions sponsored by the Princeton Get-Away Club and the University League resumed January 13 with lessons in fox-trot and cha-cha. Mr. Gary, a professional dance instructor, leads the class.

The series of five lessons will be held on Wednesdays from 8 to 10 p.m. in the Dorothy Brown Room at 171 Broadmead. The cost is \$20 per person for the series, payable in advance. Send checks to Princeton Get-Away Club, Dod Hall Mail Room, Princeton University.

For further information, call 921-6620 after 5:30 p.m.



## Security Checkpoints

(This is the first of three installments, outlining security tips for University employees on vacation, at home or at the office)

While you are away from home:

- Never leave notes that indicate your absence.
- Make sure windows and doors have been secured.
- Do not leave “hidden keys”.
- Leave a key with a trusted neighbor who can make periodic checks on your home.
- Arrange for lawn maintenance as well as for mail and newspaper pick-up.
- Do not publicize your planned absence.
- File a “vacant house” report with your local police department.
- Try to create a lived-in appearance; put lights and radios on timers, and leave shades and blinds in normal positions.
- If you return home and find that your home appears to have been entered, *Do Not Enter*—call the police.
- Close your garage door, even when leaving on short shopping trips. Garage doors can be easily secured for longer absences by placing a padlock through the roller track.

While at home:

- Install new locks when you move into a new house or apartment.
- Install double cylinder locks on outside doors, especially those with glass panels.



## Security cont'd

- Install window locks or drill and pin the sash.
- Trim shrubbery and remove obstructions that could conceal a burglar breaking into your house.
- Don't reveal your phone number or address to unknown callers
- Separate home and auto keys when leaving your car in a parking lot.
- Remove all identification from your key ring.
- Protect the exterior of your home with lighting.

(Next Time: More Home Security Tips)

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## ERC Notes

The ERC met on Wednesday, December 9. Joe Stencil of Health and Safety explained forthcoming changes in the radiation badge monitoring program. Due to the budget crunch, many employees will now receive badges which are processed yearly instead of monthly.

The Cafeteria Committee reported that their recommendation to Robert Smart was to select Interstate United as the new vendor for the C-Site cafeteria.

After some discussion, it was decided that the ERC would invite a representative of the credit union to attend a subsequent meeting to answer questions and listen to employee concerns.

It was brought to the attention of the committee that many people were dissatisfied with the quality of the safety shoes this year. Those wishing to order shoes from Iron Age (last year's supplier) may do so, and apply for reimbursement individually.

The misuse of the visitor parking area by laboratory staff will be looked into by the chairman.

The possibility of establishing a surplus material shop at the lab will be discussed at the next meeting.

## Acid Cleaner Warning

The National Poison Center Network has warned that hydrofluoric acid, used in many home cleaning products, is a particularly dangerous ingredient if not used with care.

Even in solution, hydrofluoric acid is a corrosive chemical that can cause severe skin burns. The severity of these burns may not be immediately apparent, even for as long as 24 hours after contact. Initial symptoms may include a slight burning or tingling sensation on exposed skin.

If left untreated, the acid attacks cells deep in the skin and bones of the exposed area. Fingernails and the ends of the fingers may be lost without immediate treatment. The acid can also make the eyes burn and swell, and can cause the symptoms of an upper respiratory infection.

To avoid such problems, carefully check the label of any cleaning product prior to use. If hydrofluoric acid or "HF acid" is mentioned, wear rubber gloves and use the cleaner only in a well-ventilated area.

If you suspect even a mild exposure to hydrofluoric acid, call the local poison control center immediately.

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## Art Exhibits

An opening reception for artists Kristin Naumann and Karen Bowen will be held at the Princeton University League Offices, 171 Broadmead, January 24 from 2 to 4 p.m. Naumann's desert country landscapes and Bowen's soft sculptures will be on exhibit in the league offices, through February 19.

League offices are open from 9 a.m. to 1 p.m. daily.

The next exhibit at the Squibb Gallery will be the works of Princeton's Naomi Savage, opening Jan. 26 and running through Feb. 26. The Squibb Gallery is located in the world headquarters of E. R. Squibb & Sons, Inc. three miles south of Princeton on Route 206.

Gallery hours are 9 a.m. to 5 p.m. Monday through Friday, and from 1 to 5 p.m. on weekends. Thursday hours are extended to 9 p.m.

# Energy Conservation

Many questions were raised concerning our electric costs as a result of the recent HOTLINE article on conservation. Whereas your home electric bill is based on total consumption (number of kilowatt hours used), the PPL bill is based on both total consumption and "demand." The demand charge is based on the maximum rate at which we used electric energy during the billing period.

The PPL electric bill has been compared to a car rental in which the bill was based not only on miles driven (consumption) but also on the maximum speed driven (demand). The demand charge is imposed by utilities to discourage sharp peaks in consumption. The funds derived from "demand" charges are used by electric companies to provide and assure adequate facilities for continuous on-line service, even during periods of maximum consumption.

As you can see from the table, demand is a major part of the PPL electric bill. It behooves us to do everything possible to shut off lights and nonessential consumption during maximum demand periods.

Turning off a 1,500 watt electric heater during a maximum demand period will save over \$11; turning off a couple of chillers for an hour or so last summer saved over \$10,000.

Principally by controlling demand but also by curtailing consumption, we hope to reduce the PPL bill from an estimated \$4.7M to \$3.0M. These savings can be used to provide relief to financially distressed experimental programs.

## PPL ELECTRIC CHARGES

	<u>1981</u>	<u>1982 (est.)</u> <sup>(1)</sup>
Consumption Charge -		
8 a.m. - 10 p.m. M-F (on peak)	3.4¢/kWh	5.2¢/kWh
8 a.m. - 10 p.m. Sat. (inter-peak)	3.2	4.7
All other times (off peak)	2.7	3.9
Demand Charge -		
May - Sept.		
on peak	\$6.05/kW <sup>(2)</sup>	\$8.35/kW <sup>(3)</sup>
inter- and off peak	No charge	No charge
Oct. - April		
on peak	\$5.15/kW <sup>(2)</sup>	\$7.45/kW <sup>(3)</sup>
inter- and off peak	No charge	No charge
Average Monthly Electric Bill -		
consumption	\$200,000	\$250,000
demand	84,000 <sup>(2)</sup>	140,000 <sup>(3)</sup>
Total	\$284,000	\$390,000
Projected Goal with Strict Conservation -		
consumption		\$170,000
demand		80,000
Total per month		\$250,000

(1) New rate structure anticipated early 1982.

(2) Based on average of 2 highest demand periods.

(3) Based on single highest demand period.

For billing, demand is based on the average kW usage over a 15 minute interval of high consumption.





*Associate Director and Head, Administrative Department Richard Rossi (right) presented 10-year service awards to (left to right) Carolyn Springer, Gloria Pollitt and Francis Holloway. Approximately 160 awards were presented during the ceremony, held last month in the Gottlieb auditorium.*



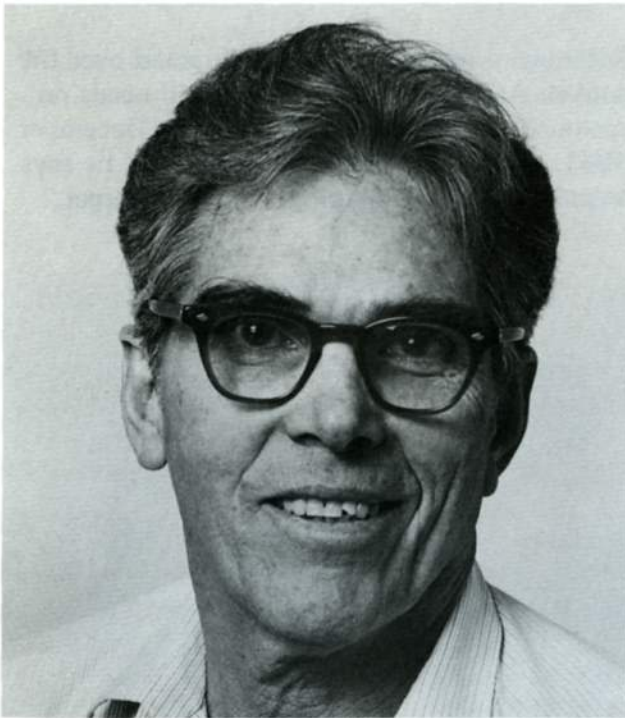
*Bill Walker (left) and Steve Landau of the Vacuum Shop pose with the handmade Christmas decorations they created to add holiday cheer to the shop. Decorations include Christmas tree ornaments, as well as 400 feet of red and green paper chains made by Steve. Numerous sites throughout PPL also sported holiday decorations.*



# ppl people

## "Day Of Infamy" Recalled

Pearl Harbor, Hawaii. Even for those of us who aren't history buffs, those words conjure up dive-bombing planes, exploding ships, and the death and destruction wreaked on that "day of infamy" 40 years ago.



*BILL MYCOCK*

Those memories are particularly vivid for Bill Mycock, who lived through the attack although his ship, the USS Oklahoma, was sunk by torpedo fire.

Bill, a technical associate in PLT operations, enlisted in the Navy on June 4, 1940. He'd tried to enlist in New York City the previous September. "It was the day Hitler invaded Poland," Bill recalled, "but the recruiters said my blood pressure was too high!" He ultimately spent almost 20 years in the service, retiring in February 1960 as a Chief Electronics Technician E-4.

In remembering his experience at Pearl Harbor recently, Bill succinctly summed up that fateful morning. "It was hell," he asserts. "It seemed like one big, bad dream. When we went through the harbor after the attack, we just couldn't believe all the damage that had been done."

At the time, Bill was a 21-year-old gunner's mate third class. The Oklahoma was tied up in "Battleship Row" on the shore of Ford Island in Pearl Harbor. A number of other battleships were berthed in front of and behind the Oklahoma; the USS Arizona was moored two berths aft of the Oklahoma.

The December 7, 1941 attack came "like a bolt out of the blue" to Bill, who felt "the entire world was in an upheaval. Talks were even going on in Washington the day the Japanese hit us!" That Sunday morning had dawned "nice and quiet; most of the officers and married men were ashore. I had just finished breakfast, so I brushed my teeth and was back at my locker when we were hit."

The hit came from a torpedo, dropped from a Japanese torpedo bomber. "The call to battle stations came over the PA right away," Bill explained, "but the torpedoes had a straight run at us." The Oklahoma took four hits from torpedoes, causing her to list badly and eventually capsize. Bill recalls traveling a mooring line from the Maryland (berthed beside the Oklahoma) to his ship "hand over hand, with oil fires on the water all around me and explosions everywhere." The Oklahoma was abandoned after the Arizona exploded, sinking after costing 392 of Bill's shipmates their lives.

Once on the Maryland, Bill helped fire the ship's anti-aircraft guns until 2 p.m. At that point, survivors of the attack were shipped to the West Loch ammunition dump for a one-week stay.



"All the time we were at the ammunition dump," Bill remembered, "all I had were the clothes I had on, which were a tee-shirt and shorts. We had to wear what we had until the Marines managed to get some clothes to give us."

Survivors then moved on to the Pearl Harbor receiving station, where some were transferred to the destroyer tender USS Dobin. Bill's ultimate destination was the destroyer USS Worden, which he joined shortly after Christmas.

Although the attack took a devastating toll, Bill believes the losses would have been far greater had the attack occurred in the open sea. "If that happened," he contends, "a lot more sailors would've gone down with their ships."

Approximately one year later, the Oklahoma was raised from the harbor bottom. The two fountain pens and the wallet he'd had in his locker Dec. 7 were returned to Bill, who has kept the coin and paper money the wallet contained. The Oklahoma

was sold for scrap, but sank on her way back to the United States.

While serving on the Worden, Bill participated in the battles of Coral Sea and Midway, as well as in the invasion of the Solomon Islands and the battle of the Eastern Solomons. The Worden sank after striking a reef at Amchitka Island in the Aleutians, where she was landing Army scouts prior to landing troops. The frightening thing about that January 12, 1943 incident, according to Bill, was that the ship sank in water with a temperature of 38°F and a surrounding air temperature of 32°F. Prior to that trip, Bill reports, "I spent a lot of money to buy a set of tailor-made 'blues'. They were lost when the ship went down."

Although a memorial has been erected over the sunken Arizona in Pearl Harbor, Bill needs no memorial of that Sunday morning in December 1941. "It's embedded in my memory," he says solemnly. "It's something I'll never forget."



*The remains of Bill's wallet, the coins and folding money it contained, and two fountain pens were returned to him after the sunken USS Oklahoma was raised from the bottom of Pearl Harbor. A picture of Bill during his service days is included at the right.*