

A Chemistry Team's Goal — Calculating the Energy of 'Soccerballene'

In the field of hydrocarbon chemistry, a soccer ball has been kicked around by experimentalists since 1985, and Senior Chemist Marshall Newton, Assistant Chairman of the Chemistry Department, is one theoretician refereeing the game.

As this is no ordinary soccer match, the aim of the game is *not* to propel the ball into the goal, using any part of the body except the hands and arms. This game's aim is to catch the ball because, says Newton, "To those who appreciate the aesthetics of its symmetry, it is an irresistible object."

The ball in play is not your usual 70-centimeter, leather-covered, inflated truncated icosahedron, made up of 12 black pentagons and 20 white hexagons. While it has the same shape as an ordinary soccer ball, this soccer ball is 0.7-nanometers in diameter and is a hollow sphere of 60 carbon atoms, one at each of the vertices where one five-membered ring joins with two six-membered rings.

In calculating the energetics of this and other, similar, polyhedral carbon molecules, Newton and Research Collaborator Richard Stanton, on sabbatical leave from Canisius College, Buffalo, have found that the 60-carbon soccer ball is intrinsically stable, despite the angle strain the carbon bonds must withstand to hold shape.

"Buckyball"

In the spirit of organic chemistry nomenclature and in the absence of any official guidelines for molecules of this shape, the 60-carbon truncated icosahedron has been labeled "soccerballene" and "footballene," as soccer is known as football in the rest of the world. As well, it has been dubbed "Buckminsterfullerene," after R. Buckminster Fuller, the American architect and engineer who designed large geodesic domes of hexagons and pentagons such that all stresses were equally distributed. Affectionately, it is called "Buckyball" for short.

Being a truncated icosahedron, Buckyball has the distinction of being in the shape of a geometric figure called an Archimedean solid, one of only 13 possible solids, the faces of which are all regular polygons and the polyhedral angles of which are all equal. That such a three-dimensional shape might exist as an all-carbon molecule intrigues a large roster of chemists in different fields.

Cosmic Carbon & Soot

Soccerballene is formed by vaporizing graphite with a laser, which supposedly causes two-dimensional sheets of six-membered graphite crystals to curl up into multi-carbon atom, super-symmetrical hollow spheres. Because of the violent, high temperature conditions needed to make it, the 60-carbon soccer ball is arousing the interest also of astrophysicists curious about the carbon content of the universe and scientists studying soot, the impure black carbon obtained from incomplete combustion.

Astrophysicists are thinking that many cosmic carbon soccer balls could exist in the universe, from the explosion of carbon-rich stars and within interstellar dust. As soot particles tend to be spherical, scientists studying their architecture now think that the particles may have a Buckminsterfullerene or a similar structure at their sooty centers.

Not the Only Game in Town

"From our calculations, the soccer ball structure seems to be the best game for 60-carbon atoms," comments Newton, "but it is not the only game in town."

He and Stanton have found that the three-dimensional, truncated icosahedral form for 60-carbon atoms is considerably more stable than a flat, graphite-like sheet made up of six-membered carbon rings. However, other multi-carbon atom spheres are created at the same time as is Buckyball, and those containing an even number of carbon atoms, from 40 to



Marshall Newton

Mort Rosen

80, are thought to be intrinsically stable.

"If you have these things naturally kicking around in outer space, the way the astrophysicists picture them, they won't spontaneously break apart," explains Newton. "That is not to say that if they came in contact with something else, that they wouldn't react." Astrophysicists have taken the ball and run with it: They are hypothesizing that cosmic footballene could be a surface catalyst for the formation of interstellar molecules.

In looking at a 70-carbon sphere, the second most abundant laser photolysis product, the two collaborators discovered that it appears to be somewhat more stable than soccerballene. Says Newton, "The greater abundance of the 60-carbon soccer ball that is observed may reflect either the energy conditions during the experiment or the manner in which the structures are detected."

Ball in Play

What are experimentally detected are the ions, the electrically charged versions of these spheres, not the neutral molecules themselves. "That is the problem," explains Newton. "The ion might not necessarily come from a neutral molecule of the same structure." Therefore, experimentalists' assumptions about Buckyball's existence, structure and its relative abundance may be wrong.

Nevertheless, the game goes on, and, while he and Stanton are interested in calculating the connection between the neutral truncated icosahedral molecule and the observed 60-carbon ion, for the meantime, they have put the ball back in play. "That is the beauty of theory," Newton comments, "You can do calculations on a molecule, like this 60-carbon soccer ball, whether or not it has, in fact, been observed experimentally."

— Marsha Belford

Meet the Press



Mort Rosen

At a press conference held at the National Synchrotron Light Source (NSLS) April 16, Congressman George Hochbrueckner (second from left) recounted how a chance meeting with Deputy Director Martin Blume (right) on a New York-bound plane in January led to the securing of \$1 million from the Department of Defense towards the NSLS initiative to develop a compact synchrotron. The technology will ultimately be transferred to industry, for the commercial production of high-speed chips by x-ray lithography. Hochbrueckner explained to local reporters that \$750,000 will come to the NSLS, the rest going to the University of Wisconsin. Also meeting the press were Laboratory Director Nicholas Samios (second from right) and NSLS Chairman Michael Knotek, who accepted a symbolic check from the Congressman.

A Common Concern for Highway Safety

It's easy, quick and prevents death or serious injury in motor vehicle crashes — so buckle up! This is the message from data obtained in the United Kingdom, where Dr. Michael Hayes (left) of London co-authored the British government report, "The Medical Effects of Seat Belt Legislation in the U.K."

Earlier this month, after participating in an international conference on injury control, held in Washington, D.C., Hayes came to BNL. Here he presented a summary of his paper to a meeting of County officials, State University of New York (SUNY) at Stony Brook faculty and the Data Collection Committee of the Suffolk County Highway Safety Task Force, which was appointed by Suffolk County Executive Michael LoGrande.

The April 10 meeting was chaired by Jerome Barancik (center), Head of the Injury Prevention and Analysis Group (IPAG), Department of Applied Science. In collaboration with SUNY at Stony Brook's Injury Epidemiology Program, Barancik, Caroline Kramer (above) and other IPAG members are conducting a study similar to the one in the U.K., researching the epidemiology of motor vehicle injuries in Suffolk County that occurred both before and after the enforcement of the New York State seat belt law in January 1985.



Mort Rosen

On Exhibit Beginning May 1: The Art of Gertrude Quastler

Gertrude Quastler was a prolific artist, known primarily for her woodcuts. Her works are part of thirteen permanent collections worldwide and have been featured in eight one-woman exhibitions. They will again be the subject of such an exhibit from May 1 through May 7, when about 60 pieces by Gertrude Quastler will be displayed in Berkner Hall. Appropriately, the art show is being organized by the BERA Art Committee, which Quastler was instrumental in founding in 1959.

Gertrude Quastler's association with BNL began in 1956, when her husband Henry accepted a position in BNL's Biology Department. They both died in 1963, at which time the collection of Gertrude Quastler's artwork was willed to Henry Quastler's sister, Johanna Zimmerman of Pittsburgh. In a fitting gesture of remembrance, Mrs. Zimmerman has donated the Quastler collection to Associated Universities, Inc. (AUI), which manages BNL.

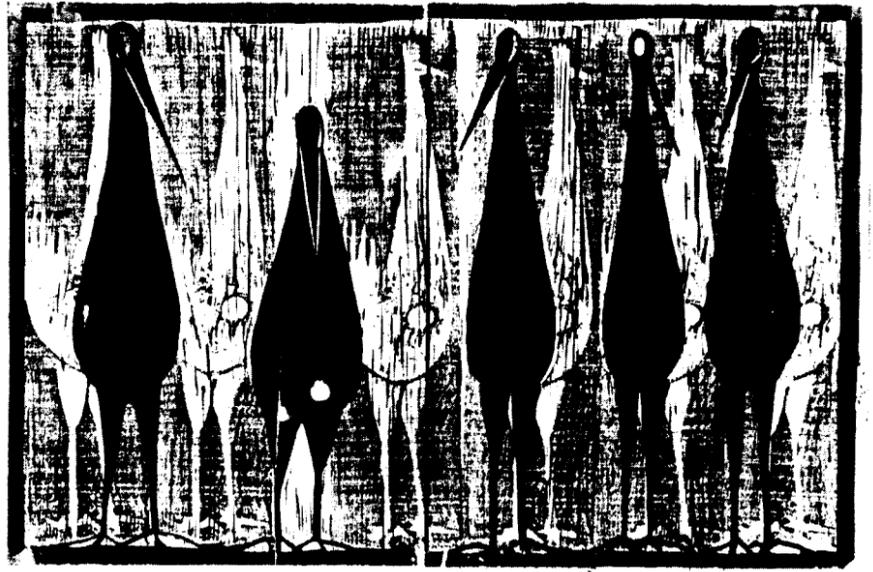
Out of the collection of some 130 works, about half will be shown at Berkner Hall. The exhibit will open on Friday, May 1, with a reception from 5 p.m. to 7 p.m. It may also be viewed on

Saturday, May 2, from 11 a.m. to 3 p.m. The exhibit will continue from Monday, May 4 through Thursday, May 7, from 11:30 a.m. to 1:30 p.m.

Though the show will include oil paintings, silkscreens and watercolors, it will be dominated by the woodcuts for which Gertrude Quastler is best known. Clare Sheppard, who chairs the BERA Art Committee, described these as "dynamic." She explained that Quastler's woodcuts are printed on rice paper and often reflect the artist's personal experiences through such favorite themes as beach scenes, farm animals or poultry. With this legacy from their founder, Sheppard added, "the Art Committee feels rejuvenated."

Born in Vienna in 1909, Gertrude married Henry Quastler in 1934. They came to America in 1939. It was in New York that Gertrude Quastler began her formal art training. Though she began painting with oils and watercolors, in the late 1940's, she started experimenting with print-making techniques.

She carved her first woodcut in 1950, "using an old crate and scalpels left over from my husband's medical school anatomy classes." Using this



One version of *Counterpoint*, a woodcut by Gertrude Quastler.

medium, she produced her most significant work and received her greatest acclaim. These works include *Counterpoint*, which was printed in two versions and reproduced in a *Life* magazine article about the revival of woodcut technique in America. Ultimately, it was purchased by the Museum of Modern Art for its permanent collection.

After their 1956 move to Long Island, Gertrude Quastler executed only two more series of woodcuts. Here, she returned with intensity to her first love, painting. Her summer afternoons were spent at the Bellport dock and on Fire Island, making quick pencil and watercolor sketches of bathers, beach sitters and children at play or fishing from the wharf.

In 1959, the same year she founded the BERA Art Committee, Gertrude Quastler began experimenting with freestanding sculpture. In 1961, one

such piece, *Goose*, won first prize for sculpture at East Hampton.

Over the years, Gertrude Quastler's paintings and woodcuts captured several other awards. They have been the subject of one-woman exhibitions in places ranging from Illinois and Massachusetts to New York City and Bellport. In addition to the Museum of Modern Art, her works are included in 12 other permanent collections, among them the Library of Congress, Boston's Museum of Fine Arts, the Art Institute of Chicago and Bezalal National Museum, Jerusalem.

Most of the pieces donated to AUI will remain permanently at BNL. Explained Jerome Hudis, AUI Vice President, Programmatic Affairs, "We will try to distribute them around the Lab." The BERA Art Committee, said Sheppard, has been asked to select some of the woodcuts for display in Berkner Hall and other public areas.



Henry Quastler



Gertrude Quastler

BNL's Fabulous Forty

This is the sixth in a series of interviews with employees who observe their 40th service anniversaries during 1987, BNL's 40th anniversary year.

"Take the corn-dryer building," said Michael Tesla. "That's where they dried seeds from all over the world and then grew them to test them out. At one time, a fellow was growing tomatoes and corn that were amazingly big. You could hardly believe they were real."

This and other glimpses of what goes on at the Lab are all part of a day's work for Tesla, a Heating Maintenance Engineer in the Plant Engineering Division. His job involves servicing the non-electric heating boilers of many buildings on site.



Michael Tesla

"It's fascinating," he said. "Sometimes it's just a matter of heating the building. But sometimes the heat is necessary for research work. For example, at one time, the high pressure boiler underground at the wea-

ther station sent up smoke signals, and it was by observing them that the meteorologists would judge or predict certain weather conditions."

Tesla has had plenty of time to observe interesting people and happenings at BNL, because he joined the staff just over 40 years ago, on April 11, 1947, receiving life number 715.

His first visit to the site, however, had been for four days in 1942, when he was sent to Camp Upton after enlisting in the Air Force. "I surely didn't believe I'd ever be back at Brookhaven," he said. "But after the war, when I returned to my home in Sound Beach, I put in an application. It was accepted. The Lab had only opened three weeks before, so I was certainly in at the beginning."

Tesla's first job was as a rigger. There were two crews of five men, plus a leadman and a foreman. Between them, they had three forklifts and one truck. With these, they started setting up the Lab.

"Of course, it looked very different then — all barracks," remembered Tesla. "During the first six months, we set up the heavy machine shop in what used to be a gym. We set up the cabinet shop, too — that had been another gym. The light machine shop had to be started up. Another job we did was to tear down the stockades that had been needed for the camp prisoners."

Tesla also recalled the arrival of the graphite for the new reactor. "It came in by freight train. After unloading it, we stored it where the motor pool is today," he said. "Fifty carloads of pig lead came for the reactor pile, too — that was quite a job to get into place."

After the first six months, fewer riggers were needed. Tesla was offered

a job in the heating department, but, was not particularly interested at first. "Then I realized that there weren't many openings in the district. I thought I'd stay, anyway for the winter. It turned out to be a long winter!"

A year or so later, Tesla was sent to the old hospital of the Medical Research Center, now the apartment area. He worked on the 4 p.m. to midnight shift, shoveling about one ton of coal an hour in the boiler room. He stayed there for ten years except for a year spent in the main heating plant, Bldg. 610. "That's a difficult shift for the family," he said, "I was quite glad to change."

The change came when the hospital was moved, and Tesla was transferred to route work.

"And that's what I like the best," he said, with a smile. "I've kept a lot of people warm in the Lab. There were times when some of them got cold feet, and times when some got a little hot under the collar, but we did our best, and generally everything worked out."

Moving from building to building as a troubleshooter, Tesla has seen a lot of research. "There's a new story in every building," he said.

"I don't know where I'll be the next minute," Tesla added. "I don't know what I'll be doing. But that's why the time went by so fast. I've been here so long, my wife always told me that I should 'get a piece of the rock.' Then, just this month, the Lab gave me the forty-year service presentation of a plaque and a crystal on a pedestal. So I did get a piece! Now, people ask if I plan to retire soon, but I say, 'Not yet.' Life's too interesting. That winter's going on a little longer!"

— Liz Seubert

Reminder — Register Those Vehicles

Employees are reminded that those who have not already done so should register their vehicles for on-site use. All vehicles should have 1987 registration stickers prior to May 31.

For ease of entry at the gate, people may also register their privately owned bicycles. For more information, call Susan Rackett, Ext. 5149, Safeguards & Security Division.

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, April 27, at 6 p.m. in the Knights of Columbus Hall, Railroad Avenue, Patchogue. On the agenda will be regular business, committee reports, the president's report and the report of the apprenticeship committee.

WIS Meeting

A discussion of past accomplishments, future plans and new directions will take place at the next meeting of Brookhaven Women in Science. We welcome your input, so please join us on Thursday, April 29, at noon in Room A, Berkner Hall; bring your lunch.

Arrivals & Departures

Arrivals

Richard F. Chorzempa..... Plant Eng.
Michael Farnitano..... Reactor
Joanna T. Hanz..... Medical
Samuel Sadinsky..... AGS

Departures

This list includes all employees who have terminated from the Laboratory, including retirees:
Alice A. Link..... Con. & Proc.
Brian A. Rockett..... Plant Eng.
Claire M. Spettell..... DNE

Raphael Trio in Concert

The Raphael Trio, which has received great critical and popular acclaim throughout the United States and Europe, will give a concert at Berkner Hall on Monday, April 27, at 8:30 p.m.

On the program will be Schubert's Trio, D. 897, "Notturmo"; Beethoven's Trio in E Flat Major, Op. 70, No. 2; and Arensky's Trio in D Minor, Op. 32.

The Raphael Trio was formed in 1975, with violinist Charles Castleman, cellist Susan Salm and pianist Daniel Epstein. They are now in their sixth season of concerts at Carnegie Recital Hall, having made their debut there in 1975 as winners of the Concert Artists Guild Award.

The trio maintains a busy touring schedule. In Europe this season, for example, they will give concerts in Brussels, Holland, Germany and the United Kingdom.

In the United States, they have been featured artists of the San Francisco Symphony's Beethoven Festival, where they performed the complete trios of Beethoven, including the Triple Concerto, in 1981. During the 1981-82 season, with the assistance of the National Endowment for the Arts, the trio was in residence at the Uni-



The Raphael Trio

versity of Vermont, appearing in concert, on radio and television and in lecture-demonstrations and masterclasses throughout New England and Quebec. The trio returns to Vermont every summer for a chamber music workshop in Adamant.

Tickets for the April 27 concert will be sold at the door the night of the performance. Admission is \$5.

Stress: Learn How to Deal With It

The push and pull of daily living may distress you. Or you may find yourself anxious and emotionally tense in reaction to a specific situation. Regardless, we all face stress, though some people seem naturally to cope with it better.

To learn better ways of dealing with stress, attend the "Coping With Stress" seminar by Clinical Psychologist Cheryl Kurash on Thursday, April 30, from noon to 1 p.m. in Berkner Hall.

Sponsored as a Health Promotion activity of the Occupational Medicine Clinic, the seminar will present an overview of stress and of various effective stress management techniques. Kurash, the Coordinator of Training at the University Counseling Center at the State University of New York at Stony Brook, will discuss

how you can diagnosis stress in yourself and how to use this heightened awareness in managing it.

In addition to this free seminar, Kurash will be giving a three-session Stress Management Workshop. The sessions will be held on Wednesdays, May 13, 20 and 27, from 5 to 6:30 p.m. in the conference room of Bldg. 535. The fee for all three sessions is \$15.

You may register after the free seminar or by mailing your check, payable to Cheryl Kurash, with a note listing your name, Lab address and extension, to Health Promotion Specialist Elaine Friedman, Bldg. 490. Registrations must be received by Friday, May 8; as space is limited to 25, registration is on a first-come, first-served basis. If enough interest is expressed, additional workshops will be scheduled.

New Season at Swimming Pool

Tickets for a new four-month pool season (May 1 through August 31) will be sold at the pool during scheduled hours starting Friday, May 1.

Fees:
Season Tickets (fees not prorated)
Individual Membership \$30.00
Family Membership \$40.00
(intended only for family members living in the employee's household.)
Daily Admissions
Employee or Family Member 1.50
*Guest 2.00

Schedule:
Monday through Friday
Employees only —
11 a.m. to 1:30 p.m.
1:30 p.m. to 2 p.m. (reserved for speed swimming and training)
Employees, Family & Guests —
5 p.m. to 9:30 p.m.

Saturday and Sunday
Employees, Family & Guests —
1 p.m. to 6 p.m.

The swimming pool is closed on all Laboratory holidays. The summer schedule will go into effect on Monday, June 29.

***Guest Ruling** (Applies to all recreation facilities.)

One Guest - An employee is allowed to bring one guest per visit without special permission or prior arrangement. The guest must be accompanied by the employee.

Two to Five Guests - Advance arrangements for two to five guests may be made at the Recreation Office. (No more than five guests per employee is ever permitted.) When such an arrangement is made, the Recreation Office issues an admission card stating the sponsor's name and life number, the number of guests permitted, the date of visit and the facility to be visited. Guests must be accompanied by the employee, who will be requested to show the admission card at the main gate and at the swimming pool ticket desk.

Astronomical Society

Provided the skies are clear, the observatory will be open tonight at 8 p.m. We plan to view galaxies and open-star clusters. Admission is \$1 for non-members. Those interested in attending should call Rick Jackimowicz, Ext 3803, or Bob Mills, Ext. 5043. The Astronomical Society meets at lunchtime on the first Monday of every month, at the observatory.

Group Meeting: DEC Local Users

Representatives of the Digital Equipment Corporation (DEC) will give a presentation on DECNET at the next meeting of the Upton Local Users Group for DEC computer users.

The meeting will be held on Wednesday, April 29, at 11 a.m. in Room B, Berkner Hall. For more information, call Zohreh Parsa, Ext. 4748.

Investment Options Performance Summary

In February 1982, Mutual Funds were added as investment options for voluntary employee tax-deferred contributions under the AUI retirement program. In order to provide Laboratory employees with information concerning the various investment opportunities available under the AUI retirement program, the Personnel Division has again compiled the performance records of the Fidelity and T. Rowe Price funds, and the TIAA-CREF regular and Supplemental Retirement Annuities.

Values as of 12/31/86, for monthly contributions of \$100 started 1/1/86, 1/1/84 and 3/1/82.

Past performance (hypothetical accumulations with dividends and capital gains reinvested and all expenses deducted). Security prices can fluctuate considerably and these yields should not be considered as representative of future earnings.

Date Contributions Commenced	1/1/86	1/1/84	3/1/82
Total Contributions	\$1200	\$3600	\$5800

TIAA-CREF

Regular (Non-cashable)			
TIAA	\$1264	\$4273	\$7724
CREF	1250	4984	9677
SRA (Cashable)			
TIAA*	1246	4209	7609
CREF*	1232	4909	9532

Fidelity Group Funds

Money Market Funds			
Cash Reserves	1240	4027	7032
U.S. Government Reserves	1239	4017	7029

Income Funds			
Flexible (formerly Corporate Bond Fund)	1270	4619	8415
Ginnie Mae	1282	N/A	N/A
High Income	1289	4808	9271
Mortgage Securities	1271	N/A	N/A
Thrift Trust	1269	4605	8456

Growth & Income Funds			
Equity Income	1253	4792	9538
Fidelity	1216	4713	8945
Puritan	1290	4996	9899

Growth Funds			
Contrafund	1228	4569	8193
Freedom	1191	4693	N/A
Growth Company (formerly Mercury)	1182	4755	N/A
Magellan	1246	5345	11,185
OTC	1154	N/A	N/A
Overseas	1471	N/A	N/A
Trend	1198	4602	8653
Value (formerly Discoverer)	1198	4458	8337

Select Portfolios			
Air Transportation	1252	N/A	N/A
American Gold	1338	N/A	N/A
Biotechnology	1062	N/A	N/A
Brokerage and Investment Management	1137	N/A	N/A
Chemicals	1269	N/A	N/A
Computers	1220	N/A	N/A
Defense and Aerospace	1165	N/A	N/A
Electronics	1007	N/A	N/A
Energy	1321	4106	7248
Energy Service	1163	N/A	N/A
Financial Services	1159	5105	10,789
Food and Agriculture	1235	N/A	N/A
Health	1218	5422	10,412
Leisure	1155	N/A	N/A
Life Insurance	1079	N/A	N/A
Precious Metals	1412	3926	6399
Property and Casualty Insurance	1116	N/A	N/A
Retailing	1180	N/A	N/A
Savings and Loan	1207	N/A	N/A
Software	1229	N/A	N/A
Technology	1120	3508	6520
Telecommunications	1268	N/A	N/A
Utilities	1269	5330	10,547

T. Rowe Price Funds

Money Market Funds			
Prime Reserve	1244	4044	7109
U.S. Treasury Money	1235	3982	N/A

Income Funds			
New Income	1293	4735	8704
Short Term Bond	1245	N/A	N/A

Growth and Income Funds			
Growth and Income	1199	4281	N/A
Equity Income	1302	N/A	N/A

Growth Funds			
New Era	1259	4612	8735
New Horizons	1127	3966	7052
International	1508	6748	13,151
Growth Stock	1266	5146	9303

* The TIAA-CREF accounts (which are cashable) require a front-end load charge of 1 1/2% for each monthly contribution.

N/A = Funds not in existence for the full time period were excluded from this comparison.

BROOKHAVEN BULLETIN

Published weekly for the employees of BROOKHAVEN NATIONAL LABORATORY

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

35 BROOKHAVEN AVE., UPTON, N.Y. 11973
Telephone (516)282-2345

Bowling

Red/Green League

High games were bowled by J. Petro 232, F. Hohmann 219, T. Prach 218.

White League

Bob Jones had a 224, Sharon Smith 201/200/591 scratch, Pat Manzella 210/184, Paul Callegari 202, Bob Malachowsky 202, Karen Vogel 201, Kathy Griffin 189.

Swim Club

The Swim Club will hold a practice on Thursday, April 30, at 5:15 p.m. at the BNL pool. For more information, call Marsha Belford, Ext. 5053.

Service Awards

The following employees received service awards during the month of April:

Forty Years

Stanley W. Pollack Accel. Dev.
Michael Tesla Plant Eng.
Robert J. Walton Photo. & Gr. Arts

Thirty-Five Years

Joseph R. Steimers S&EP

Thirty Years

Edward K. Elliott AGS
Oscar Gonzalez Medical
Ronald J. Graeser Nuc. Energy
Cesar A. Sastre Nuc. Energy

Twenty-Five Years

Frank J. Chandler Sup. & Mat'l
Leonard C. Emma S&EP
William R. Frank Central Shops
John W. Jackson AGS
E. Eric Klug S&EP
William K. Kristiansen Accel. Dev.
Paul LeDoux Light Source
Albert M. Lorentsen Sup. & Mat'l
Max J. Rose Plant Eng.
John F. Slavik Accel. Dev.
Walter P. Spiers Jr. Plant Eng.
Richard C. Strand Physics

Twenty Years

Irene L. Rosati Biology
Eugene P. Valli AGS

Ten Years

Bonnie Bittner Nuc. Energy
Hsiao-Chau Hseuh AGS
Kathleen D. Hygom Personnel
Donald M. Litcher Applied Math
Robert G. Malone Applied Science
Dean C. McDonald Physics
Gary A. Schaum S&EP
Margaret M. Seuling Fiscal
Frederick C. Squires Plant Eng.

Kenneth W. Swezey, Supply & Materiel, observed his 40th BNL anniversary on March 24.

Cafeteria Menu

Week of April 27

Monday, April 27

Chicken noodle soup	(cup)	.75
	(bowl)	.95
Sautéed beef tips w/butter noodles		2.75
Chicken chimichangas w/1 veg.		2.75
Hot vegetable plate (lite-weight)		2.20
Hot Deli: Pastrami	(bread)	2.45
	(roll)	2.55
	(hero)	2.65

Tuesday, April 28

Southern beef soup	(cup)	.75
	(bowl)	.95
Pastitso w/1 veg.		2.85
Chicken à la king over rice		2.75
Hot Deli: Roast beef	(bread)	2.45
	(roll)	2.55
	(hero)	2.65

Wednesday, April 29

Minestrone soup	(cup)	.75
	(bowl)	.95
All-you-can-eat special (no take-outs):		
Spaghetti w/meat sauce & French bread		3.45
Braised liver & onions (lite-weight)		2.75
Hot Deli: Fresh ham	(bread)	2.45
	(roll)	2.55
	(hero)	2.65

Thursday, April 30

Beef barley soup	(cup)	.75
	(bowl)	.95
Fried chicken w/1 veg.		2.75
Shrimp & spinach stir-fry over rice (lite-weight)		2.85
Hot Deli: Polish sausage melt		2.45

Friday, May 1

Boston clam chowder	(cup)	.75
	(bowl)	.95
All-you-can-eat special (no take-outs):		
Fried clams w/1 veg.		3.50
Chicken croquettes w/1 veg.		2.75
Hot Deli: Turkey	(bread)	2.45
	(roll)	2.55
	(hero)	2.65

Classified Advertisements

Placement Notices

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

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all non-scientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment.

Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Employment Manager, Ext. 2882.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

2591. FINISHER A - Under minimum supervision, applies all finishes to furniture, models and cabinet shop products. Must be proficient in the use of spray equipment, synthetic and other paints, rubbing compounds, masking and similar work on wood, metal and other finishes. Plant Engineering Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2592. ENGINEERING POSITION - Requires BSEE and 5 years' experience in the following areas: design of precision feedback and control systems for high power rectifiers and other industrial processes, including the use of digital electronics and computer systems interfaces. Familiarity with the application of analog and digital components, and design and analysis of these systems required. Accelerator Development Department.

2593. ENGINEERING POSITION - Requires BS/MSME and a minimum of 8 years' design experience. Background should include experience in some or all of the following: manufacturing and assembly; stress analysis and materials selection; machine/production equipment design and fabrication; superconducting magnet design. Accelerator Development Department.

2594. ENGINEERING POSITION - Requires BSME and 1-5 years' experience in machine, tool, production or experimental equipment. Knowledge of manufacturing, assembly and stress analysis desirable. Accelerator Development Department.

2595. SCIENTIFIC ASSOCIATE POSITION - Requires BS/MS in physics, the demonstrated ability to work under minimal supervision and the skills necessary to interact positively with visiting scientists to function as liaison between NSLS beam lines and visiting users. Responsibilities include working with, maintaining, problem solving and documentation of general user beam lines. National Synchrotron Light Source Department.

2596. TECHNICAL POSITION - Requires an AAS in electronic technology or equivalent experience. Primary responsibility will be NSLS experimental area safety operations. Duties will include safety system checkouts, beam line documentation, interacting with control room and experimenters with regard to user safety and enabling of beam lines for experimental use. The safety operator will work with the BNL Safety and Environmental Protection Division representatives at the facility to ensure proper beam line operation. National Synchrotron Light Source Department.

Autos & Auto Supplies

85 BUICK SOMERSET - gold int. & ext., mint cond., p/s, p/b, 4 cyl., a/t, am/fm stereo, sport rims, 17k mi., must sell. 585-6271, 6-10 p.m.

86 GMC PICKUP - loaded, 13k mi., high rise cap, running boards, must sell, \$12,500. Bert, Ext. 2050 or 273-4359.

84 BUICK ELECTRA - Estate wagon, loaded, 46k mi., excel. cond., asking \$7,800. 928-3862 or 928-1815.

PARTS - 77 Plymouth Trailduster, 4WD, 360 eng., 75k mi., a/t, rotors, etc. Ken, Ext. 2350.

64 FORD FAIRLANE 500 - 2 dr., sport coupe, 289 factory, 4-on-the-floor, buckets. Eileen, Ext. 4194 or 924-4922.

83 HONDA CB1100F - supersport, LTD, new tires, very good cond., \$2,200; 76 Plymouth Volare, runs, good for parts, best offer. 298-4148, eves.

81 HONDA XR80 - garaged, mint cond., new back tire, must see, \$400. Neal, 286-2435.

TIRES - (4) Michelin, w/w, steel-belted, P205/75R15, almost new, \$150. 281-2186.

75 PALOMINO POP-UP - sleeps 6-7, stove, oven, furnace, 3-way refrig., tandem axle, awning, portapotty, battery, easy lift, \$1,800. 473-6546.

72 VW BUG - old, runs well. Tom O., Ext. 3777 or 289-3023.

77 ELDORADO - new tires & exhaust system, am/fm stereo w/tape, good cond., must sell. Ben, Ext. 7732.

FORD TRUCK TIRES - 10.5 LT/15, on 15"x7", 5 lug, white spoke rims; truck rims, 15"x7", white spoke, 5 lug. Ext. 2075 or 473-4937 after 6 p.m.

78 FORD FAIRMONT - V6, a/c, new tires, also snows, good cond., excel. mpg. 727-0499 after 6 p.m.

76 APACHE POP-UP - Eagle 800 w/awning, sleeps 7, excel. cond., \$1,650. 878-6956.

78 AMC CONCORD - a/t, p/s, am/fm cass., 65k mi., ask. \$1,500; 78 Datsun 200SX, new brakes, ask. \$700. Ext. 2621, beeper 266, or 281-0486.

79 MAZDA RX7 - silver, 4 spd., am/fm cass., excel. cond., \$3,900. Ext. 2949 or 427-2435.

77 VW RABBIT - sunroof, a/t, hatchback, 4 dr., asking \$1,200. Ext. 4049 or 744-8087.

TIRES - (2) LR78-15, \$20 each. Tony, Ext. 2050.

74 BRAVO POP-UP - sleeps 8, sink, 3-way burner stove, 3-way refrig., gas heat, 2 gas tanks, tandem axle, porta-potty. \$1,600. 924-0539.

TRAILER HITCH - class A, was mounted on Ford vehicle, \$20. Ext. 2514.

79 FIAT X1/9 - black, hardtop convertible, 5 spd., new Blaupunkt stereo, new exhaust, 61k mi., 981-0838.

81 TOYOTA COROLLA - 4 dr., 5 spd., excel. cond. in/out, runs very well, asking \$2,500. Joe, Ext. 5212.

76 FIREBIRD - needs motor, \$350. Frank 736-2575, eves.

78 TOYOTA CELICA - liftback, 5 spd., orig. owner, no rust, A1 cond., reliable, 99k mi., must sell, asking \$1,300. Bob, Ext. 4656 or 928-1806.

67 CHRYSLER - convertible, 383 V8, a/t, p/s, p/b, p/w, new top. Tony, 698-9274.

VETTER FAIRING - Quicksilver, gloss black, frame mounted, full lighting, fits 450-750cc bikes, excel. Ext. 5110 or 363-2641.

75 BMW R90/6 - motorcycle, good cond., \$2,200. Roger, Ext. 4677 or 878-8847.

77 TOYOTA - good mechanical cond., \$250. 744-5096.

78 WHITE CORVETTE - mint cond., completely redone, top to bottom, red leather interior, asking \$11,500. 589-7496.

WIRE WHEEL COVERS - set of 4, fits 15" tires, like new. 325-0447 after 6 p.m.

72 HONDA CB500 - custom, good cond., black, asking \$550. 821-1356.

Boats & Marine Supplies

FIBERFORM 2375 - Sunblazer family cruiser, fwd. & aft cabins, sleeps 5, 200 h.p. f.w.c. Volvo, loaded w/extras, mint cond., \$12,999. 654-5888.

14' PHANTOM SAILBOAT - fiberglass. Ext. 2018 or 928-3568.

23' AQUARIUS SAILBOAT - fiberglass, 3 sails, 7.5 h.p. Evinrude, Pier 66, Patchogue. Ext. 7578 or 924-6937.

12' SAILBOAT - Sunfish type, \$100. Harry, Ext. 7578 or 744-2715.

14' BLUEJAY - sailboat, trailer, 2 h.p. outboard, \$600. Ext. 7657.

20' GLASTRON - good fiberglass, needs 70 h.p. motor, full canvas, \$990. Jim Klein, 298-8805.

19 1/2' BAYLINER - Capri Bowrider, 1984, Volvo I/O, trlr., quality Coast Guard & ski equip., full canvas, all covers, extras, \$9,400. Ext. 2981 or 473-7809.

GALVANIZED CHAIN - 3/8", proof coil, \$1.60/ft. 399-1679.

14" AMF SUPER SAILFISH - good cond. w/Shoreline trailer, \$650. 265-1308 after 7 p.m.

16' STARCRAFT - aluminum, good cond., extras, galvanized, Holsclaw trailer, spare, \$500. Ext. 4238 or 286-3509.

21' RENKEN - 1983, cuddly, 120 O.M.C. I/O, canvas, CB, d.f., CE package, \$7,000. 585-1856 after 6 p.m.

18' RENKEN - 1983, I/O, 120 h.p. O.M.C. w/trailer and full cover, excel. cond., \$5,000. Ady, Ext. 4531 or 331-3785.

22' COLUMBIA SAILBOAT - fiberglass, sleeps 4, 4 sails, 6 1/2 h.p., mooring, cradle, extras, \$5,500. 981-4216.

MARINE STOVE - & oven, all stainless, kerosene, like new, \$100. 475-8710.

15' WINNER - 80 h.p. Mercury, trailer '85, excel. cond., many extras, new seat/floor, \$2,500. 265-7089.

19 1/2' BAYLINER - Capri Bowrider, Volvo I/O, trlr., quality Coast Guard & ski equip., full canvas, all covers, extras, \$8,500. Ext. 2981 or 473-7809.

Miscellaneous

WATER TANK - glass-lined and pump, \$10; oil burner head, \$10; hydrohearth, \$10. George, Ext. 4460 or 4453.

PUPPY - English Springer Spaniel female, shots, AKC, beautiful, \$300; fireplace screen brass & glass, hardware set, \$45. 654-5888.

TABLE SAW - Sears 7 1/4" w/accessories, \$75; generator, Generac, 4kW, new, in original box, \$500. Mark, Ext. 5350 or 269-0793.

AZALEAS - field grown, 2'-3', \$5 ea.; hanging fuschia & ivy geraniums, 8" pots, \$10 ea.; annuals, \$10/flat; vinga vine, \$1.50/4" pot. 744-0722.

JET PUMP - fresh water, good for parts. Ext. 3372.

VIOLIN - German, excel. cond., 1 yr. old, cost \$400, will sell for \$250. Anita, 363-6842.

RIDING MOWER - John Deere, model 68, 30" blade, inc. bagger, snowplow, good cond., \$600. 744-6423.

BEDROOM SET - whole wood, \$200; couch, \$25. 821-9328.

SKIS - men's, 205cm, 200cm, boots size 10 medium; women's skis, Harts, 185cm, boots 7 & 8. 475-0509.

TV - 12", black & white, \$55; small refrig., \$60; 10-speed bike, \$75. Bill, Ext. 2378 or 758-3284.

BOXSPRINGS - (2) twin bed, \$10 ea. Henry, Ext. 2668.

LANE BEDROOM - queen platform bed, storage headboard, 2 nightstands, chest, triple dresser w/mirror, wood. Donna, Ext. 4599 or 878-9367.

BICYCLE - Rossin Record, 55 cm, Campy equipped, red & chrome, \$400 for frame & fork, \$1000 for complete bike. 874-8790.

ANTIQUE CHAIR - oak, hide seat & back, brass decorative fittings; 2 trunks 40"x20". 472-1397.

WESTERN SADDLE - good cond., Bonner Allen, \$100. 288-3104 after 6 p.m.

BICYCLE - girl's, Sears Free-Spirit racer, 10-speed, 24", very good cond., \$50. 751-5868 after 6 p.m.

MOVING SALE - Wurlitzer organ, coffee table, chairs, etc. 924-3755.

TYPEWRITER - electric, Smith-Corona, shift broken, \$20. John, Ext. 5152 or 281-2471.

TREE PLATFORM - Baker, for archery, includes safety belt, nearly new, used twice, \$70. Ext. 2514 or 757-3178.

CHAIR - Danish-style w/red patterned Naugahyde cushions, extra green cloth covers, \$25. Pat, Ext. 4805 or 722-4489.

JAPANESE YEWS - taxus, Cuspidata Capitata, field-grown transplants, 2'/\$15, 2 1/2'/\$20, 3'/\$25. 589-4363 after 6 p.m.

FURNITURE - Colonial, loveseat w/matching curtains & wooden rods, \$150 for all; Castro convertible ottoman, opens to single bed, \$100. 928-1942.

Car Pools

OAKDALE/BOHEMIA - would like to form car pool. Frank, Ext. 2314.

Free

WINDOWS - aluminum sliding, 33"x38" w/s.s. Ext. 4460 or 4453.

MALE DOG - approx. 3 yrs. old, trained, house broken, needs loving home w/running room. Ext. 2953.

78 TOYOTA COROLLA - station wagon, for parts, you haul away. Ext. 5056 or Ext. 2081.

Yard Sales

SHIRLEY - Boy Scouts, good stuff, 4/25-4/26, 410 River Rd., by Southaven Park. 281-1255.

MANORVILLE - April 24, 25, 26, No. Halsey Manor Rd., group sale, gigantic.

YAPHANK - 442 Yaphank-Middle Is. Road, May 2 & 3, 9 a.m. to 5 p.m., toys, jewelry items and much more.

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

SELDEN - Village in the Woods, spacious 1 bdrm. apt., eik, cac, w/w, 1 yr. lease, avail. 6/1, \$625/mo. inc. heat & gas cooking. Lynn, Ext. 2780 or 732-7954 after 6 p.m.

SHIRLEY - 2 bdrm. apt., l/r, lg. kit., full bath, ground floor, walk to beach, \$650 inc. all. 744-2821.

HILTON HEAD, SC - 2 bdrm. condo, sleeps 6, many extras, golf, tennis, pool, beach, \$400/wk. 585-9149.

N. SHIRLEY - lg. studio, furn. w/kit., pvt. ent., util. inc., 1 person only, non-smoker, no pets, 5 min from Lab & stores, security \$425/mo. 281-8044.

For Sale

HOLIDAY, FL - 2 bdrm., 2 baths, garage, lg. l/r, Florida room, d/r, kit., close to stores, very nice neighborhood, \$40,000. 360-3803.

SHOREHAM NORTH - 4 bdrm. colonial, 2 1/2 baths, den/fp, bsmt., fenced, patio, formal d/r. 744-1750.

SHOREHAM - 3 bdrm. ranch on prof. landscaped 1/3 acre, very nice neighborhood, l/r, d/r, eik, 20'x12' f/r w/bay window, a.g. pool, deck and more, \$135,000. 821-2716.

RIVERHEAD - ranch-style, 3 bdrm., l/r, kit., bath, new roof, window & screens, \$60,990. Ext. 4289 or 395-4818.

MILLER PLACE - 4 bdrm. Colonial, formal l/r, d/r, large l/r, kitchen, 4 baths, N. of North Country Rd. Ext. 3330.

WILDWOOD FL. - central, off Rt. 40, mobile home, \$1,500 down, take over bank payments, 1987 model, more information. Carol, 878-0885.

RIVERHEAD - 12'x55' mobile home, 2 bdrm., 1 1/2 bath, l/r, eik, new shed, dbl. drive, corner lot in adult/55 park on Peconic River. Jeff, Ext. 2907 or 727-5915 after 6 p.m.

SOUTH SHIRLEY - waterview contemp. ranch, pvt. area, beach, landscaped, 3 bdrm., den, 2 baths, dining area, fp, recent oil burner, new roof, low taxes, \$128,000. 281-2186.

PORT JEFFERSON STATION - Hi-ranch, 5 bdrm., 3 bath, possible mother/daughter, walk to shops, now rented, pays for self. \$140,000. 929-8142.

WADING RIVER - 5 bdrm., 2 bath, den/study, fireplace, deck/pool, 1/4 acre w/tree, SWR schools, \$245,000. Ext. 2380 or 929-8142 after 6 p.m.

SHOREHAM - 3 bdrm. ranch, l/r, d/r, eik, f/r, heavily wooded acre, SWR schools, taxes \$1,200., \$129,000. Ed, Ext. 7786 or 744-7796.

P