

BNL Wins R&D 100 Award for Home-Heating Device

BNL is again a winner in the prestigious R&D 100 competition. This year, the winning entry is a home-heating device that will benefit the 11 million oil-heated homes throughout the United States.

The R&D 100 Awards are given annually by *Research and Development Magazine* to the top 100 technological achievements of the year. Typically, these are innovations that transform basic science into useful products.

Awards were presented at a banquet held last night at the Museum of Science & Industry in Chicago.

BNL's winning device, called the Flame Quality Indicator, was developed by Thomas Butcher and Roger McDonald, Department of Applied Science, and Philip Cerniglia, Accelerator Development Department.

According to Butcher, the Flame Quality Indicator monitors the performance of the small oil burners that

This year, BNL's R&D 100 Award was for the Flame Quality Indicator developed by (from left) Roger McDonald, Philip Cerniglia and Thomas Butcher, who holds the winning device.

Photos on this page by Roger Stoutenburgh



Excess combustion air (a fuel-lean mixture) is associated with a decrease in overall appliance efficiency. Too little combustion air (a fuel-rich mixture) results in the formation of smoke, soot and fouling of the appliance's heat exchanger. Other problems can also be detected, including a fouled fuel nozzle and blockages in the combustion air inlets or in the chimney.

With a simple-to-read display of colored lights, the Flame Quality Indicator flags the homeowner's attention so that problems can be corrected before the system fails to provide heat and/or parts of the system are fouled with soot, requiring extensive maintenance.

An average home uses about 850 gallons of oil each year. If only 2 percent of that fuel is saved, the payback for installing a Flame Quality Indicator is less than two years.

BNL's research on the Flame Quality Indicator was funded by the U.S. Department of Energy's Building Systems and Materials Division of the Office of Building Technologies, under the Office of Conservation and Renewable Energy.

The Lab's participation in the R&D 100 competition has been organized since 1984 by the Office of Technology Transfer. That office also handled the patenting of the Flame Quality Indicator, which was assigned U.S. Patent No. 5,126,721 this past June. — Mona S. Rowe

Coming Up

On Thursday, October 1, Brookhaven Women in Science will present the first Gertrude S. Goldhaber Prize in Physics to Xiaodong Zhang, of the State University of New York at Stony Brook and BNL. Immediately following, Zhang will present a seminar on "Scanning Soft X-Ray Microscopy." The presentations will take place at 3:30 p.m. in the large seminar room of the Physics Department, Bldg. 510. All are invited, and a reception will follow.

power residential oil-heating systems. The device is simple to use, inexpensive, energy saving and environmentally beneficial.

New, high efficiency oil-heating appliances have been marketed for over fifteen years. These systems have already saved energy and significantly reduced the emissions of particulates, carbon dioxide and sulfur dioxide. The Flame Quality Indicator will assure that these systems maintain their high level of performance by providing an early indication of when the appliances are not working at their peak efficiency.

The device monitors flame brightness, a useful method of detecting

small changes in the air/fuel ratio, which is an important factor in flame quality. When the flame brightness falls outside of a preset range, that indicates that the appliance needs to be serviced. This warning would occur weeks or even months before the oil burner's primary control would normally shut down the system because of a failure to detect a flame.

CCD Training Room on Line

The new training room in the new wing of the Computing and Communications Division's (CCD) Building 515 is equipped with six workstations that can run the popular AIX UNIX computer operating system.

Those workstations, along with other equipment set up for the occa-

sion, were used for the first time last week, from September 14-18, when 16 participants from seven departments and divisions received in-depth instruction in administering UNIX workstations and networks.

They learned to install the UNIX (continued on page 2)



Among the participants in the UNIX training program were: (foreground) Susan Sevian, CCD; John Bohenek, National Synchrotron Light Source Department; (back, from left) Randi Vogt, Reactor Division; Veronica Evans, CCD; Alison Tilp, CCD; Elizabeth Symonds, CCD; Edward McFadden Jr, CCD; Yasuko Sanborn, Department of Nuclear Energy; Michael O'Connor, CCD; Morris Strongson, CCD; and Dale Hancock and Yunan Kuang, both from the College of William and Mary and guest scientists in the Physics Department.

AGS Dibbuk II Debuts



According to Jewish folklore, a dibbuk is a demon that enters the body of a living person to take control of his or her life. At BNL's Alternating Gradient Synchrotron (AGS), the Dibbuk has been the computer system that came on line in 1974 to allow experimenters to control their beam lines.

Residing within four Digital Equipment Corporation PDP-11 computers (background, right), the AGS Dibbuk was recently retired — after being replaced by Dibbuk II. Residing within the modern hardware and software of the AGS computer control system, Dibbuk II continues in the spirit of its predecessor, by allowing experimenters to power their beam lines' magnets, control the aperture of the beam that they receive, and move primary proton targets.

"While the software was still up-to-date, it was definitely time to retire the ancient hardware," comments AGS Chairman Derek Lowenstein, who gave the Dibbuk its name more than 18 years ago.

Along with Brian Culwick, AGS, and Frank Stubblefield, Instrumentation Division, Lowenstein wrote the original computer programs for the Dibbuk. While the software needed little maintenance over the years, the hardware was the concern of Patrick Gilleeny and Joseph Mead, Instrumentation Division.

At the Dibbuk's retirement party, (from right) Lowenstein, retired Senior Technical Associate Richard Stoehr, and AGS Senior Technical Specialist Frank Dusek marvel at the size of the original Dibbuk's 2-megabyte cartridge disks — which hold the same amount of information as today's 3½-inch diskettes. Stoehr and his fellow retirees Dean Easler, a former development engineer, and Vincent Kovarik, a former research engineer, engineered the original system. — Marsha Belford

Sun Shines on BNL's 45th Anniversary Picnic



The sun came out and so did the BNLers last Saturday, September 19 — for a fun-filled picnic to celebrate the Lab's first 45 years as one of our nation's great scientific resources.



Photos on this page by Roger Stoutenburgh



CCD Training

(cont'd)

system as required around the Lab, make it accessible to users and provide security, backup protection and information management.

The course, which was organized and set up by CCD's Edward McFadden Jr., was given by Kelly/Lloyd and Associates, Inc. Since the new training room is designed to be used by all Lab divisions or departments, other courses of this type can be arranged if there is sufficient demand. Anyone interested should contact the CCD Office, Ext. 4109, or Ronald Wittlock, CCD Training Coordinator, Ext. 4112.

Mary White, who heads the BNL Training Office in the Personnel Division, explained that, with the addition of the new CCD facility, the Lab now has computer training capabilities in both UNIX and DOS applications. In addition to the UNIX training room with its GUI (Graphical User Interfaces) and CAD-CAM applications, the PC training room in Bldg. 475 has eight networked student terminals, its own file server, modems and a link to the Lab's Ethernet.

The PC training room is used by the Management Information Systems (MIS) Division to offer courses in such software as WordPerfect, Lotus and dBase and by CCD for CAD-CAM training. To participate in MIS-sponsored courses, call Michele Cummings, Ext. 2077. To reserve the PC training room for DOS or on-line database systems training, call the BNL Training Office, Ext. 7631.

In Memoriam

Computer Applications Specialist **Claudia Tyler** of the Medical Department died on July 28, at the age of 57, following a courageous battle with breast cancer.

Tyler came to BNL on May 27, 1963, as a keypunch operator in the then Applied Mathematics Department. She transferred to the Physics Department in January 1964 before leaving the Lab in December 1966.

Tyler returned on October 5, 1970, as a medical research services assistant in the Medical Department. She was made a technician II in January 1971, and, after a series of promotions, became a principal technician in October 1979. By December 1979, she was named a computer operator specialist and assumed her final title in October 1983.

In that position, Tyler was respon-

sible for entering computer data obtained by the Occupational Medicine Clinic, as well as the rest of the Medical Department.

"Claudia was a very hardworking lady who was very capable, responsible and reliable — we could really count on her. Her death is a very sorry loss to us," says her supervisor, Computer Analyst Heidi Lee, head of Medical's Computer Support Group.

A former resident of Coram, Claudia Tyler is survived by her husband Nelson Tyler, who retired this May from the Plant Engineering Division; son Nelson Jr. of the Computing & Communications Division; son Neil, Plant Engineering; and daughters Nadine and Claudette. Contributions in her memory may be made to Love Christian Assembly in Centereach.

Software Demo

Beverly Pederson, IBM T.J. Watson Research Center, will introduce Condor software in a presentation sponsored by the Computing & Communications Division on Thursday, October 1, at 10:30 a.m., Chemistry seminar room, Bldg. 555. Condor provides a dynamic queuing system of "available" central processing units in a heterogeneous UNIX workstation environment. For information, call Ed McFadden, Ext. 4188.

Addled Addresses

- Brookhaven National Labor
- Volcano National Lab

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, September 28, at 6 p.m., in the Knights of Columbus Hall, Railroad Avenue, Patchogue. On the agenda will be regular business, committee reports and the president's report.

Notice for U.S. Permanent Residents

Permanent residents of the United States are advised that they may need to update their Resident Alien Card, commonly called a green card, which documents their status. Cards that bear no photograph, fingerprint or signature of the resident alien must be reissued before August 1, 1993. Failure to obtain a new card will cause difficulty if reentering the U.S. after foreign travel.

New cards will be valid for 10 years, and there is a \$70 processing fee. For information and application forms, call U.S. Immigration & Naturalization Service, (800) 755-0777.

Arrivals & Departures

Arrivals

- | | |
|-----------------------|---------|
| Adam J. Bera III..... | Biology |
| John J. McNulty..... | Biology |
| Talat S. Rahman..... | Physics |
| Vivian Stojanoff..... | Biology |

Departures

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

- | | |
|----------------------------|---------|
| David M. Atwood..... | Physics |
| Joannis Papavassiliou..... | Physics |

Walking Club

BNL water-aerobics instructor Scott Knighton, who is an aquatics exercise instructor at the Brookhaven Town Pool operated by the YMCA in Mastic, will be the guest speaker at the first BNL Walking Club meeting of the fall season. On Friday, October 2, from noon to 1 p.m., in Room B, Berkner Hall, Knighton will discuss the aerobic benefits of walking.

Both members and nonmembers are invited to attend. For more information, contact Health Promotion Specialist Mary Wood, Ext. 5923.

Close Up on BERA: Tai Chi Club

For those people who lead stressful lifestyles and need to clear their minds and make their bodies healthier, BNL's Tai Chi Club has the remedy: Join them every Monday, Wednesday and Thursday at noon on the grounds behind the Brookhaven Center to practice this ancient Chinese exercise.

According to Gerard Tanguay, secretary of the club, Tai Chi is an exercise of slow, smooth continuous movement made up of different postures. "It emphasizes meditation both in movement and stillness."

Typically, Tai Chi can be one of two forms of exercise — the short form, usually consisting of 24 postures, and the long form with 88 postures or more. At the Lab, the long form Yang-style Tai Chi is practiced by the club's membership of about 40.

The Tai Chi Club was founded at BNL in April 1991 under Xue Dejun, a scientist from Harbin Polytechnic University in China and master of the art of Tai Chi Chuan — the full name of the exercise, meaning "ultimate fist." When Dejun's appointment at the Lab was up this year, Chuan-Zheng Yang, another scientist from the University of Beijing and a Tai Chi master, took over as the instructor.

A project engineer in the Reactor Division, Tanguay was instrumental in getting the club formally instituted as a Brookhaven Employees Recreation Association (BERA) club, with its own constitution and bylaws.

"I had been interested in learning the art of Tai Chi for many years, ever since my travels to the ports of the Orient while in the U.S. Merchant Marine," says Tanguay, "but I had never encountered anyone who knew the art. Then, along came Masters Xue and Yang to BNL, and Tai Chi became a serious but satisfying learning experience."

"Through meditation practiced in Tai Chi, one trains to be calm and concentrated — like a Taoist priest," adds Tanguay. "The chief benefit of the art is that it helps one to relax



At a recent Tai Chi Club practice: (from left) Minghan Ye, Gerard Tanguay, Instructor Chuan-Zheng Yang, Sean McCorkle and Young Bae.

— Photo by Roger Stoutenburgh

and increases concentration."

Tai Chi is based on the Yin and Yang theory from Chinese Taoist scripture, which holds that the universe's existing natural energy continually divides into two extremities, the Yin being the weaker extremity and the Yang the stronger one. Thus, explains Tanguay, when Tai Chi needs to be soft, it follows the Yin and when it is necessary to be hard, it follows the Yang.

"Through this exercise, it is possible to achieve a state of peace that allows one to judge things and events in a neutral way, without emotional disturbance," says Tanguay.

Another benefit of practicing Tai Chi is that it exercises the cardiopulmonary system. Practitioners say that a half-hour Tai Chi workout is equivalent to playing a three-hour game of golf.

"Tai Chi can be practiced anywhere and at any time," says Tanguay. "You will always feel relaxed and invigorated after the exercise."

Tanguay adds, "One shouldn't get discouraged when beginning Tai Chi. It takes about six to nine months to learn all the 88 postures, practicing three times a week, and three years to learn it well. It is said that to master the art takes about 20 years."

The Tai Chi club will begin its next season on Thursday, October 1. The instructional fee to participate in practices is \$30 for three months. Anyone at BNL interested in joining, however, may participate in a free lesson before deciding whether to sign up.

For more information, call Gerard Tanguay, Ext. 2198, or Tai Chi Club vice president David Phillips, Ext. 4671.

— Lorraine Madigan

BERA Sponsors Boston Weekend

If you enjoy sitting back and letting someone else do the driving, sign up for BERA's first overnight trip to Boston, the weekend of November 7-8.

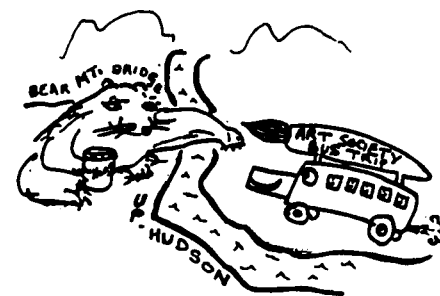
The luxury video-equipped bus will leave the Brookhaven Center at about 7 a.m. Saturday morning, to arrive at Boston's historic Tremont Hotel around noon. The hotel is centrally located two blocks from the subway in the city's downtown, and near the heart of the theater district, Fanueil Hall, Freedom Trail, Fisherman's Wharf, restaurants and shopping.

In addition to round-trip transportation, the \$149 weekend includes hotel accommodations. The price is based on double occupancy, with singles a bit higher. Participants will also enjoy a buffet breakfast on Sunday morning, a ticket for Old Town Trolley sightseeing, a visit to the Kennedy Library, and prepaid taxes and gratuities. The bus is expected back at BNL around 8 p.m. Sunday night.

First-come, first-served reservations are now being taken weekdays, 9 a.m. to 1:30 p.m., at the BERA Sales Office, where brochures on Boston-area attractions are available for perusal. A deposit of \$50 per person will hold reservations, with the balance due by October 20.

For more information, call Carolann Zebrowski, Ext. 3347, or M. Kay Dellimore, Ext. 2873.

Art Society Bus Trip



On Saturday, October 24, ride with the BERA Art Society to catch the last fall leaves up the Hudson River and see the 18th-century Phillipsburg Manorhouse, garden and period trade center with watermill at Tarrytown.

Lunch at antique Cold Spring village right on the river; then view Franklin D. Roosevelt's home at Hyde Park, which has a special exhibit of Winston Churchill's paintings in the museum library. The bus will leave the Lab at 7 a.m. and return by about 8 p.m. Bus tickets are \$19; museum fees are \$9 for both. Call Liz Seubert, Ext. 2346 or 286-8563.

Note to Employees:

Attendance at lectures, meetings and other special programs held during normal working hours is subject to supervisory concurrence.

Play Group Resumes

The Parent and Toddler Group, for children up to five years old and their parents, will resume its Wednesday meetings on September 30, continuing until December 9. The group will gather to play and share toys and experiences from 9:30 to 11:30 a.m. at the Recreation Bldg. in the apartment area. For more information, call Maria DaSilva, Ext. 1028.

Let's Dance

The Ballroom, Latin & Swing Dance Club will not have a lesson on Wednesday, September 30, but come practice in the North Room of the Brookhaven Center anyway. The club will not meet at all on Wednesday, October 7.

Stop Smoking

A lunchtime stop-smoking program will be offered on site by the American Cancer Society to all BNLers who want to break the habit.

Fresh Start helps participants understand their smoking as a habit, a chemical addiction and a psychological crutch. As part of its stress-management approach, the program will offer strategies so ex-smokers can avoid the twin pitfalls of overeating and gaining weight.

The five 1-hour sessions of the Fresh Start program will be held from noon to 1 p.m. in the small conference room of Bldg. 490, on Mondays and Wednesdays, October 12-26.

The fee is \$10, payable to the American Cancer Society. Register with Health Promotion Specialist Mary Wood, Bldg. 490, Ext. 5923.

Camera Club

A meeting of the Camera Club will be held on Wednesday, September 30, at 5:15 p.m., in the Bldg. 134 training room. The agenda includes nominations for club officers and plans for photo contests and instructional classes. Members and interested nonmembers are encouraged to attend. For more information, contact Lew Jacobson, Ext. 5193, or Ripp Bowman, Ext. 4672.

Shoe Shop Shutdown

The on-site safety shoe shop on the northeast side of Bldg. 88 will be closed on Monday, September 28. During this time, call Ext. 2300 with questions about safety shoes.

Softball Dinner

Today is the last day to buy tickets to the annual Softball Awards Dinner on Friday, October 2, 6-11 p.m., at the Brookhaven Center. Buy tickets, at \$16 per person, from league representatives: League 1, John Benante, Ext. 4498; 2, Chris Neuberger, Ext. 4160; 3, John Heinrichs, Ext. 3675; 4, Denise Monteleone, Ext. 3406; and 5, Ricky Backofen, Ext. 2973.

New Pool Season

The new pool season will run from Thursday, October 1, through Sunday, December 13.

Tickets may be purchased at the pool during open hours:

Monday through Friday	
11 a.m.-1:30 p.m.	employees only
1:30 p.m.-2 p.m.	reserved for speed swimming and training
5 p.m.-9 p.m.	employees, families and guests*
Saturday and Sunday	
1 p.m.-5 p.m.	employees, families and guests*

As the pool will be closed for maintenance from December 14 through January 4, fees will be as follows:

Daily Admissions	
Employee or family member	\$2.00
Guest	\$3.00
Season Tickets (fees not prorated)	
Individual membership	\$30.00
Family membership	\$40.00

*Guest ruling for all recreation facilities: One guest per employee permitted. Advance arrangements for additional guests, a maximum of five at any one time, must be made at the Recreation Office, Personnel Division, Bldg. 185. Guests must be accompanied by the employee.

Cafeteria Menu

Luncheons	
Monday, September 28	
Soup: Maryland-style crab	.80/1.10
Entree: Lasagna	3.20
Fitness: Quiche Lorraine	3.20
Carvery: Hot pastrami sandwich	2.95
Grill: Cheese quartet	2.95
Tuesday, September 29	
Soup: Country vegetable	.80/1.10
Entree: Sausage & pepper hero	3.20
Fitness: Salisbury steak	3.35
Carvery: Hot roast beef sandwich	2.95
Grill: 1/4 lb. burger w/mushrooms on onion roll	2.95
Special: 1/2 off any Minute Maid juice	
Wednesday, September 30	
Soup: Minestrone	.80/1.10
Entree: Beef fajitas	3.20
Fitness: Seafood linguine	3.45
Carvery: Hot baked ham sandwich	2.95
Grill: Steak sandwich	3.85
Thursday, October 1	
Soup: Cream of cauliflower	.80/1.10
Entree: Grilled chicken breast w/herbs	3.45
Fitness: Pasta marinara w/sausage	3.35
Carvery: Corned beef sandwich	2.95
Grill: Reuben	2.95
Friday, October 2	
Soup: New England clam chowder	.80/1.10
Entree: Fried shrimp	3.45
Fitness: Catch-of-the-day	3.35
Carvery: Turkey sandwich	2.95
Grill: Chicken breast on kaiser roll	3.35
Movie Night at the Center Club:	
Wed., 9/30, Bird on a Wire	

BROOKHAVEN BULLETIN

Published weekly by the Public Affairs Office for the employees of BROOKHAVEN NATIONAL LABORATORY

ANITA COHEN, Editor
MARSHA BELFORD, Assistant Editor
LIZ SEUBERT, Reporter

35 Brookhaven Ave., Upton, N.Y. 11973
(516) 282-2345

