

## The Higgs Hunters' Guide Coauthored by Sally Dawson, Physics

Hunting the Higgs — a hypothetical subatomic particle — has long been one of particle physicists' keenest pursuits. The Higgs, or Higgs boson, is highly prized as a vital piece of evidence still needed to explain part of the basic theory of matter.

Through two decades of theory and experiment, however, the Higgs has eluded capture. Keeping up with the extensive literature and new developments produced over such a period has become more and more difficult.

Last May, a comprehensive view of Higgs studies appeared, coauthored by Sally Dawson, a theoretical physicist in the Physics Department's high-energy theory group. Dawson's three coauthors are physicists John Gunion, University of California (UC), Davis; Howard Haber, UC,

Santa Cruz; and Gordon Kane, University of Michigan and a consultant at BNL.

Titled *The Higgs Hunters' Guide*, the book is a definitive technical manual describing the physics of the Higgs, as well as the many Higgs searches, past, present and future.

Said Dawson, "We all met in 1984 when I was a post-doc at Berkeley. The *Guide* grew out of various meetings then and later when we realized that our separate work on the Higgs could combine into a useful overview."

### Stalking the Quarry

Dawson explained that finding the Higgs boson would verify the standard model theory of how particles acquire mass.

The Standard Model is a set of physical laws by which physicists describe matter in the universe and the four fundamental forces — gravity, electromagnetism, and the strong and weak nuclear forces — that control it.

Theorists found a single mathematical description to unify the weak and the electromagnetic forces. This electroweak theory predicted and was supported by the subsequent discovery of the massive W and Z bosons, carriers of the weak force, while the photon was already known to carry the electromagnetic force.

Although the symmetry uniting the two forces was mathematically apparent at very high energies, the symmetry broke at lower energies.

(continued on page 2)



Roger Stoutenburgh

Sally Dawson, with *The Higgs Hunters' Guide*

## BNL's New Center to Provide 'Best Possible Day Care'

By the first school day in September, BNL's Child Development Center (CDC) will open its doors to up to 96 children of BNL parents. From 8 a.m. to 5:30 p.m. during Brookhaven's work week, CDC will offer quality day care for 16 infants, 20 toddlers and 60 preschoolers, under the direction of Child Care Management, Inc. (CCMI)

CCMI is owned by Steve Held and Stephen Gordon, who also operate Just Kids Early Childhood Learning Center in Middle Island. In fact, Just Kids was established in 1979 with the help of a no-interest loan from Associated Universities, Inc., to provide day care for the preschool children of BNLers.

Over the past 12 years, Just Kids expanded its operations from four staffers providing day care for 17 children of BNLers in a local church to over 200 staff members in the Longwood Road facility offering child care and mainstreaming of handicapped children to 400 preschoolers from the local community.

"We'll be using our 12-year history of working with BNL parents to provide the best possible day care for their children at the Lab's new center," says Held. "The proximity of the new center to Just Kids will prove to be an advantage to all concerned."

### Information & Registration

Held and his staff will present their child-development philosophy and early childhood program for the new center at an informational meeting on Tuesday, February 26, from noon to 1 p.m. in Berkner Hall.

At that time, registration information will be available to all interested parents who are either BNL, DOE or AUI employees, or employed by an on-site service organization, or have a continuing affiliation with the Lab.

Wednesday through Friday, February 27, 28 and March 1, parents may register their children for the CDC on a first-come, first-served basis. Registration will take place from 11:30 a.m. to 1:30 p.m. in the lobby of Berkner Hall.

After those dates, CDC registration forms will be available from Employee Relations Counselor Susan Foster in the Personnel Division, Bldg. 185, Ext. 2888. Completed forms may be mailed to Held at Just Kids.

In addition to filling out standard forms asking questions about their children's health and development,



Roger Stoutenburgh

The design of the center space of BNL's Child Development Center (CDC) resembles an 18th-century barn — so what better way to build it on Yale Road than by an old-fashioned barn raising?

Hearthstone Timber Framers of Dandridge, Tennessee, came to BNL last week with the custom-cut oak timber, pegged it together and assembled the five trusses. As one of their few concessions to modern technology, they used a crane instead of ropes.

To be surrounded by conventional "stick-built" wings, the CDC center space will have exposed beams to give an old-fashioned feeling that the center's young charges should enjoy. According to CDC architect John Castro of BNL's Plant Engineering Division, utilizing the old-fashioned building technology is "a great leap backward."

parents will be asked to sign a six-month contract with CCMI, and to submit a deposit for the last month's tuition.

The monthly fee for full-time care of infants eight weeks to 18 months will be \$495; the fee per month for full-time care of older children will be \$475. A child may be enrolled part time for two or three full days if another child is enrolled for the other days.

With the exception of being closed during the week between Christmas and New Year's, the CDC will operate on BNL's schedule and be closed only during Lab holidays.

"Our goal is to provide each child

with a relaxed, happy and nurturing environment, which is stimulating and challenging as well," explains Held. To that end, CDC's program will be modeled after the successful day-care program established at Just Kids.

### Child-Centered Community

According to Held, the concept of community is important for their day-care program to work. "We hope that the children, parents and staff of the center will see themselves as a child-centered community, in which every child's emotional, physical and social growth, as well as language and cognitive skills, are enhanced by

encouraging the children's careful exploration of the multi-cultural world around us in a structured environment."

To foster the children's self-esteem and independence, their use of existing skills and acquisition of new ones, and their constructive expression of feelings and healthy social interactions, Held and Gordon have designed a theme-based curriculum that takes advantage of children's natural curiosity and innate problem-solving abilities.

The curriculum also gives the children opportunities to play and work individually, as well as in small and large groups.

Trained and experienced in early childhood education and child development, the CDC staff will keep all parents informed of their children's development through phone calls, and scheduled and informal visits. And, so that parents may have input into CDC's policy and programs, a parents' advisory board will be established.

### Staffing Ratios

Though state licensing of BNL's day-care center is not required by law because the Lab is located on a federal reservation, the operators have applied to the New York State (NYS) Department of Social Services for CDC's licensing anyway.

"We want to assure parents that the CDC meets if not exceeds the state's licensing requirements for day-care centers," explains Foster, who has coordinated the facility's design and the operator's selection, and will continue to be the interface between the CDC and the Lab.

Exceeding NYS guidelines, there will be one care giver for every three infants. In line with NYS regulations, there will be one staffer for every five toddlers to age three, one attendant for every six 3- to 4-year-olds, and a 1:7 ratio of staff to 4- to 5-year-olds.

After passing all necessary credential, employment, reference, health and security checks, newly hired CDC staffers will be trained first at Just Kids. When at full capacity, the CDC will be staffed by a director, one teacher for each of the five classrooms, and 25 aides under the supervision of the certified staff. As executive director of both Just Kids and the CDC, Held will oversee the CDC director.

(continued on page 3)

# Afro-American Culture Club Celebrates Ten Years of Pride

Since being recognized as a BERA club in April 1981, the Afro-American Culture Club (AACC) has attempted to cultivate the minds and hearts of BNL's African-American and other employees alike for the past ten years.

Looking back in pride at the cultural program that it has presented and the role models that it has provided, the AACC looks forward to expanding its social, educational and political agenda at Brookhaven as it increases its membership.

"The club was ten years ahead of its time — in 1981, we began addressing issues that are only now being paid attention to by other African-Americans and by American society in general," comments Bruce Penn, the club's fourth president and now a member of the executive board.

## Brothers & Sisters of BNL

The 185-member AACC grew out of the Brothers and Sisters of BNL — an informal group of African-Americans formed around 1973 by Paul Akins, Howard Bell Sr. and Reginald Ellington, among others.

"Basically, we were trying to promote intermingling of the different cultures at the Lab through social events, such as dinner dances and shows, as well as encouraging political participation in BNL policy concerning minorities," remembers Akins. "We were moving in the right direction, but losing momentum. So when the Afro-American Culture Club formed with a better organization, new ideas and fresh energy, we thought it was the right thing to do."

The AACC founder who took the ball from the Brothers and Sisters of BNL and ran with it was the late Dwight Brown. Teaming with him were Greg Mack, Rick Petty and Ed Taylor.

"The four of us had attended some of the affairs given by the Brothers and Sisters, and the socializing sparked our interest in bringing the community together to do even more," recalls Taylor. So, Brown and the others called a general meeting of all those interested in African-American culture in early 1980.

## Not for Black People Only

"There were about 25 people in the Rec Hall after work, and there was a feeling of excitement," remembers Frances Ligon, a founding and present board member. "The first meeting of the AACC brought together many African-Americans who had

been dispersed around the Lab, and it has united us since by promoting pride in our heritage and in ourselves here and now."

April Donegain, another founding and present board member, who also served as the third AACC president, recalls, "The first thing we decided was that this was not going to be a club for black people only. So its title speaks for itself."

The Afro-American Culture Club was organized to promote the culture that black people were forced to leave behind in Africa when taken as slaves to America, as well as the

Mathabane, author of *Kaffir Boy*. It has organized fund-raising drives to support African famine relief and the Jamaican victims of Hurricane Gilbert.

The club has held social events such as summer family picnics and Halloween dances. And it has brought performing artists to BNL, including the over 40 groups and soloists who have performed in the annual Gospel Extravaganza.

Whatever the event, the AACC has returned a profit to the Brookhaven Employees Recreation Association (BERA), even though the club prices

membership who are bound for college or trade school, each scholarship is based on academic success and community involvement. Since 1986, the year of Brown's untimely death, the award has been called the Dwight C. Brown Memorial Scholarship. The scholarship fund exists as a result of donations from AACC members and unaffiliated individuals.

## More Diverse Work Force

In addition to advancing African-American scholarship, arts and letters, the AACC has worked for a more diverse work force in all positions at BNL, has applauded its members' on-the-job successes, and has encouraged their training and advancement.

"The majority of African-Americans are concentrated in non-professional and non-supervisory positions," reports Ligon. "But we all can do other things if given a chance — so the club provides its members with the chance, like organizing major events, serving on committees or writing for the newsletter."

Adds Donegain, "These opportunities not only build our members' skills, but also their confidence — and that is carried over into their jobs."

The club also provides an informal professional and personal support network. For instance, "When members need affirmation, then they can always find that support within the club," says Ligon.

Concludes Penn, "The club is a way of life and we are like a family — we share each others' joys and frustrations. Although our ideas on how to meet our objectives may vary during discussions, we all share the same goal: presenting a true reflection of our past and present contributions to society. No matter our frustration, once we reach a consensus, we put our individual differences behind and speak with one voice."

— Marsha Belford

*Though 5 percent of its membership is non African-American, one of the AACC's past frustrations is that the club and its events are perceived as being for black people only. They are not: The AACC and all its events are open to all employees of BNL, AUI, DOE and on-site service organizations, and their immediate families. To help the AACC meet its goal of a more diversified membership, join the club by contacting Frances Ligon, Ext. 3709.*



Members of the Black History Month Committee of the Afro-American Culture Club are: (from left) April Donegain, Pauline Dixon, Ralph Wilson, Barbara Kponou, Barbara Simpson, Bruce Penn, Bettie Sylvester, Frances Ligon. Missing is Robert Mosley.

culture that African-Americans have since developed in their new homeland.

It exists not only to make African-Americans more aware of their own historic culture, but also to educate other BNLers about the contributions made to world civilization by black people in Africa and America, and to encourage cultural exchange among Brookhaven's multi-cultural community.

## Cultural Awareness

As a part of its ten-year effort to foster cultural awareness, the AACC has sponsored speakers including Gil Noble of ABC-TV, former Congresswoman Shirley Chisholm, and Mark

its tickets so that the entire family can afford to attend.

"It is our way of trying to keep the family together," says Donegain. "It's especially important to us because, during slavery days, African-American families were split up by being sold to different masters. In this day and age, too many American children are lost, with no purpose in life and no values. The AACC supports high moral values that can best be learned in the family — so this is one way we do it."

To encourage children's achievement, the AACC has been awarding annual \$500-1,000 scholarships since 1985. Open to children of AACC members and others qualified for

## Sally Dawson (cont'd)

The disparity between the massless photon and the very heavy W and Z bosons seemed to indicate a missing link.

According to the widely accepted idea of British theorist Peter Higgs, that link could be the Higgs boson. About 1964, he worked out a gauge theory in which massive Higgs bosons permeate the universe in a "Higgs field." They interact with W and Z bosons and other particles, giving them different masses rather than as if mass were ink that can be soaked up in varying amounts by different materials. With the addition of the Higgs, the whole electroweak theory held together mathematically.

## The Hunting Grounds

"Since the mass of the Higgs is completely unknown, one has to look everywhere to cover all the bases," said Dawson. "My part of the book explored the chances of finding a lighter Higgs, which might be seen in some of the kaon experiments being done at the AGS [BNL's Alternating Gradient Synchrotron]. But my work and all the other work here have pretty well excluded this possibility."

With many other possible hunting grounds — for example, LEP at CERN, the European high energy physics laboratory; and the Tevatron at Fermi National Accelerator Laboratory — so far proving equally Higgsless, the Higgs boson might have escaped observation altogether.

However, the mammoth Superconducting Super Collider (SSC) to be built in Texas is being designed with the Higgs search as one of its primary aims. Far larger than any existing accelerator, the SSC will operate at energies of 40,000 GeV — about the energy at which theory predicts the Higgs will be seen among the debris of colliding particles. And the techniques and information given in the new *Guide* may help clinch the matter.

"Of course, it's possible that the Higgs may not be found," said Dawson. "Another possibility is that its work is the result of a bound state, maybe of the top and anti-top quarks acting in an unusual way as a pair."

The top quark — the last as yet unobserved member of the six known quarks — is another of the mysteriously elusive entities that physicists hope to find evidence of in the SSC.

In fact, Dawson's work in the high

energy theory group, which she joined on coming to BNL in 1986, has included not only the Higgs, but also the top quark. Working with computer programs, she simulates the particles' characteristics, then develops strategies to help experimenters to design detecting apparatus.

Said Dawson, "It will be just as interesting *not* to find the Higgs as to find it, since that will mean new physics."

— Liz Seubert

## Microcomputer Club: Free Program Offer

If you are going 55 mph, what is your speed in furlongs per fortnight? Five fermis is what in light years?

Conversions such as these are easily made using the Microcomputer Club's Units CONversion and Constants program — UCONCON — which the club will provide free as a service to members of the Laboratory community.

Available only in a DOS version, UCONCON consists of 19 sets of units conversion and a table of constants. To obtain a copy, send one *formatted* floppy disk to the club's librarian, Ralph Fullwood, Bldg. 130. Please allow several days for delivery.

## Pick a Student

Applications for two summer programs run by the Office of Educational Programs (OEP) will be available for review from February 19 through March 8, from 9 a.m. to 4:30 p.m., in the Solarium, Bldg. 490, Medical Department. Use the Clinical Research Center entrance and follow the signs.

The two programs are:

- **Summer Students** — The 39 year-old, traditional summer program in which junior and senior-level undergraduates receive ten-week summer research appointments, June 10 to August 16. OEP pays the individual stipends of \$200 per week and round-trip transportation. The sponsoring department pays for the student's housing at \$75 per week.

- **Summer Interns** — This is similar to the Summer Student program except that appointments are offered to students who have participated in prior High School Honors Programs conducted by the U.S. Department of Energy (DOE) at several DOE Labs. Generally, these students are finishing their freshman year of college, but a few may be recent high school graduates. OEP pays all costs associated with these students — stipend, travel and housing.

For more information, call OEP, Ext. 4503.

## Making Decisions About Insurance

The deadline for enrolling in one of the five health-maintenance organizations (HMO) open to BNLeers is Thursday, February 28. If you are trying to decide about changing your medical coverage, Staff Psychologist Donna Friedman of BNL's Employee Assistance Program suggests that you might want to weigh the mental-health benefits provided by the HMOs versus those provided by the AUI Group Medical Insurance Plan administered by Connecticut General Life Insurance Company.

For information about the mental-health benefits offered by the various plans, contact Friedman at Ext. 4567, or call Richard Schonberg, Deputy Personnel Manager, Ext. 2881.

Additionally, representatives of the five HMOs will be at Berkner Hall next Wednesday, February 27, from 11 a.m. to 1:30 p.m., to answer employees' questions.

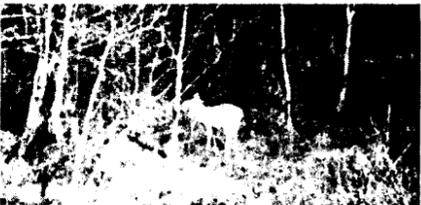
To enroll in one of the optional HMO plans, with coverage effective March 1, contact Personnel Services, Bldg. 185, Ext. 2877, for the necessary forms.

## IBEW Meeting

Local 2230 IBEW will hold its regular monthly meeting on Monday, February 25, 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.

## A Deer Sight

At first, John Post thought it was a goat, standing out so white, so bright against a forest backdrop. Then he realized it was a white deer.



The sighting was an auspicious start to the new year, for Post was at the Lab on New Year's Day, A senior technical supervisor with the Alternating Gradient Synchrotron, he had come in to care for the fish tank in the lobby of Bldg. 902. He was accompanied by his friend Jeanne Cross, an amateur photographer.

Before they left, Cross had asked Post if he knew where there might be any deer to photograph. He drove her down Brookhaven Avenue, past the ballfields, and there was the white doe, grazing on the side of the road.

She was very tame, Post said, and allowed him and Cross to get close enough to photograph her and to determine that she was not an albino. "She had brown eyes, and her ears were outlined in black," he said.

This is not the first time that such a natural genetic expression has been observed on site, and BNL is not the first lab to host white deer. At Argonne National Laboratory in Illinois, herds of the exotic creatures are a common sight.

## BERA Trip to Disney World



*Heigh-Ho, Heigh-Ho,  
It's Off to Play We Go . . .*

You can be singing this song if you sign up for the first group trip that the Brookhaven Employees Recreation Association (BERA) is sponsoring to Walt Disney World in Florida. The six-day, five-night trip is scheduled for October 10-15.

The following per-person rates are based on occupancy of one room:

4 adults - \$835	Children age 3-9, \$560, age 10-17, \$594
3 adults - \$888	Rates for ages 3-17 are applicable only when
2 adults - \$995	occupying room with adult(s); children age 2
1 adult - \$1,396	and under pay airfare only, \$371.

The trip is open to a maximum of 40 people, and reservations are now being taken on a first-come, first served basis. To reserve your space, contact Recreation Supervisor M. Kay Dellimore, Ext. 2873, Bldg. 185. A deposit of \$100 per person is required, and, once the 40 slots are filled, a waiting list will be kept.

To answer questions about the trip, a Disney representative will be in Berkner Hall, Room B, on Friday, March 8. A video preview of the Walt Disney World attractions will be shown at 11:45 a.m. and 12:45 p.m. Door prizes will be awarded, and reservations will be taken, if space is still available.

The trip rates include:

- Round-trip airfare between Islip and Orlando via American Airlines.
- Round-trip transportation between Orlando airport and the hotel.
- Greeting and assistance by Disney representative at arrival and departure.
- All baggage handling.
- Five nights at Disney's Polynesian Resort (maximum 5 per room, 6 with child under 3).
- Six days unlimited transportation within the Walt Disney World Resort.
- Unlimited admission and use of attractions at the Magic Kingdom, Epcot Center, Disney-MGM Studios Theme Park, Typhoon Lagoon, Pleasure Island, River Country and Discovery Island.
- One Early Bird Exclusive Breakfast with Disney characters.
- \$5 in Disney dollars
- Steve Birnbaum's *Guide to Walt Disney World* (one per room).

For more information, call Louisa Barone, Ext. 3347, or M. Kay Dellimore, Ext. 2873.

## Day Care cont'd

Under the regulations of the NYS Department of Health, a nurse will monitor the health of the children and the staff three days a week, an hour each day. While the CDC does not include a sick room, children who become sick during the day will be isolated from the others and cared for while awaiting the arrival of their parents.

And, in accordance with NYS Department of Agriculture requirements, lunch and two snacks will be served.

### Referral Service & FSA

While waiting for CDC's opening day or in looking for other child-care alternatives, Foster suggests that BNL parents may want to contact Creative Child Care Services (CCCS), 924-4033, to use the child-care referral service that has been free to BNLeers since March 1989.

Based on parents' child-care needs such as cost, location, size and the like, CCCS will supply a list of three suitable state-licensed centers or homes. Until parents find a suitable referral, CCCS will continue to search until its resources are exhausted.

Foster also reminds Lab parents to take advantage of their AUI Flexible Spending Account (FSA) for dependent care, if they have set one up for 1991, or to consider opening a Dependent Day Care Reimbursement Account for 1992 when FSA enrollment reopens this November.

From \$300 to \$5,000 may be deposited in this account before taxes, to be used to reimburse employees for expenses incurred for providing day care to eligible dependents so that employees and, if married, their spouses can work. For children under 13 claimed as dependents on employees' income tax returns, for example, reimbursable expenses include fees for licensed day-care centers or nursery schools, and salaries for housekeepers or individuals providing care in or out of the home. For more information, contact Personnel Services, Ext. 2877.

Concludes Foster, "Once the center opens, with the other two child-care options already in place, we think that Brookhaven will be one of the most responsive employers on Long Island to the needs of present and prospective staff with young children." — Marsha Belford

## Equipment Demo

Representatives from Network Computing Devices (NCD) will present their Network Display Stations on Tuesday, February 26, from 1:30 to 3 p.m., in the seminar room of Bldg. 515, Computing & Communications Division.

In addition to the network display stations, also known as X terminals, NCD will demonstrate NCDware, a performance-enhanced software developed by NCD for its network display stations. Based on the X Window System, NCDware is compatible with the most recent release of the MIT X serve, X11 release 4.

The NDC X system provides distributed processing, a selectable graphical user interface, and windowed access to multiple host sessions on a single display station.

For more information, call Ron Wittlock, Ext. 4112.

## Volleyball

### Standings as of February 15

Open League		League I	
Phoenix	37-14	Cannonballs	32-10
GTEAM	35-16	Upfagrabs	32-10
Me & the Boys	35-16	Dinkers	23-19
Magnum	34-20	Rude Dogs	22-20
Dig It	26-25	Network News	14-28
Penetrating		Upsetters	3-39
Vollies	11-40		
Jet Setters	3-48		
League II		League III	
Fossils	37-5	High Volley'em	24-12
Netwits	34-8	Nutcrackers	23-16
Nuts & Bolts	30-12	NoKaOe	22-17
Pteropods	23-19	Renegades	18-21
Upton Ups	14-28	Good Timers	17-22
Slammers	13-29	Undertakers	16-23
Chunga's Revenge	13-29	Sourcerers	15-24
Aces	4-38		

## Candidates Named For BERA Board

The BERA Nominating Committee has selected the following slate of candidates for the 1991 BERA Board election: Andrea Epple, Safety & Environmental Protection Division; Barry Karlin, National Synchrotron Light Source Department; Rosalie Piccione, Contracts & Procurement Division; and Gary Smith, Alternating Gradient Synchrotron Department.

During the week of March 25-29, all eligible BERA members, including all employees of BNL, AUI, DOE and all other permanent on-site employers, may cast their ballots to elect two of the four candidates to serve on the BERA Executive Board.

More information on the candidates and the election will be published in future issues of the Bulletin.

## Bowling

### Purple League

Rich Scheidet had a 236, Rich Larsen 227, Joe Ferrante 223/212, Ed Sperry IV 222, John McCarthy 212, Elaine Zukowski 192, Alice Belmonte 186, Mary Scheidet 184, Kay Conkling 181, Gene Hassell converted the 3/7 split.

### White League

Jim Petro had a 221/202/606 scratch series, Andy Warkentien 214, Jim Marsch 212, Ken Ricker 210, Ed Beadle 203, Ralph Vega 202, Caryl MacDougall 198, Gerry Riker 187.

### Red/Green League

T. Prach had a 235/208/639 scratch, E. Carter 214, M. Guacci 213, R. Jones 213, R. Mulderig 213, S. Dimaiuta 206, G. Meinken 200, N. Scala 200.

## Amateur Radio Club

The Amateur Radio Club will meet in Berkner Hall, Room D, on Thursday, February 28, at noon.

Lab employees and guests who are licensed radio amateurs or who wish to obtain amateur radio licenses are invited to attend. For more information, contact Andy Feldman, Ext. 3264, or Gary Utz, Ext. 3580.

## Arrivals & Departures

### Arrivals

Adele DiBiasio . . . . . Nuc. Energy  
Darryl G. Kaurin . . . . . Nuc. Energy  
Alan T. Raphael . . . . . Director's Off.

### Departures

This list includes all employees who have terminated from the Lab, including retirees:  
James R. Nelson . . . . . Reactor

## Service Awards

The following employees celebrated BNL service anniversaries during the month of February 1991:

### Thirty-Five Years

Walter W. Becker . . . . . Nuc. Energy  
Elizabeth B. Mill . . . . . Supply & Mat'l.  
James J. Reilly Jr. . . . . App. Science

### Thirty Years

Henry Arnesen . . . . . Physics  
Ronald E. Brewer . . . . . Central Shops  
David A. Comstock . . . . . Chemistry  
Paul V. Hough . . . . . Biology  
John T. Koehler . . . . . AGS  
Robert E. Meier . . . . . AGS  
Elizabeth A. Symonds . . . . . CCD  
Fred Traxel . . . . . Plant Eng.

### Twenty-Five Years

Meyer Garber . . . . . App. Science  
Robert W. Goodrich . . . . . App. Science  
John J. Gould . . . . . AGS  
Anthony J. Krupien . . . . . AGS  
Ernst P. Lindevald . . . . . Central Shops  
Neal R. Tempel . . . . . Biology

### Twenty Years

Bernadette Fox . . . . . Mgmt. Info. Sys.

### Ten Years

Mark A. Andrews . . . . . Chemistry  
Per Bak . . . . . Physics  
Margaret C. Bogosian . . . . . Dir. Off.  
James E. Brower . . . . . Saf. & Env. Prot.  
Jane M. Guido . . . . . Staff Services  
Leonard F. Mausner . . . . . Medical  
Pooran Singh . . . . . NSLS

## BROOKHAVEN BULLETIN

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# ANS Meeting

Gerald Share, who is with both NASA and the Naval Research Laboratory, will speak on "Orbiting Nuclear Reactors," at the next meeting of the Long Island Section of the American Nuclear Society (ANS), on Wednesday, February 27, at the Bavarian Inn in Lake Ronkonkoma, at 8 p.m.

Following cocktails at 6 p.m. and a buffet dinner at 7 p.m., the speaker will be introduced by David Rorer, Deputy Manager of BNL's Reactor Division. To make reservations, call 436-4227.

# Cafeteria Menu

**Luncheon** served 11:15 a.m. to 1:30 p.m., grill open to 3:45 p.m., Cafeteria closes 4 p.m.

## Monday, February 25

Soup: Country Italian bean	.75/.95
Entree: Combination lo mein	3.10
Entree: Baked fish	3.10
Fitness: Broccoli quiche	3.10
Carvery: Hot pastrami sandwich	2.85
Grill: Patty melt	2.85

## Tuesday, February 26

Soup: Southern chicken gumbo	.75/.95
Entree: Beef stroganoff	3.10
Entree: Baked lasagna	3.10
Fitness: Chef's choice	3.10
Carvery: Hot roast beef sandwich	2.85
Grill: Three-cheese melt	2.45

## Wednesday, February 27

Soup: Split pea	.75/.95
Entree: New Orleans pork Creole	3.10
Entree: Spicy beef & bean burritos	3.10
Fitness: Garden-style vegetable pizza	3.10
Carvery: Hot Black Forest ham sandwich	2.85
Grill: 3-D burger	2.85

## Thursday, February 28

Soup: Lentil	.75/.95
Entree: Chef's choice	3.10
Entree: Spaghetti w/Italian sausage	3.10
Fitness: Green peppers vegetarian style	3.10
Carvery: Hot corned beef sandwich	2.85
Grill: Burger cordon bleu	2.85

## Friday, February 29

Soup: Clam chowder	.75/.95
Entree: Cayman Islands shrimp curry over rice	3.10
Entree: Italian-style cheese ravioli	3.10
Fitness: Spicy beef fajitas	3.10
Carvery: Hot turkey sandwich	2.85
Grill: Tuna melt	2.65

**Breakfast** w/coffee, 7:30 - 10:30 a.m. 2.65

**Mon.:** 2 eggs, bacon & pancakes

**Tue.:** Western omelet, French fries, toast

**Wed.:** Spanish omelet, home fries, toast

**Thu.:** 2 eggs, bacon, cheese on croissant, fries

**Fri.:** French toast, 2 eggs, bacon, home fries

# Classified Advertisements

## Placement Notices

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

Each week, the Personnel Division lists new placement notices. The purpose of these listings is, first, to give employees an opportunity to request consideration for themselves through Personnel, and, second, for general recruiting under open recruitment. Because of the priority policy stated above, each listing does not necessarily represent an opportunity for all people.

Except when operational needs require otherwise, positions will be open for one week after publication.

For more information, contact the Employment Manager, Ext. 2882, or call the JOBLINE, Ext. 7744 (282-7744), for a complete listing of all openings.

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

**LABORATORY RECRUITMENT** - Opportunities for Laboratory employees only.

MK 108SC. TOOL AND INSTRUMENT MAKER, GROUP LEADER - (Light Machine Shop). Central Shops Division.

**OPEN RECRUITMENT** - Opportunities for Laboratory employees and outside applicants.

LL 8586. PLANNING POSITION - Requires a BS in architecture or municipal planning with a minimum of five years' related experience. Proficiency in the use of Autocad is essential. Will be responsible for assisting the facilities management supervisor in the accomplishment of all planning and reporting functions including space management, preparation of the long-range site development plan, and database systems entry and retrieval activities. Plant Engineering Division.

LL 8587. ENGINEERING POSITION (2 openings) - Requires a BS in electrical engineering plus a minimum of 5 years' experience in the design of fire alarm systems, lighting, power, and instrumentation and controls as applicable to commercial and industrial facilities. Computer analysis

capabilities in the areas of energy consumption and power-distribution systems is essential. Will be required to work with minimal supervision. A P.E. license is desirable. Responsibilities include the preparation of preliminary sketches, working drawings, specifications, and electrical systems estimating. Plant Engineering Division.

## Motor Vehicles & Supplies

89 T-BIRD - full power, 32k mi., 100k mi., warranty, excel. cond., \$10,500. Jeff, Ext. 5262.

88 HONDA ACCORD DX - white, new tires, 4-dr., 5-spd., ac, 40k mi., ext. warr., \$8,900. Ext. 3428 or 878-6007.

87 FORD RANGER XLT PICKUP - 4wd, long-bed, sunroof, sliding rear window, V-6 EFI, blue, pinstriped. Charlie, Ext. 7749 or 325-0968.

87 MAZDA B2600 SE5 - 4wd, ac, 5-spd., low mileage, extras, excel. cond., \$7,000. 821-2886.

87 HONDA ELITE MOPED - excel. cond., \$350. Russ, 325-0563.

87 TOYOTA CAMRY LE - 40k mi., a/t, ac, cruise, digital dash, p/sunroof, p/w, am/fm stereo & tape, mint cond., \$8,600. Carol, Ext. 2474 or 475-7454.

87 CHEVY BLAZER - 4wd, blue, 51k mi., excel. cond., asking \$11,000. Ext. 5897.

87 HONDA ACCORD - h/b, a/t, ac, immaculate cond., orig. owner, 45k mi., asking \$7,000. Beth, Ext. 3555 or 472-0706 eves.

86 HYUNDAI GLS - 5-spd., new tires & brakes, excel. cond. in & out. 758-5452.

86 GMC JIMMY TRUCK - black, 57k mi., a/t, loaded, excel. cond., asking \$8,900. Ext. 3827 or 744-4288.

86 SUBARU GL - 2-dr. h/b, am/fm cass., power pkg., sunroof, 27k mi., excel. cond., \$5,400. Devinder, Ext. 4985 or 331-8459.

86 JEEP CHEROKEE PIONEER - 4wd, 2-dr., 5-spd., am/fm cass., cruise, ac, 126k mi., great cond., \$4,995. Henry, Ext. 4547 or 727-7227.

85 CHEVY S-10 PICKUP - 6-cyl., 108k mi., good body, needs eng. work, ask. \$1,350. 698-8514.

85 FORD LTD WAGON - 6-cyl., ac, a/t, 68k mi., excel. cond., \$3,800. Barbara, Ext. 2456.

84 TOYOTA TERCEL - 4-dr. h/b, a/t, p/s, p/b, stereo, 94k mi., runs well, ac needs repair, some rust, \$1,800. George, Ext. 4769.

84 SUBARU GL - 2-dr., black, excel. cond., \$2,300. Joyce, 475-8406.

83 OLDS DELTA ROYALE - metallic brown, a/t, p/w, cruise, fully loaded, 80k mi., orig. owner, \$2,500. Chan, Ext. 4059.

82 PLYMOUTH HORIZON - runs well, good cond., \$700 or best offer. Alan, Ext. 4714 or 744-5093 eves.

81 DATSUN 510 WAGON - 130k mi., engine & drivetrain excel. cond., body another story, new Michelins, \$500. Rich, Ext. 3386.

80 CHEVY MALIBU - 4-dr., p/s, p/b, a/t, small V-8 267, blue/blue, gauges, all factory, orig. owner, gar., \$2,000. Al, Ext. 3992 or 331-1003 eves.

80 FORD E-250 VAN - heavy-duty suspension, a/t, p/s, p/b, windows, new tires & brakes, good work van, \$900. Jim C., Ext. 4150.

80 CORVETTE L-82 - white/red int., a/t, ac, alarm, tilt, cruise, 28k orig. mi., garaged, very clean, \$13,000. Rod, Ext. 4428.

79 DATSUN 210 WAGON - a/t, 73k mi., excel. mech. cond., very reliable, some body rust, asking \$800. 821-6321.

78 MERCURY ZEPHYR - 84k mi., good tires, good cond., would make nice local car, asking \$600. Keith, Ext. 5295.

77 BETHANY POP-UP TRAILER - sleeps 6, opens from sides, gas stove, sink, icebox, \$900. Bill, 732-8793.

77 PONTIAC BONNEVILLE - a/t, good station car, best offer; '73 Chevy pickup, 4wd, a/t, needs work, best offer. Ginger, 472-6613.

75 PLYMOUTH VOLARE - looks good, needs work, any reasonable offer over \$200. Janet, Ext. 2345 or 929-3910 after 5 p.m.

70 JEEP CJ 5 - with or without snowplow, 4-cyl., 3-spd.; '60 Chevy Impala, 4-dr., 283 w/4-barrel carb., a/t, all orig. cond. Frank, Ext. 3120.

RACING CART - Emmrick, 100cc Yamaha, \$1,600; eng., Yamaha 100cc KT 100S w/mounting bracket, clutch, \$650. Ext. 3428 or 878-6007.

TRAVEL TRAILER - 19 1/2', Coachman, self-contained, ac, full awning, sleeps 6, \$2,600. Herb, 924-5621.

## Boats & Marine Supplies

19' BOWRIDER CRUISER - 1972, w/1976 115-h.p. Johnson, canvas, trailer, w/elec. winch, \$2,500. Frank, Ext. 2314 or 567-5131.

19' BAYLINER BOWRIDER - 1988, 125-h.p. Force, p/tilt & trim, am/fm cass., low hrs., full canvas, galv. Escort trailer, \$6,500. Ext. 7125 or 929-8641.

16' MFG - fiberglass, 1962 75-h.p. Johnson, Gator tilt trailer, motor runs, needs some work. \$295. Paul, Ext. 7697 or 689-2829.

BOAT TRAILER - 20'-22', twin axle, needs new springs, wheels & axle, bed in excel. cond., \$210. 728-0992.

MOTOR - 40-h.p. manual start long-shaft Johnson, hardly used, \$750; VHF marine radio, Seahawk 33, never used, \$65. 298-4172 after 6 p.m.

## Furnishings & Appliances

DINING ROOM - maple oval table w/3 leaves, 2 armchairs, 4 side chairs, \$500; china closet, \$375, or \$800/both. Arleen, Ext. 4519 or 924-6051.

KITCHEN TABLE - 30" bistro-type, w/2 chairs, almond color, \$45. 473-7667.

MICROWAVE - Panasonic, 1.4 cu. ft., 700 watts, like new, orig. \$395, sell for \$75. Ernie, 588-4987.

REFRIGERATOR - GE, dorm size, hardly used, \$100. 821-6321.

REFRIGERATOR - 11 cu. ft., 2-door, white, 1 1/2 yr. old, excel. cond., \$125. 944-5149.

REFRIGERATOR - Welbilt, dorm size, freezer, 1 yr. old, hardly used, \$150. Marion, Ext. 4776.

RUGS - Oriental design, 8'x11', \$350; 20' runner, \$100; pastel, 8'x11', \$450, all 1 1/2 yr. old. Donna, Ext. 2716.

SOFA - French Provincial; 2 chairs, excel. cond.; dresser; 2 lamps; dining room table, 6 ladder-back chairs. Bobbi, Ext. 2456.

SOFA - navy blue w/small diamond pattern, v.g. cond., \$175. 689-7326.

VANITY - burgundy w/pink & white cultured marble sink, chrome faucet, 30" w x 21" d x 30" h, \$80. 286-9725.

CABINETS - solid oak, 12"d x 30"h, various widths. Ext. 4493.

DEHUMIDIFIER - white wood paneling, 44 sheets; gas grill; twin bed, mattress & boxspring; misc. furniture. Janice, 331-3423.

HUTCH - Colonial, 72" table w/2 leaves, 4 captain's chairs, asking \$500. 929-4962.

PRINCESS DRESSER - antique oak, \$450; 30" shower door, new, still in box, \$50. Henry, Ext. 4547 or 727-7227.

## Tools, House & Garden

COAL STOVE - Surdiac, v.g. cond., orig. \$1,200, asking \$400. 929-4342.

KEROSENE HEATER - KeroSun Omni 105, \$65. Jeff, 5262.

KEROSENE HEATER - Coleman, w/6" exhaust; 7 electric baseboard heaters; Sears air conditioner, 17,000 Btu. Frank, Ext. 3120.

SPRAYER - gasoline, skid mounted, 5 gal./min. at 600 psi, like new, \$200; space heater, 15,000 Btu, LP gas, like new, \$55. 473-7667.

FIREWOOD - seasoned, hardwood, cut, split, delivered, \$125/full cord. Dave, 331-4629, leave message.

KEROSENE HEATER - Sears model 4032, 19,500 Btu, auto shut off, needs starter battery holder, \$25. Ron, Ext. 2525 or 286-0353 after 6 p.m.

ROTOTILLER - \$50; South Bend lathe, \$400; Snatch block, chains, \$50. 289-0883.

STORM DOORS - unused, 36"x80", full glass, 30"x80", crossbuck, bronze, w/screens, at cost. Janet, Ext. 4049 or 744-8087.

WOOD STOVE - \$25; large window fan, \$25. 281-0889.

## Sports, Hobbies & Pets

CAMERA LENS - 35-200mm, F3.5 Tokina ATX, Nikon mount, excel. cond., \$90. 929-4326.

DRUM SET - CP-Remo, 5-piece, metallic black, good cond., \$175. Mark, Ext. 2957.

SKIS - Tecno Pro, 170cm, w/Salomon bindings 447, v.g. cond., \$110. Ext. 2683 or 751-2469 eves.

SKI BOOTS - Raichle 860, size 9, new, in box, orig. \$150, sell for \$85; Raichle 860, size 9 1/2, \$85. 474-3799.

POODLE - gray/beige, 13 weeks old, male, AKC, papers, can't keep, must sell. Rod, Ext. 4428.

RABBIT HUTCH - 5'x3'x2'; small animal cage, best offers. 447-0983.

BOWLING BALL - man's, \$20; 36" wicker storage basket; iron cat, \$35; TV/VCR stereo cabinet, \$20; table, \$20. Kathy, 744-2203.

VIOLIN - Suzuki Nagova, 1/2 size, mint, \$125. Per Spanne, Ext. 3322 or 744-9718.

SKIS - Kneissel, cross-country, 180cm, w/poles, excel. cond., \$80. Les, Ext. 2920.

## Audio, Video & Computer

COLOR TV - GE, 19", cable ready, remote control, excel. cond., \$125. 286-9725.

VCR - Canon VR-HF 720 HQ hi-fi, multichannel, TV sound, 107-channel, cable-ready tuner, 8 prog./1 mo. timer, more, asking \$400. 331-1003.

MULTI-MODE DATA CONTROLLER - AEA PK-232, does packet, morse, rty, amtro, wefax, w/IBM & Mac software, \$200. JG Skora, Ext. 4379.

TV - 41" pro screen, NEC stereo, 3 yrs. old, excel. cond., warranty, \$1,700. Jeff, Ext. 5262.

## Miscellaneous

JACKET - blue fox, size 6, excel. cond., \$300. 473-7667.

TYPEWRITER - IBM Selectric II, full, office-size, beige, just cleaned & tuned, best offer. Kathy, Ext. 2267 or 395-6520.

## Free

CLASSES - USPS Boating Course, first class 8 p.m., Mar. 5, Port Jefferson H.S. Ron, 744-5285

STOVE - G.E., electric, 4-burner, working cond., U-pick-up. Bill G., Ext. 7961 or 929-3082.

KITTENS - two sisters, 3-mo.-old, lovable, looks like gray squirrel fur, have shots. Bobbi, Ext. 2456.

## Real Estate

*Real Estate advertised for sale or rent is available without regard for the race, color, creed, sex or national origin of the applicant.*

## For Rent

CENTEREACH - 3-rm. apt., l/r, kit., bdrm., full bath, nonsmoker, no pets, priv. ent., own thermostat, yard, \$600/mo. pays all incl. cable. 698-6983.

CENTER MORICHES - 2-bdrm. apt., 900 sq. ft., excel. cond., near all, \$650/mo. + util. 878-1178.

EAST SETAUKET - 1-bdrm. apt., l/r-kitchen combo, ground floor, 5 min. from SUBS, sep. ent., cable, use of 700 no pets, single, \$600/mo. incl. util. Valerie, 751-6091 or 632-6656.

HOLBROOK - 1-bdrm. unfurn. house, 20 min. from Lab., near Ronk. RR & MacArthur AP, no pets, \$670/mo. + util., neg. Fred Kuehl, Ext. 7947 or 588-2268.

HOLTSVILLE - large studio w/tp, kitchen, bathroom, cable, priv. ent., no pets, driveway parking, \$600/mo. all. 472-3254.

MT. SINAI - 1-bdrm. apt., l/r, view of harbor, kit., w/d, full bath, w/w, cable, priv. ent., off-street park., \$650/mo. + deposit. Harriet, 331-1839.

SOUND BEACH - 1-bdrm. apt., full bath, kitchen-l/r combo, cable, priv. ent., \$600/mo. incl. all; also, 2-bdrm. apt., bath, l/r, eik, near all, \$675/mo. + elec. Ext. 2671 or 744-3284 after 4 p.m.

WADING RIVER - 1-bdrm. apt., 10 min. from Lab., walk to priv. beach, \$650/mo. incl. all. 929-4342.

WADING RIVER - large studio apt., \$475/mo. includes all. 929-4850.

YAPHANK - 4-bdrm. restored Victorian, patio, 5 mi. to Lab, large treed property. 924-7106 or 924-4872.

CLAREMONT, NH - 2-bdrm. condo, 40 mi. to Killington, Okemo, Magic Mt., Mt. Sunapee, \$300/wk., \$225/wkend. Frank, Ext. 7749.

SHAWNEE VILLAGE, PA - chalet, sleeps 8, time share Feb. 24-Mar. 8, discount ski tickets at Shawnee. Kathy, 331-3583.

HILTON HEAD, SC - 2-bdrm. condo on golf course, avail. Mar. 30-Apr. 6, sleeps 6, spa, golf, tennis & pool. Pat. 698-4372 or 914-923-1108.

HILTON HEAD, SC - 2-bdrm. condo, sleeps 6, 2 baths, beach, pool, tennis, golf, Feb. \$250/wk; Mar., \$300/wk. 689-5378.

## For Sale

BROOKHAVEN - 3-bdrm. cape, large l/r, d/r, eik, hot tub rm., full unfin. bsmt. w/shop, 2-car gar. w/shed, cedar shakes, near boat ramp, low taxes, \$210,000. Hurst, Ext. 3844.

BROOKHAVEN HAMLET - 4-bdrm. Cape Cod, 2 baths, d/r, l/r, eik, 2-car gar., 20' deck, patio, more, close to bay, 1/4 acre, red. to \$219,000. Vera, Ext. 7108 or Carl, 214-708-2058.

CENTEREACH - 4-bdrm. hi-ranch, l/r, d/r, eik, 2 full baths, large fam. rm. w/tp, deck, fenced yard, \$131,900. 698-8514.

CORAM - 1-bdrm. co-op, 5 appl., den, 2nd floor balcony, walk to shopping, park-like setting, 20 min. to Lab., \$78,500. Rich, Ext. 5540.

CORAM - Strathmore East, 4-bdrm. ranch, 2 baths, cathedral l/r, 2-car gar., gas heat, fenced corner lot, \$120,000. Ext. 3791 or 928-7154.

MIDDLE ISLAND - 3-bdrm. ranch, eik, den w/tp, d/r, l/r, 1 1/2 baths, screened porch, patio, full bsmt., wooded 1/2 acre, \$149,500. 924-6051.

MIDDLE ISLAND - Lake Pointe, 2 bdrm., l/r-d/r area, cac, gas heat, wood deck off master bdrm., w/d, all appl., bsmt., pool, tennis, will pay half closing cost, ask. \$69,000. Bob, 924-7316.

MIDDLE ISLAND - 1 or 2-bdrm. condo, 2 baths, sliding doors to patio, low taxes & maint., cac, gas heat, all appl., pool/tennis, upgraded carpets, sell \$85,000 or rent \$800/mo. Barbara, Ext. 2446.

PORT JEFFERSON STATION - 3-bdrm. Colonial, 4 yr. old, l/r, d/r, den, eik, 1 1/2 baths, gar., vinyl siding, fenced, ig sprinklers, gas util., sewers, \$137,000. Devinder, Ext. 4985 or 331-8459.

RIDGE - 2-bdrm. house in adult community Leisure Knoll, ac, newly carpeted & decorated, walking distance to rec. hall, pool, tennis, lots of extras, 5 mi. to Lab, \$135,000. 744-3366.

STONY BROOK - 4-bdrm. ranch, 2 baths, 9 rms., spacious, igp, cac, sprinklers, sewers, 2-car gar., ask. \$189,000. Rod, Ext. 4428.