BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

DOE Funds Four Grants for Biology and Medical

Brookhaven researchers have garnered four out of 17 grants awarded July 1 by the U.S. Department of Energy (DOE) under a new special grant program for nuclear medicine research.

Issued by DOE's Office of Energy Research, the four special grants will support research into the medical applications of nuclear technology, for up to three to five years each.

Specifically, the money will be used within BNL's Medical and Biology Departments to develop new radioactive pharmaceuticals for diagnosis and treatment of disease; to test the clinical feasibility of such radiopharmaceuticals; and to develop imaging techniques so the condition of internal organs can be ascertained noninvasively.

Brookhaven was one of 69 institutions — from 22 states, the District of Columbia and four foreign countries — that applied for a share of the DOE funding. Total requests exceeded $74 million over the five-year grant period, and these had to be pared down to meet the reality of funds available, beginning with $2 million for fiscal year 1989. In the end, almost one-quarter of the grants were allotted to BNL projects.

Paul Cho, Program Manager in DOE's Office of Health and Environmental Research, said, "We are very pleased with the overall review process, which resulted in supporting the top 17 proposals. The success achieved by the BNL scientists, in particular, in this keen competition demonstrates that the competence, experience and research performance of the principal investigators and their managers — Drs. Arjun D. Chanana and Richard B. Setlow — are simply outstanding and exemplary."

Named as principal investigators, BNL's recipients of the four grants are:

- **Jeffrey Coderre**, Medical, for his effort to ascertain the clinical feasibility of boron neutron-capture therapy as a treatment for human malignant melanoma. This work involves use of BNL's Medical Reactor.
- **Avraham Dilmanian**, Medical, for his research at BNL's National Synchrotron Light Source, using monochromatic x-rays selected from the X-17 superconducting wiggler's white synchrotron radiation to carry out multiple-energy computed tomography of the human head and neck.
- **James Hainfeld**, Biology, and **Leonard Mausner**, Medical, for their development of radioactive gold clusters, and then binding them to tumor monoclonal antibodies for potential cancer therapy. BNL's Scanning Transmission Electron Microscope and High Flux Beam Reactor (HFBR) are used in this research.
- **Ronnie Mease**, Medical, for his effort to synthesize new radioactive chelating agents, that, when bound to antitumor monoclonal antibodies, are to be stable within the body and used for cancer diagnosis and therapy. The new chelating agents will be evaluated with radioisotopes produced at the Brookhaven Linear Isotope Producer and the HFBR, as well as from outside BNL.

"The new principal investigators are all young in their careers, and their projects are being funded by DOE for the first time," explains Richard Setlow, BNL's Associate Director for Life Sciences. "All the proposals went through a rigorous peer review, so we are especially proud that not one, but four were funded."

Two of these projects — Dilmanian's, and Hainfeld and Mausner's — have received their initial support from the Laboratory Director's Exploratory Research Program.

Adds Arjun Chanana, Chairman of the Medical Department, "Each of these projects utilizes not only the research talent within the Medical and Biology Departments, but also some of the unique facilities available at BNL."

Articles expanding on these four projects will appear in future issues of the Bulletin.

Michael Knotek to Leave NSLS; New Chairman Sought

After a little over four years as Chairman of the National Synchrotron Light Source (NSLS), Michael Knotek will be leaving BNL on September 1 to become Senior Technical Director at Pacific Northwest Laboratories in Richland, Washington.

A Search Committee has been formed to find a new Chairman for the NSLS and includes: William Brinkman, Chairman, Bell Labs; John Axe, Vice Chairman, BNL; Barry Cooperman, University of Pennsylvania; John Galayda, BNL-NSLS; Janos Kirz, State University of New York at Stony Brook; Paul Martin, Harvard University; William Thomlinson, BNL-NSLS; and Michael White, BNL-Chemistry.

Roger Stoutenburgh

Michael Knotek

Of the task facing the Search Committee, BNL Deputy Director Martin Blume said, "We don't anticipate any difficulty in filling Mike's shoes because the outstanding job he has done has made this a very desirable position."

The Committee has been asked to present a short list of qualified candidates to BNL Director Nicholas Samios as soon as possible. The Committee is looking for an individual with outstanding scientific and technical competence, particularly in accelerator physics or in research using large, complex, multi-experiment facilities. Other attributes the Committee will be seeking are administrative ability, knowledge of Department of Energy and other government agency procedures, a vision of the future of synchrotron radiation and strong leadership abilities.

Nominations are strongly requested by the Committee. Anyone with a recommendation for NSLS Chairman should contact Brinkman, at (201) 582-4880, or Axe, at Ext. 3821. Electronic mail responses will be forwarded to the Committee if they are sent to Blume at "blume@bnl.bitnet" or "blume@bnl.gov."

The Light Source is actually two sources of synchrotron radiation, the electromagnetic radiation given off when electrons move rapidly in a curved path. The two curved paths at the NSLS — the 750-million-electron-volt ultraviolet ring and the 2.5-billion-electron-volt x-ray ring — are used by researchers from universities, industry and other laboratories for research in physics, chemistry, biology and various technologies.

The NSLS came on line in 1982, and Michael Knotek took over the chairmanship in April 1985. "When I first came," he said, "I hoped that we could get halfway to where we are today. It took some heroic commitments by NSLS people to make those machines run at the levels they now do. It's been a great effort, a great success."

Knotek measures the NSLS' success by "the overwhelming response of the user community. They've made an enormous investment of equipment and people, which really make the Light Source unique."

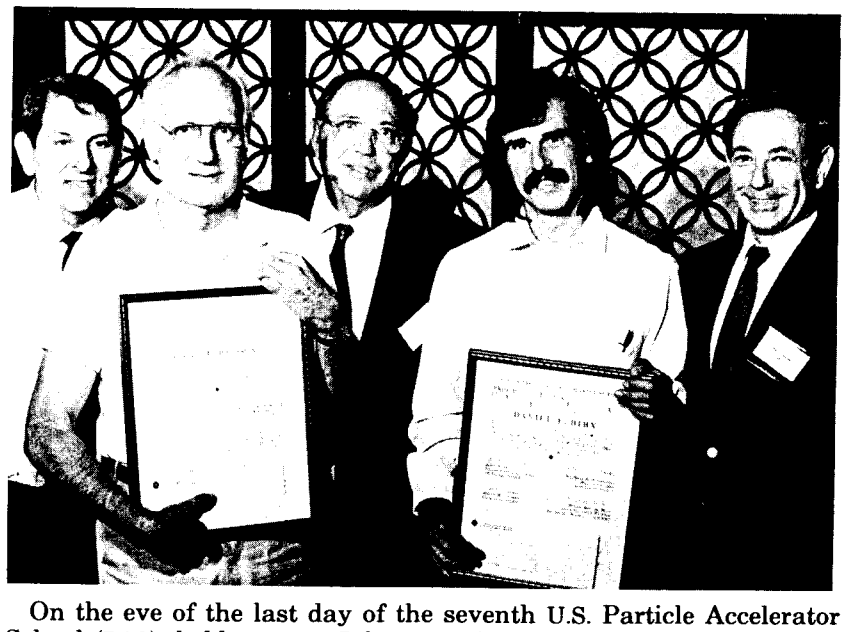
That success is also measurable in a quantity Knotek calls "photons generated on sample. The NSLS produces as much as the rest of the world combined."

Finally, the NSLS' success is reflected in the growth of the field of synchrotron radiation. "There's been an enormous expansion in commitment across the globe," said Knotek. "I think the Light Source was one of the key elements in convincing people to move ahead. Now there are $3 billion committed to new synchrotron facilities in the U.S., Europe and Asia."

With the NSLS operating well and a well established "atmosphere of trust and understanding between NSLS staff and users," Knotek feels that this is "a natural juncture at which to make a change." He'll take on new challenges at Pacific Northwest as he begins looking over the major elements of that laboratory's research program, as well as setting up and directing the new Environmental and Molecular Sciences Laboratory there. The new laboratory will include the Molecular Sciences Research Center, which Knotek will also direct, and the Environmental Research Center of Excellence.

Though he is leaving to face these new challenges out west, Knotek believes there are still many challenges facing his successor, particularly, he said, "to integrate the Light Source operations and development program with the historical research departments around the Lab, to enlist the participation and support of outside research institutions to most optimally develop the NSLS, to see that the level of experimental capabilities here are continually increasing, and to make sure that the best researchers have access to the facility, so the best science will be done."

Awards for Accelerator Acumen


Roger Stoutenburgh

On the eve of the last day of the seventh U.S. Particle Accelerator School (PAS), held at BNL July 24 to August 4, a banquet was held for the accelerator physicists, engineers and others who participated in the two-week symposium and who numbered over 200.

One highlight of the evening was the presentation of PAS's 1989 Prize for Achievement in Accelerator Physics and Technology to Karl Brown (front, left), Stanford Linear Accelerator Center, and Daniel Birx (front, right), Science Research Laboratory of California, each of whom received a $2,000 check and a certificate of merit. Brown was cited "for insights into particle beam transport and for introducing formalisms in use throughout the world," while Birx was noted "for developments in high power magnetic switching technology with applications such as high repetition rate induction linacs, free electron lasers and laser isotope separation."

Sharing the moment with the award winners are (from left) PAS founder and Director Melvin Month, a BNL physicist; James Leiss, a member of the PAS Awards Committee, now retired from the U.S. Department of Energy; and BNL Deputy Director Martin Blume, a member of the PAS Executive Board.

Autumn Approaches for BNL Summer Students

Next week is the last week at BNL for most of the 59 students here this summer for the annual Summer Student Program. The ten-week program, now in its 38th year, brings college students from around the country to work at the Lab.

"The program provides the opportunity for students to have a research experience — to have a researcher as a mentor — and for those students to contribute to the productivity of the research at BNL," said Robert Thomas of the Office of Educational Programs (OEP).

The program is funded by the Department of Energy, which pays the students' salaries, but the students' housing is paid for by their departments.

To attract students to BNL, the program is advertised at schools throughout the country. Applications come to OEP, where they are sorted and made available for review by BNL staff members, who select their candidates. This year, four of the students — Denise Henderson, Angela Johnson, Robin Mack and James Miller — were selected via a national contest sponsored by the National Institute of Science, Beta Kappa Chi and the Brookhaven Seminar Program.

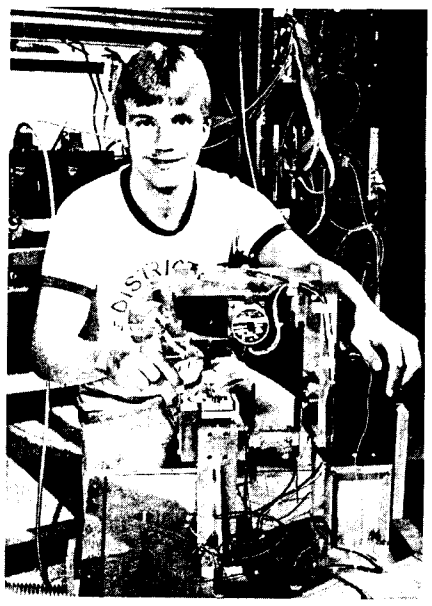
Each student is assigned an advisor, and most have a specific research task to accomplish during the summer. For many, the summer program serves as a short version of a graduate school research project and allows them to decide about their future in scientific research.

"Many students don't have the opportunity to do research in their schools, and many have questions about whether they want to do research, or whether they want to do something else in their careers," said Thomas. — Kevin Eber

Laying the Foundation for . . . New Accelerator Physics

Douglas Petkie's summer work in the physics department may help lead to a new type of electron accelerator.

The proposed accelerator will use a diffraction grating, which acts much like a prism. When a beam of electrons passes over a grating, light is given off by the Smith-Purcell effect.



Roger Stoutenburgh

Douglas Petkie

"With the Smith-Purcell effect, electrons cause the grating to give off light at a certain angle and a certain wavelength," said Petkie, a summer student from Carnegie-Mellon University. "My group is going to try the inverse: Shoot the light in so it sets up a field on the grating, which accelerates the electrons."

To do that, the team will have to wait for the completion of the Accelerator Test Facility (ATF), now being constructed by BNL's Center for Accelerator Physics.

Meanwhile, in preparation for the accelerator experiment, Petkie, who will be a senior next year, is working with his advisor, physicist Rick Fernow, and with mechanical engineer Stan Ulc to build an experiment that will precisely measure the Smith-Purcell effect. The results will be used to check the current computer predictions and provide the information needed to build the prototype accelerator.

To perform the experiment, the team will shoot a beam of electrons from a thermionic electron gun over a diffraction grating and use a photomultipier tube to measure the emitted light. Petkie has been modifying and refining the computer programs that will position the grating and photomultiplier tube and collect the data.

"From working with this group, I've found out that I want to do experimental physics," said Petkie. "That's why I came here." — K.E.

Neutron Capture Therapy

Summer student Denise Henderson is performing some of the basic research for neutron capture therapy, which is under development at BNL.

Roger Stoutenburgh

Denise Henderson

Neutron capture therapy relies on concentrating the isotope boron-10 in a cancerous tumor. Bombarding the tumor with slow neutrons at the Brookhaven Medical Research Reactor causes a nuclear reaction with the boron-10, releasing energy to destroy the tumor.

But when experimental animals are exposed to the reactor flux, they receive a wide range of radiation. To fully understand their results, researchers need to know the magnitude of the total, whole-body dose. This is important because that dose can affect the growth or regression of the tumor.

For her research, Henderson is exposing rats to a range of neutron doses and testing the effects of the doses on the rats' blood.

"The findings have been pretty predictable," said Henderson. "We knew the white blood count was going to fall; we knew the platelet count was going to drop. But the degree by which these counts dropped will be used to estimate the whole-body dose."

Henderson, a junior majoring in biology and chemistry at Central State University in Wilberforce, Ohio, has found her research to be "a lot of fun." Her work with advisor Darrel Joel of the Medical Department has helped to cement her plans to pursue an M.D./ Ph.D. program after graduation.

"It was really challenging to come here," said Henderson. "Some of the things I had never done before, but I'm always willing to try something new." — K.E.

Speaking Out: About Being Summer Students

Reporter: Kevin Eber

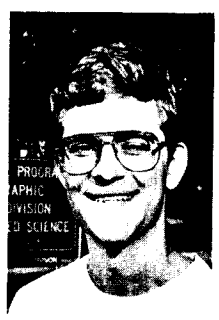
Photographer: Roger Stoutenburgh

A few weeks ago, the Bulletin's summer student reporter questioned his fellow summer students, asking, "What do you hope to gain — or what have you gained — from your summer at BNL?"

Kate Lee, Medical Department, studying radiation-induced carcinomas in mice — "It's made me a lot more interested in the medical part of biomedical engineering. Since I've been here, I'm thinking more seriously about medical school."

James Miller, Medical Department, working for the Employee Assistance Program — "I'm interested in pursuing a career in clinical psychology, and I'm here to get an understanding of what the field is all about before I go to grad school."

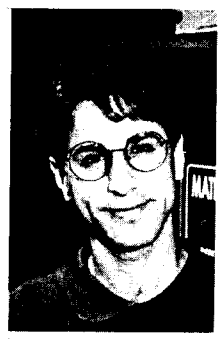
Cheryl McMackin, Department of Nuclear Energy, examining the effects of radiation on polymers and ion-exchange resins — "I'm learning more about the research aspect of science, which is what I consider *real* science."



Michael Bower, Department of Applied Science, treating chemically contaminated sand with bacteria to attempt to remove toxins — "I guess it's finally putting into practical use what was theory all along, and actually accomplishing something."

Susan Volke, Department of Nuclear Energy, conducting probabilistic studies of diesel generator failures — "I hope to get some direction in what I'm doing in graduate school — what I enjoy doing, and what I want to specialize in."

Suzanne Devine, Research & Technology Applications Office, doing work relating to technology transfer — "I'd like to learn as much as I can and see how what I'm learning in college applies to the real world."



Maan Qazaaz, Department of Applied Science, performing a variety of tasks at beam line X-11 of the National Synchrotron Light Source — "The advantage of this experience is that it exposes me to one field in its entirety. I'll actually be able to do some physics, and also see things from backstage."

Scoop of the Week

Two scoops get dished out for summer week number eight — to two repeat winners from last summer.

Ollie Booker, Plant Engineering, suggested that our inquiring reporter question this year's summer students (see "Speaking Out").

Physics Department graduate student Kenneth Ritley, University of Massachusetts-Amherst, had two ideas (sorry, no double scoops!): First, he suggested we rerun that "terrific feature . . . the 'Scoop of the Week.' " Second, he thought we should "do a story on the students here at BNL. Few people (it seems) know that not only is there an official Summer Student Program [which Ritley was in last year], but also that there are many grad students like me who work on experiments here!" Unfortunately, space does not permit the Bulletin to focus on graduate students this year, so Ritley may have to come back again next summer to see his suggestion fully carried out.

Throughout the summer, the Bulletin is trading hot tips for scoops of cold, frozen yogurt. To enter the Scoop of the Week contest, rush your news and feature scoops to the Bulletin, Bldg. 134, or call Ext. 5053. If you scoop the Bulletin's informed sources, and a story based on your idea is published, you'll win an official certificate for soft-serve, frozen yogurt, redeemable anytime at the Cafeteria.

Note to Employees:

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

Sculpture Inspired by Physics to be Exhibited

When you enter the Collider Center during the next month, you will be entering a world where science and art have merged. For this is where you will find *The Standard Model (abandoned)* — a 40-foot-long, steel and glass, sculptural installation by Stephen Rueckert, inspired by the form of linear particle accelerators and the field of high energy physics.

The Standard Model (abandoned) will be on view in Bldg. 1005S, beginning with an opening reception on Wednesday, August 16, from 5 to 7 p.m., to which all are invited. Thereafter, the exhibit will be open to the public each Wednesday, Thursday and Friday from 11 a.m. to 2 p.m., starting Thursday, August 17 and going through Friday, September 15.

"I had an idea that I wanted to do a sculpture based on the fundamental questions posed by the process of particle acceleration," said artist Stephen Rueckert, "and I started to see what I wanted to build as a linear form." But it was after he saw his first linear accelerator — BNL's Linac, the particle injector for the Alternating Gradient Synchrotron — about a year and a half ago, that Rueckert officially got started on this project.

Rueckert sought the Collider Center as an exhibit area because, he said, "I was inspired by Brookhaven and its environs, so I want to share this sculpture with everyone out there. I feel that art is not just meant for a gallery or a museum, and what could be better than having it at the Collider Center because it is a sculpture inspired by particle acceleration."

The Collider Center is the nerve center for BNL's proposed Relativistic Heavy Ion Collider, and is located on the accelerator ring in the northern part of the Lab's property. To reach the Collider Center from Brookhaven Avenue, go east to Railroad Street, then go north to the ring and turn left to the first building on the left, 1005S.

Stephen Rueckert

Originally from Chicago, Rueckert now lives and works in Brooklyn. This installation is the latest in a series of works in which he examines those areas of inquiry where questions posed by art, science and religion overlap. In *The Standard Model (abandoned)*, Rueckert has made a visual representation of the process of particle acceleration as a means of exploring basic questions about creation, destruction and the beginnings of life in the universe.

Rueckert is represented by the Tomoko Liguori Gallery, New York, which will present a solo exhibition of his sculptures from October 21 through November 18.

Overnight Trip To Atlantic City

A unique BERA-sponsored event is coming up on Friday, November 10: an overnight bus trip to Resorts International Hotel and Casino in Atlantic City. The bus will leave the Brookhaven Center at 9 a.m. on Friday morning, Veterans Day, and return to BNL at approximately 7 p.m. on Saturday, November 11.

Included in the price of $89 per person are round-trip bus transportation, deluxe accommodations, luggage handling, bellhop gratuities, room tax, a welcome cocktail, a $20 food & beverage coupon and $20 worth of slot tokens. Each person will also receive a $20 deferred bus coupon and a $10 deferred food coupon. This rate is based on double occupancy; for single rooms, there is an additional $25 charge.

At present, one bus is scheduled; however, if enough interest is generated another will be ordered.

Sign up immediately. Paid reservations will be taken on a first-come, first-served basis through Friday, September 29, at the BERA Sales Office in Berkner Hall, from 9 a.m. to 2 p.m., Monday to Friday. No refunds will be made unless someone else wishes to purchase the ticket. A waiting list will be kept.

For more information, call Louisa Barone, Ext. 3347, Rosalie Piccione, Ext. 3160, or M. Kay Dellimore, Ext. 2873.

Coming Up

The 1989 Renate W. Chasman Scholarship for Women will be presented by Brookhaven Women in Science on Wednesday, August 16, at 4:30 p.m., in the South Room of the Brookhaven Center. Tea, coffee and light refreshments will be served.

The $1,000 scholarship was established in 1986 to encourage Long Island women whose educations were interrupted to continue their formal studies in the sciences, engineering or mathematics. This year's recipient is Mary Theresa Belletti, a junior at the State University of New York at Stony Brook, majoring in Earth Science and Secondary Education.

Nursery School

The Upton Nursery School is enrolling three-and four-year-old children for the 1989-90 school year. This cooperative preschool offers three-hour classes three days a week in the Recreation Building on site. The school is open to families of BNL employees and their relatives. For more information, call Valerie Condemi, 399-1258, or Kathy Hershcovitch, 331-3785.

In Addition . . .

In addition to those survivors named in last week's "In Memoriam" for Dorothy Thompson, who died on July 26, she is survived by Gregory and Elese Thompson, children of her son Robert and daughter-in-law Linda, of Bayport.

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Softball

Standings as of August 4

League I		**League III**	
Phoubars	9-3	Dirty Sox	9-1
Blue Jays	8-4	Blue Knights	7-4
Cool 'n Gang	7-5	Scrambled Legs	6-4
Light Source	5-7	Medical	5-6
Six Pax	5-7	Cocoon	3-8
Ravens	2-10	Sure Fire	2-9
League IV		**League V**	
Snakebites	10-0	The Far Side	7-3
Survivors	7-3	Sandboxers	7-3
Spacekadets	6-4	Source	7-3
Kidz-R-Us	5-4	Mudville Sluggers	5-5
Simply Awesome	5-5	Seventh Inning Stretch	5-5
Hounds & Foxes	3-6	Underalls	4-5
Farm Team	2-8	Turkeys	3-7
Foul Ups	1-9	Bat Ole Bat Magic	2-9
League II			
Scores not available			

Software Demo

An Apple Macintosh UNIX presentation will be held on Wednesday, August 16, at 2 p.m., in the seminar room of the Computing & Communications Division, Bldg. 515.

For more information, call Mario Cavallaro, Ext. 3895, at the Macintosh Center in Room 121, Bldg. 515, Tuesday, Wednesday or Friday.

Lions and Tigers And Flowers — Oh My!

On Saturday, September 23, take the bus to the elephant — join the BERA Art Committee-sponsored trip to the Bronx Zoo. For those who prefer flora to fauna, the bus will also stop at the nearby New York Botanical Gardens.

At the Zoo, you can catch a monorail or cable car to view "Wild Asia," glimpse nocturnal animals in the "World of Darkness," and see "Jungle World," a new indoor home for tropical wildlife. At the Botanical Gardens, see displays of flowers, trees and shrubs from all over the world, either outside or in greenhouses.

The bus will cost $15, and entry to the Gardens is free. Entry to the zoo alone is $3.75, but children under 13 pay $1.50. Group-rate tickets including all zoo rides will also be available at $8, if at least 15 people want them.

The bus will leave the parking lot opposite Berkner Hall on September 23, at 9 a.m., and leave the Bronx at 3:30 p.m. Call now for tickets: Bob Chrien, Ext. 3903; after August 24, Liz Seubert, Ext. 2346.

Tennis Anyone?

After-Tournament Party

The Annual After-Tournament tennis party will be held at the tennis courts on Thursday, August 17, at 5:15 p.m. In inclement weather, it will be held in the Physics Department Seminar Room, Bldg. 510. All players, workers, supporters and friends of the tennis community are invited to come for wine and cheese, and presentation of tournament awards.

U.S. Open Bus Trip

The tickets for the U.S. Open Bus Trip on Tuesday, September 5, have arrived and may be picked up at the BERA Sales Office. The bus will depart from the tennis courts parking lot at 8:30 a.m. and from the Park & Ride at Long Island Expressway Exit 63 at approximately 8:50 a.m. Please be prompt. Departure from the National Tennis Center will be at 7 p.m.

Summer on Long Island

Spectacles in the Skies

If the summer skies are clear over Long Island this week, we'll be treated to two astronomical events — a meteor shower and a total lunar eclipse.

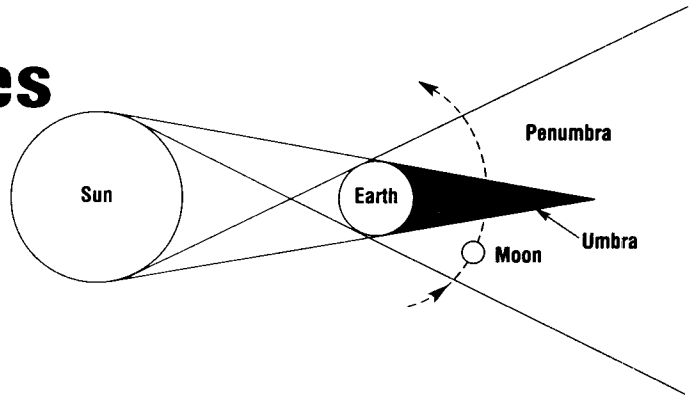
The annual Perseid meteor shower will reach its peak on Saturday morning, August 12. The meteors will appear to come from one point in the sky, in the constellation Perseus — hence the name. Those who like to wish on falling stars will be able to do so about fifty times each hour under dark skies.

Because any light makes it difficult to see the faint meteors, it's best to find a dark location for viewing the meteor shower. The moon's light also interferes, and the moon will be up until late evening, so get up in the predawn hours — or stay up late — to watch the meteors.

What's needed for meteor-shower watching? Just a lawn chair to make it easy to lie back and watch the sky. Of course, it's more fun if you bring a friend — although you may miss a few meteors.

A rarer treat will be the total lunar eclipse on Wednesday night, August 16. Lunar eclipses happen when the moon passes into Earth's shadow, cutting off the moon's source of illumination, the sun. The moon will begin to be swallowed by shadow at 9:21 p.m. and will be totally blocked at 10:20 p.m.

But the moon won't entirely disappear. Instead, some sunlight will be bent by Earth's atmosphere and will reach the moon. From the moon, the Earth would appear to be ringed with a red sunset glow. From the Earth, that glow will make the moon appear orange or red.



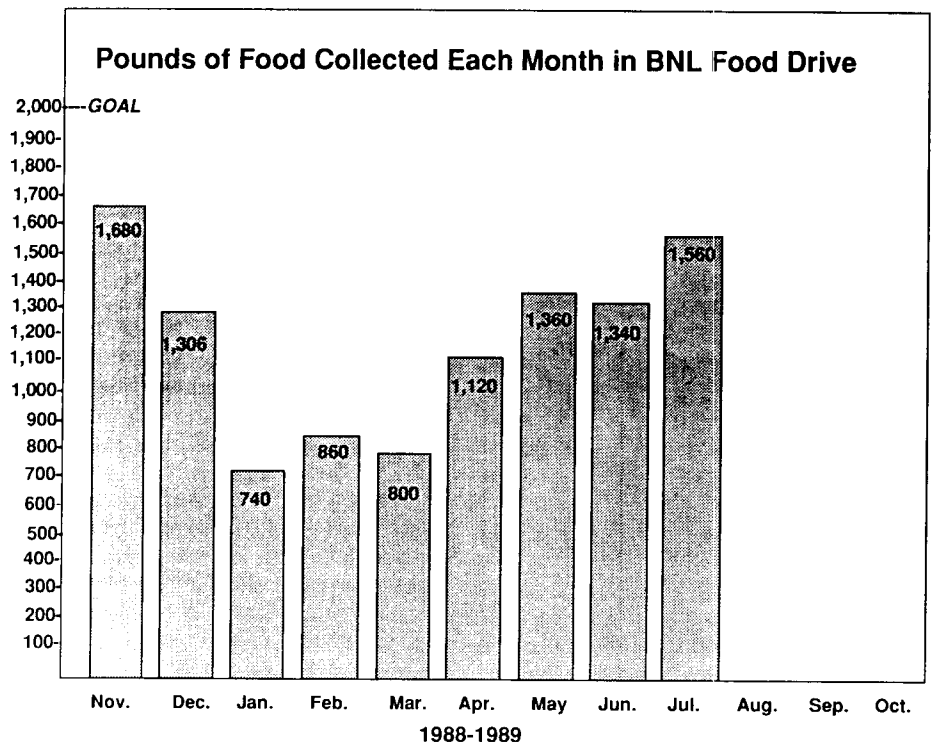
In this not-to-scale diagram of a lunar eclipse, the moon is shown passing through Earth's shadow. The lighter shadow — the penumbra — is barely noticable; the true eclipse occurs when the moon passes into the dark umbra.

Astronomers expect this eclipse to be dark because the moon will pass deep into Earth's shadow. But the moon's actual brightness will be a surprise — it will be determined by how much sunlight is blocked by clouds and dust in Earth's atmosphere.

Binoculars would be fun for observing the eclipse, but they won't really be needed. Perseverance may be the most important requirement if you wish to see the entire eclipse — the maximum eclipse, when the moon is darkest, will occur at 11:08 p.m.; the moon will begin to reappear at 11:57 p.m.; and the eclipse will end at 12:56 a.m.

— Kevin Eber

Food Donations Soar in July



With donations jumping over 200 pounds last month — from 1,340 to 1,560 — July became the second most generous month BNL'ers have provided for needy residents of Brookhaven Town since the Food Drive began last November.

That's great, but remember — the goal of 2,000 pounds in a month has yet to be reached. Why not make it happen in August?

Food Drive Chair Carole Kerr reminds all those who plan to give that, during summer, school is out and so are free school lunches. So peanut butter and jelly are high on the list of suggested items this month, along with canned tuna or chicken, mayonnaise, dry milk and juices.

Kerr also points out that Finast Supermarkets has a Community Group Cash Refund program. A Finast customer can give register receipt tapes to the BNL Food Drive; then the Food Drive can submit them to Finast, in increments of $1,000 or more, for a one percent cash refund check. So don't throw those tapes away; send them to Kerr at Bldg. 460.

Golf Tournaments

The BGA will sponsor its fifth golf tournament of 1989 on Monday, August 21, at the Indian Island, Suffolk County golf course. The tournament will be held under stroke-play rules.

The first tee off will be at 10 a.m., running until 12:30 p.m. depending on sign-up. Contact Joe Mayeski, Ext. 2575, for a tee time. Golfers are requested to be at the course 20 minutes early. Preference will go to foursomes with a minimum of three BGA members. Callers are encouraged to have completed foursomes. The deadline for signing up is August 17.

Greens fees, to be paid in the Pro Shop, are $10 for County residents and $20 for nonresidents. There are no greens fees for residents with handicapped permits. The entry fee, to be collected by the starter, is $1 for BGA members and $2 for non-members. Riding carts will be available for $20 per cart. In the event of rain, direct questions to the Pro Shop, 727-7776.

After enduring one cancellation, fifty-nine BNL golfers finally tackled the "Red Course" at Bethpage State Park on June 27. The winners of each group were:

Flight	Low Gross	Low Net
A	John Millener	Bob Gallagher
B	Joe Roecklein	Dan Van Rooyen
C	Jimmy Yerry	Rick Jackimowicz
D	Dennis Malloy	Frank McNulty

Closest to the Pin Awards: John Millener, Joe Bauernfeind

Longest Drive Awards: John Millener, Joe DePace

Arrivals & Departures

Arrivals

Vili Benary ..... Medical
Odette Benary ..... Physics
Richard F. Krajewski ..... DAS

Departures

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

Eileen Carneiro ..... Staff Services
Laura J. Cipp ..... Biology
Rulon R. Mayer ..... Physics
Renee M. Moadel ..... Chemistry
Richard W. Neill ..... Accel. Dev.
Louis E. Repeta ..... AGS

Cafeteria Menu

Monday, August 14

Soup: Minestrone	(cup)	.75
	(bowl)	.95
Red clam sauce over fettuccine		3.10
Flank steak w/mushroom gravy & pot. or veg.		3.10
Lite-line: Broiled roast beef au jus w/pot. or veg.		3.10
Hot deli: Western hero		2.85

Tuesday, August 15

Soup: Beef barley	(cup)	.75
	(bowl)	.95
Chicken cacciatore		3.10
Macaroni & cheese		3.10
Lite-line: Tropical fruit salad		2.85
Hot deli: Veal Parmesan hero		2.85

Wednesday, August 16

Soup: Jerusalem chicken chowder	(cup)	.75
	(bowl)	.95
Beef & vegetable stir-fry		3.10
Chicken chimichangas over rice		3.10
Lite-line: Greek salad		3.10
Hot deli: Open turkey sandwich		2.85

Thursday, August 17

Soup: Broccoli supreme	(cup)	.75
	(bowl)	.95
Lamb stew		3.10
Baked lasagna		3.10
Lite-line: Deli egg salad		2.85
Hot deli: Corned beef		2.85

Friday, August 18

Soup: Seafood gumbo	(cup)	.75
	(bowl)	.95
Broiled cod Provencal w/pot. or veg.		3.10
Turkey alfredo		3.10
Lite-line: Broiled whitefish w/pot. or veg.		3.10
Hot deli: Meatball hero		2.85

Classified Advertisements

Motor Vehicles & Supplies

89 KAWASAKI NINJA 600R - mint, black/gray, 1,200 mi., tank cover, 2 helmets, sacrifice at $4,100 neg. 585-1656.

88 TOYOTA COROLLA FX - h/b, 2-dr., p/s, p/b, a/t, am/fm, 8k mi., excel. cond., $6,900. Tom, Ext. 3531 or 689-2648 eves.

87 BUICK GRAND NATIONAL - T-type, limited, 3.8 turbo, black, gray leather, full power, alarm, more, $13,500. 732-9324.

87 MERCURY SABLE - fully loaded, a/t, a/c, p/b, p/s, stereo cass., 15" wheels, excel. cond., $7,000. D. Bartolomeo, Ext. 3954.

86 YAMAHA RIVA 125 Z SCOOTER - black, 1,500 mi., excel. cond., best offer. Peter, Ext. 3977.

Boats & Marine Supplies

29' ULRICHSON - fly bridge, FWC, 327 runs well, sleeps 5, galley w/range & oven, elec. head, refrig., excel. cond., asking $4,500. Jack, 732-2754.

21' BAYLINER - 1984, Trophy, 125 Volvo, swim platforms, s/s rod holders, many extras, excel. cond., moored in Pt. Jeff. Donna, 928-2076.

18' FIBERFORM SPORT BOAT - 1978, rebuilt 120 h.p. OMC I/O, new canvas & tilt motor, trailer, D/F, swim plat., more, all excel. $3,995. 567-1358.

Furnishings & Appliances

AIR CONDITIONER - 11k Btu, 110 volts, good cond., mounts in window, $100. Fred, Ext. 4843.

DINING ROOM SET - new in 1920's, table w/leaf, 6 chairs, newly recovered, china closet, server, buffet, $750. 929-5847.

REFRIGERATOR/FREEZER - Sears, Coldspot, frost-free, 18 cu. ft., good cond., $125 or best offer. Tony, Ext. 3231.

SOFA - 72", beige background w/earthtone floral print, wood rim, superb cond., $90. 929-4530.

STOVE - G.E. Americana, ovens top & bottom, $90; refrigerator, Westinghouse, side-by-side, 22 cu. ft., excel. cond., $100; both avocado. 499-7095.

SOFA - yellow, good cond., too long for my new room, $30 or best offer. Ext. 7897.

WASHER - portable, Hoover; man's suitcase, American Tourister; power sander; dehumidifier. 941-9085.

Tools, House & Garden

WATER PUMP - three-stage jet, Flint & Walling make, new GE 1½-h.p. motor, w/pressure tank, used 3 years. 821-3925.

CIRCULATOR PUMPS - Grundfos, 3-spd., like new. Joe, pager 0925 or 728-1859 eves.

CHAIN-LINK FENCE - 50' roll, green, vinyl coated. Jim, Ext. 5400 or 878-6098.

TABLE SAW - 10" w/movable base, 2 h.p. motor, extra blades, all metal constructed, no plastic, $150. Fred, 369-9720.

VACUUM CLEANER - Black & Decker, heavy duty, 5-gal., hardly used, $15. 472-1174 eves.

JET PUMP - deep well, 2", not old; glass-lined tank, $25 for both. 924-6751.

HOT-AIR FURNACE - also, large room humidifier; over-wall pool ladder; gas range, make an offer. George, 924-9656.

Sports, Hobbies & Pets

GOLF CLUBS - Spaulding, Robert Jones registered, matched set, 2-9, w, p, 3 woods, leather grips, excel. cond., $90. Lenny, Ext. 4467.

EXERCISE BIKES - Schwinn, model DX900 Gold, excel. cond., $250/each. Ext. 4024.

BICYCLE - BMX, 20", Saint Tropez, like new, $80. Bob, Ext. 5286 or Art, 298-9594.

ORGAN - Lowrey L60 Debut, 2 keyboards, footboard, rhythm, mint cond., must sell, $350. Knotek, Ext. 4966 or 689-7910.

TROMBONE - Conn, perfect for beginner, excel. cond., $100. Rich, Ext. 2175 or 734-7342.

BICYCLE - Bianci, 26", unisex touring bike, detachable wheels, new, hardly used, $325. Bob, Ext. 4002 or 924-7658.

PIANO - Yamaha, console w/bench, oak wood, excel. cond., asking $1,900. Ext. 4635 or 751-2860.

RADIO CONTROL CAR - battery pack, one hour quick charger, $60. 475-4792.

EXERCISE BIKE - w/speedometer, odometer, tension control, $20. Paul, Ext. 4156.

WEIGHT MACHINES - 2 TDS, various free weights, 10-35 lb. dumbells, weight bench, tilt board, $400/all. Knotek, Ext. 4966 or 689-7910.

GOLF CLUBS - SW to 1 iron custom-made Goldsmiths, $175 firm. Tom, Ext. 5817.

ORGAN - double keyboard w/automatic or manual rhythm section, excel. cond., $500. Penny, Ext. 2625 or 467-8297 eves.

PIANO - Wurlitzer console w/bench, medium wood, excel. cond., asking $900 . Ext. 3857 or 751-3298 eves.

FLUTE - Gemeinhardt, good cond., needs a couple of replacements pads, best offer. Ext. 2267 or 395-6520.

ASTRO COMPOUND TARGET BOW - 29-31" draw, 40-55# w/Pro Line sight stabilizer, alum. arrows, like new, $195. Joe, Ext. 5131.

Audio, Video & Computer

COLOR VIDEO CAMERA - RCA w/deluxe tripod, video camera case, camera extension cable, $450/all. Ext. 2214.

TV - 13", color, remote control, only 5 months old, $100. Omta, Ext. 4392 or 3098.

STEREO CABINET - natural wood, approx. 3½' high, 4 shelves, also holds speakers, asking $35. 724-7758.

Miscellaneous

WEDDING GOWN - size 7, designer Galina, w/veil, needs cleaning, $150; 100% silk Indian sari cloth, $125. 821-0695.

AIRLINE TICKETS - 2, round trip, Islip to Ft. Lauderdale, Nov. 6-14, $375/pair. 821-0379.

OLD BOTTLE CAPPER - $10; cherry seeder, $12; 4 golf clubs, $12; 2 new T125/70D15 tires, $20. 878-6637.

WARM-UP SUITS - 2, Adidas, woman's size large, brand-new. Ext. 3805.

BABY WALKER - like new, $15; sterilizer, like new, $10. Barbara, 698-1322.

BABY ITEMS - crib w/mattress; stroller,; car seats; infant seat; dining table seat. 929-5847.

Free

COLOR TV - Sylvania Super Set, 1978, 19", needs work. Eric, Ext. 5231.

KITTENS - 3 months old, 2 tan & white, 1 calico. Ext. 2841 or 369-2170.

Yard & Garage Sales

ROCKY POINT - moving sale, full-size bed; dresser; table; chairs; more, Sat., Aug. 12, 10 a.m.-5 p.m., 15 Vine Rd. 744-7131.

HUNTINGTON STATION - moving sale, Aug. 12 & 13, 10 a.m.-5 p.m., 11 Geiger Place, off Maplewood Rd., near Park Ave. 427-6738.

Car Pools

PATCHOGUE - van pool, seat open. Ext. 4669, leave name & number.

LIE EXIT 61 - need ride to & from, Mon. through Fri., will share expenses. Ext. 4662.

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

BELLPORT VILLAGE S. - 3 bdrms., 2 baths, furn., nonsmoker, no pets, Sept.-June occupancy, garage, $800/mo. + util. 286-9389 or 286-0466.

CENTER MORICHES - 2-bdrm. apt., l/r, d/r, 1st floor, dishwasher, f/p, priv. ent., $750/mo., plus sec. 878-0897.

EAST SETAUKET - room, priv. ent., bath, prof. female preferred, nonsmoker, $75/wk. incl. util. 689-9234.

FARMINGVILLE - 1-bdrm. apt., furn., l/r, full bath, kit., one person, nonsmoker, no pets. $550/+ sec., incl. util., cable avail. 9/1. Patricia, 736-3384 after 6 p.m.

MASTIC BEACH - need housemate to share 3-bdrm. furn. house, w/absent tenant, 15 min from Lab, $550. Daniel, 281-4372.

MANOR PARK - 4-5-bdrm. Colonial, fam. rm., partially fin. bsmt., pool, South Manor SD, 5 min from Lab, possible option to buy, $1,250/mo. Roger, Ext. 3578 or Louise, 395-1969.

MIDDLE ISLAND - share 2-bdrm. new apt, female professional, $450/mo. + util. 751-8351.

NORTH SHIRLEY - 1-bdrm. unfurn. apt., w/w, full bath, living room/kit. combo, 3 miles to Lab, $600/mo. incl. util. & cable. 395-9112.

PORT JEFFERSON - 3-bdrm. ranch, 6 rooms & Florida rm., all appliances, fenced & treed yard, $950/mo. incl. util. Rich, 698-5298.

PORT JEFFERSON - 2-bdrm. ranch, cozy & quiet, walk to Harbor, avail. Sept. 1, $950/mo. + util. 751-6575 eves.

PORT JEFFERSON STATION - 3 bdrms., l/r, eik, 1 bath, no pets, avail. Oct., $950/mo. + util. 862-7998.

ROCKY POINT - 3-bdrm. ranch, 100'x100' lot, eik w/skylight, half bsmt., large fenced yard, SCWA water, under 5 yrs. old, mint cond., all appli., beach rights, $950/mo. + util. 821-3925.

SETAUKET - 4-bdrm. house, furn., 2½ baths, 8/25-10/1, $1,000/mo. + util. 751-4539 eves.

TERRYVILLE - 1-bdrm. apt., nice area, near SUNY at Stony Brook, separate ent., $500/mo. incl. util & cable, 1 mo. sec. George, Ext. 4406, or Linda, 928-3216 eves.

For Sale

EAST QUOGUE - private community w/beach, docking facilities, pool & tennis, ½ acre, 3 bdrms., 2 baths, l/r w/fp, d/r, eik, deck, patio, fin, bsmt., dbl. garage, 20'x40' i/g pool. 288-8239.

HOLBROOK - 3-bdrm. townhouse/condo, 5 appl., w/w, 1½ baths, tennis courts, swimming pool, clubhouse, balcony & fenced-in patio, 15-20 min. to BNL, $129,000. Ext. 2873 or 472-3236.

MASTIC - 3-bdrm. ranch, ¼ acre, 1½ baths, den, fin. bsmt., deck, appl., house fan, 3 ceiling fans, shed, fence, near school, shopping, 15 min. to Lab, asking $115,000. 265-2366 after 6 p.m.

MASTIC BEACH - water view, 3 bdrms., f/p, walk to beach & marina, $115,000. Ext. 3867/3525 or 399-1249.

MIDDLE ISLAND - 3-bdrm. ranch, 18'x24' great room, l/r w/fp, d/r, eik, 1½ baths, skylights, i/g pool, sprinklers, deck, more, 5 min to Lab, mint, $166,900. 924-8426 eves.

MIDDLE ISLAND - Coventry Manor, 3-bdrm. townhouse, 2 baths, kit., l/r, d/r, laundry rm., 5 app., cac, pool, tennis, encl. patio, $106,000. Rosalie, Ext. 3160 or 289-5704 after 5:30 p.m.

NORTH PATCHOGUE - 3-bdrm. ranch, f/p, large kit., bsmt., low maint. & taxes, appliances, sprinklers, louvered porch, $132,900. A. Kreisberg, Ext. 2040 or 289-1870 eves.

PORT JEFFERSON - 4-bdrm. Colonial, full bsmt., 2-car gar., 2 baths, cac, all oak floors, walk to harbor, village, mint cond., priced to sell. 474-1482 eves.

ROCKY POINT - 3-bdrm. high ranch, l/r w/brick fp, cath. ceiling, d/r, large kit., 2 baths, bsmt., cac, deck, 2-car gar. w/elec. doors, beach rights, 0.34 acre, $162,900. Kochman, 744-1057.

SELDEN - high ranch, 3-bdrms. upstairs w/eik, l/r, d/r, deck, legal one bdrm. apt. downstairs w/priv. ent., $144,500. Ext. 5177 or 698-6120.

SHOREHAM - Soundview Acres, 3-bdrm. contemp. ranch, 2 baths, l/r w/cent. brick fp, bsmt., 2 car gar., deck, sprinklers, near priv. beach, $199,000. M.A. Bender, Ext. 3570 or 744-9746.

SOUTHAMPTON - Wildwood area, custom-built, 3-4 bdrms., 2 baths, large l/r, den, 2 levels, pie-shaped lot, large priv. yard, $138,000 neg. 727-0499.

STONY BROOK - 4-bdrm. ranch, 2 baths, Euro kit., 10 appli., Jennaire, den w/Pella windows, slider, skylights, f/p, i/g pool, i/g sauna, sewers, deck, 3VSD, $215,000. Rod, Ext. 4428 or 751-7023.

STONY BROOK - 4 bdrms., 3½ baths, l/r, den, fin. bsmt., ⅔ acre w/many trees, 2-car garage, north of 25A, sale or rental. 751-2860 or 4635.

Wanted

VCR - any model VHS in good cond., inexpensive. Paul, Ext. 7697 or 689-2829.

GOLF CLUBS - left-handed, in good cond. Rick, Ext. 2973.

WET SAW - for cutting bricks, buy or rent. Tony, 698-9274.

GOLF PARTNER - female beginner, to play at Pine Hills golf course in Manorville. Linda, Ext. 2733 or 878-8491.

REPAIR PERSON - to repair, clean eaves, troughs, experienced only. 286-8664.

MOTORCYCLES - bent or broken, any age or cond. Kevin, 281-8031.

HOUSEMATE - Ridge, 5 min to Lab, avail. Sept. 1, possibly sooner, $250/+ ¼ util. Mike, 924-2864.

In Appreciation

My family and I would like to thank everyone at BNL who expressed their condolences at the death of my wife Marjorie.

— Bernard F. Belligan

I would like to thank all those who attended my retirement party for making it such a memorable occasion for me. Also, thanks to all for the gifts presented to me at that time. I retire from BNL with many warm and happy memories gathered over the years. — Kenneth L. Andersen

Ads left out of this issue due to lack of space need not be resubmitted to appear in the next issue.