BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Summer Institute on Relativistic Heavy Ion Physics: Students Offer Perspectives on the Summer School

Summer school was in session this week for some 115 graduate students and postgraduate researchers at BNL's Summer Institute on Relativistic Heavy Ion Physics.

The school — an intensive five-day program that included 20 lectures, three seminars and one barbecue — was "designed to attract young physicists to the field of heavy ion physics," said Senior Physicist Ronald Rau, member of the local organizing committee, which was headed by Physicist Thomas Ludlam.

"High energy heavy ion physics is a genuine new frontier in science," said Ludlam. "It offers extraordinary opportunities and some very difficult challenges. We are most gratified that such a large number of talented young people are coming into the field to take up the challenge."

About two-thirds of the school's participants came from American universities and laboratories. The others traveled to the Lab from Europe, South America, Canada, Israel, Japan and India.

Lecturers and seminar speakers were also an international group. Lecturers were: David Lissauer, BNL; Tetsuo Matsui, Massachusetts Institute of Technology (MIT); Helmut Satz, University of Bielefeld, West Germany, and BNL; Horst Stöcker, University of Frankfurt; and William Zajc, Columbia University. Seminar speakers were: Gerald Brown and Peter Koch, both of the State University of New York at Stony Brook; J. Tran Thanh Van, University of Paris; Orsay; and Klaus Werner, BNL.

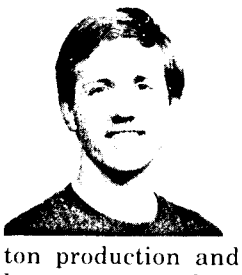
A workshop, focusing on detector design and technology for BNL's proposed Relativistic Heavy Ion Collider (RHIC), will follow next week, wrapping up the two-week program.

— Alexandra Biesada

The following are some of the students' impressions.

Victoria Greene, graduate student, Yale University — "I'm learning some physics and having a great time. There have been amazingly good lectures, and the students are very high quality." Greene is participating in an experiment at the Alternating Gradient Synchrotron (AGS). She became "fascinated" with high energy physics at Yale.

James Costales, graduate student, MIT — Heavy ion physics is a "new field with lots of interesting prospects." Costales is also working at the AGS. He studies antiproton production and splits his time between MIT and BNL.



Photos by Peter Horton

James Popp, graduate student, University of Illinois — "Maybe I will find a thesis topic this week. There are a lot of attractive topics and a good mix of theory and experimentation. I'm getting an education in heavy ion collisions and meeting the professionals in the field and my colleagues."

Carlos Lourenço, graduate student, the Laboratory of Instrumentation and Particle Physics, Lisbon, Portugal, and CERN — "The theory lectures are very specialized, so I can't follow them, and the experimental lectures are too easy. But you expect that as an experimentalist. Actually, I've been learning quite a lot. The school is impressive. The Laboratory is big. The green spaces were a surprise after CERN."

Barbara Wosiek, postdoctoral researcher, Institute of Nuclear Physics, Krakow, Poland — "I am here to learn about the present status of the experimental results and new theoretical things, like predictions. The lectures are very well prepared, and I am meeting a lot of people who are working on theory and experiments."

Christophe Mueller, graduate student, University of Marburg, West Germany — "I am astonished. This is a very, very good group. It is good for us experimentalists to get a theoretical background to get new ideas. I hope to get ideas for my Ph.D. thesis." Mueller was attracted to heavy ion physics because it is the "frontier" of physics. "Other regions of physics are not so new."

Shige Hayashi, BNL, graduate student, Tokyo University — "It is good to learn some theory because I am involved in experimentation. Two lectures, by Matsui and Satz, were specifically interesting to me." Hayashi has been at BNL for two years, working at the AGS. He will return to Japan in a few months.

Jim Thomas, research faculty member, California Institute of Technology — "Tom Ludlam deserves a lot of credit for bringing the American heavy ion physics community together. The Europeans have had the best machines for decades. Should RHIC come on line, it will be the best machine in the world."

First Light From NSLS Insertion Device

At 3:20 p.m. last Sunday, July 10, light came out of the first of four insertion devices installed in the x-ray ring at the National Synchrotron Light Source (NSLS), as part of its Phase II upgrade. When fully commissioned this fall, the device, a soft x-ray undulator, will produce 10,000 times brighter soft x-rays than the output of the NSLS vacuum ultraviolet ring and 1,000 times brighter than the soft x-rays of the x-ray ring. See next week's Bulletin for more information on this Phase II milestone.

Will It Rain in Champaign?
Part II: Flying the Not-So-Friendly Skies

From the end of May to the end of June, the Cloud Chemistry and Cloud Physics Organization (3CPO) attempted to collect data on acid rain in drought-plagued Illinois. This two-part series follows BNL's 3CPO contingent through one day of that field experiment, Wednesday, June 8.

In the first part, BNL's meteorologist Marty Leach had discovered that the 3CPO hot line had mysteriously gone dead and BNL's chemist Paul Klotz had decidedly disappeared from view in the middle of an Illinois clover field.

On board National Oceanographic & Atmospheric Administration's P-3 research aircraft, BNL's Peter Daum, 3CPO field director.

"First, no rain. Then, no P-3 pilot — he broke his hand in a car accident. Thank God, no rain. Next, a new pilot. Still no rain. Now, no phones. Swell. What next?"

That's what Paul Michael wanted to know. He is head of BNL's Atmospheric Sciences Division, one of two Department of Applied Science divisions in the 3CPO field experiment. Michael had tried phoning the 3CPO hotline to get the weather report and mission status, but couldn't get through.

He had arrived at Hangar 2, the 3CPO operations center, at 7:30 a.m., well before the 9 a.m. briefing, because he had something to fix. At a keyboard in front of his division's new data acquisition system, Michael was fixing software.

He was not alone — but others were repairing hardware. Leonard Newman, head of BNL's Environmental Chemistry Division, was performing surgery on a device with a rupture. The P-3's power had been turned on at 8 a.m., at the request of BNL's Peter Daum, 3CPO's field director, who had something to fix on board the research aircraft, especially if there were going to be a mission.

No one knew how to fix the phones. Everyone showed up before the briefing anyway, to fix or not to fix, but mostly to fix. The weather was fixed so the mission was a go.

***

Up the ladder to the National Oceanographic & Atmospheric Administration's (NOAA) P-3, the largest of the three 3CPO research aircraft, you knew you were in for the ride of your life.

Not because it costs $3,000 per hour for her to fly, and you would be up for four hours, a $12,000 airplane ride. But because of the 35 red stickers on the right side of the plane's door.

From Bonny 76 to Gloria 85, each had a name, a date and a counterclockwise twist. Except for the Australians, Rosa 79 and Kerry 79 — their vortexes rotated clockwise.

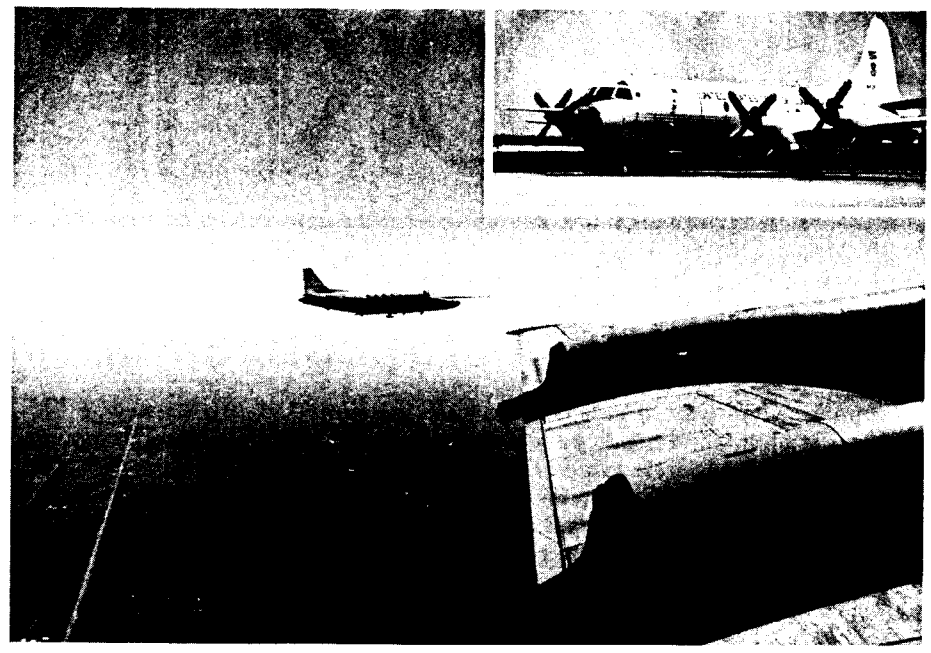
Each sticker represented one of the 35 hurricanes that this 12-year-old plane has penetrated to date. "And those were only the storms with names," explained one of the P-3's two flight engineers.

Hurricane research and reconnaissance missions are the primary assignments for this four-engine turboprop, equipped for atmospheric and oceanographic measurements and about the size of a Boeing 737 jet.

(Continued on page 2)

Will It Rain in Champaign?

(Cont'd)



Flying on the wing of the P-3, the National Center for Atmospheric Research's Sabreliner jet over Illinois. Inset: The National Oceanographic & Atmospheric Administration's P-3 four-engine turboprop, on a runway at Willard Airport, Champaign, Illinois.

Because the hurricane season had begun June 1, the P-3 was on call, and it had to return to NOAA's Environmental Research Laboratories in Miami, Florida, by the end of June. So, rain or shine, the 3CPO field experiment had to fly this month.

On board, eight NOAA cropped-haired crew members, zipped into crisp and clean navy-blue jumpsuits, snappily readied for take-off. At the same time, ten 3CPO scientists, in mismatched crumpled T-shirts and non-uniformly worn blue jeans, readied impatiently for data taking.

In addition to using the extensive meteorological, cloud physics, radar and other instruments permanently installed on the P-3, the 3CPO scientists had installed their own equipment into the sampling posts and computer system on board.

After you were assigned to one of the seven scientific stations or relegated to a passenger seat in the back, the P-3's distinguished commander himself gave the safety briefing: Beware of condition 1, severe turbulance, and, just in case, remember that the motion sickness bags are kept by the lavatory.

Belted and harnessed, you felt as if you were strapped in a child's car seat, ready for take-off, turbulance or thunderstorms. Out the window, the day looked gray but not ominious.

Meeting the press, (from left) Department of Energy Chicago Operations Office's Brian Quirke, Battelle Pacific Northwest Laboratory's Jake Hales and BNL's Ari Patrinos.

The commander's countdown began, "Condition 5 . . . condition 4 . . . condition 3 . . ."

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Unfortunately for both local reporters and Brian Quirke and Michael Milroy of the Department of Energy's Chicago Operations' Office of Communications, Wednesday was not only a last-minute scientific mission flight day, but also a long-scheduled meet-the-press day.

Only one TV crew had shown up early enough to film the P-3's take-off. The rest of the on-time press had to be content with witnessing that of the National Center for Atmospheric Research's Sabreliner.

A small, four-passenger jet, the Sabreliner was outfitted with instruments similar to the NOAA P-3, but it was flown above the clouds on stormy days, to measure pollutants vented out of the top of thunderstorms.

Once the jet took to the sky, BNL's Ari Patrinos, Battelle Pacific Northwest Laboratory's (PNL) Jake Hales, Argonne National Laboratory's Doug Sisterson, and Bernice Ackerman of the Illinois State Water Survey (ISWS) were left on the ground to talk to the fourth estate.

Patrinos is the Atmospheric Sciences Division's man in Washington, in DOE's Office of Health & Environmental Research, the major sponsor of 3CPO. Hales is 3CPO director; Sisterson its coordinator; and Ackerman, the liaison between 3CPO and ISWS.

"Why did you come to Champaign, Illinois, to study acid rain?" was the first question asked of them.

According to Sisterson, the 3CPO scientists had descended upon Champaign because it is flat — Illinois is one of the most level Plains states, thus an ideal place to study thunderstorms unaffected by topography. Further, it is located in the center of industrial pollution sources — west of the Ohio River Valley, east of the Mississippi and south of the Great Lakes — but its air and rain pollution vary from day-to-day and storm-to-storm.

Importantly, Champaign is the home of ISWS — which has weather radar deployed in the area, as well as existing forecasting data.

"What are the effects of acid rain in Champaign and Illinois?" was the second question the reporters posed.

The effects have not been noticeable in Champaign and most of Illinois because, though its soil is basic to its economy, the Illinois soil is chemically basic, so it neutralizes any acid in precipitation. Hence, the growth of soybeans and corn does not seem affected — and Illinois is number one in the nation in soybeans, and second to Iowa in corn.

The effects of the acid rain problem have been seen around the world, in fish kills, dying forests, smaller crop yields and damaged buildings. As Ari Patrinos explained, the U.S. response to this international problem was the Acid Precipitation Act of 1980.

Passed by Congress, this Act authorizes federal funding for research into the causes, effects and control of acid rain. As a result, the National Acid Precipitation Assessment Program (NAPAP) was set up to coordinate the research funded through many federal agencies.

In 1990, NAPAP will make its final report to the President and Congress. With the information gathered over ten years, the executive and legislative branches will have a firm scientific basis for making decisions about the control of acid rain, so as to minimize its future effect on the environment and the cost of pollution controls for industry.

In 1984, as part of NAPAP, DOE's Office of Health & Environmental Research began PRocessing Emissions by Clouds and Precipitation (PRECP), a $4.5 million per year, five-year acid rain study, headed by PNL's Jake Hales. BNL, ANL and PNL are the main laboratories involved; BNL's Paul Michael is research coordinator, and Peter Daum, the field director.

Five PRECP experiments have been fielded since 1985, studying the flow of pollutants in and out of spring, summer and winter storms, and these storms' deposition of acidic precipitation. For PRECP-VI, the collaborators joined forces with other institutions to undertake the expanded 3CPO field experiment. Under Daum's leadership and according to his experimental plan, 3CPO is the most detailed study of the chemistry and physics of thunderstorms to date.

Patrinos stated that looking at the effects and controls of acid rain is not within the scope of the one-time 3CPO field experiment or the ongoing PRECP study, but the focus of other NAPAP investigations.

As Jake Hales added, first NAPAP has to understand the causes, only then can it understand the effects and how to control them. The pollutants in acid rain are known, as are their sources. What is not known and what PRECP and 3CPO want to know is how these pollutants are transformed by storm clouds, how much pollution is dispersed by a storm versus how much is deposited as acidic precipitation — and why.

***

Condition 3 meant that it was OK to move about the cabin. Peter Daum and others seated in front of scientific stations only had to unstrap themselves. Logbooks on their laps, they changed the settings on their instruments as the plane flew over the surface network at three different altitudes — waiting for the storm.

Lightning. No one could hear the thunder from inside the P-3. A convective storm, a thunderstorm can vent pollutants out of its top, above the boundary layer, and these pollutants can be transported long distances in the upper atmosphere. Hence, 3CPO's interest in thunderstorms.

For an hour and a half of this four-hour mission, Paul Michael, 3CPO mission scientist, had arranged through the NOAA chain of command for the P-3 to fly in what is called the boundary layer.

This is the region in the atmosphere between the earth's surface and a temperature inversion of air where moisture and pollutants are well mixed by turbulance. The inversion inhibits vertical air motion, thus acting as a physical boundary to the transport of pollutants into the upper atmosphere. The boundary layer is also the region from which thunderstorms draw moisture and air — along with any pollutants.

Wednesday, the hazy, bumpy boundary layer flight was at 4,000 feet — an altitude at which you learned whether or not you had the right stuff or were reminded of the stuff you ate for lunch.

Before landing, however, the P-3 buzzed the Bonneville surface air chemistry site, which had been established by BNL's Roger Tanner for comparative air sampling of pollutants. On the ground, however, no one waved as the plane went by. The stiff android samplers silently stood guard, acid rain troops in a dry field.

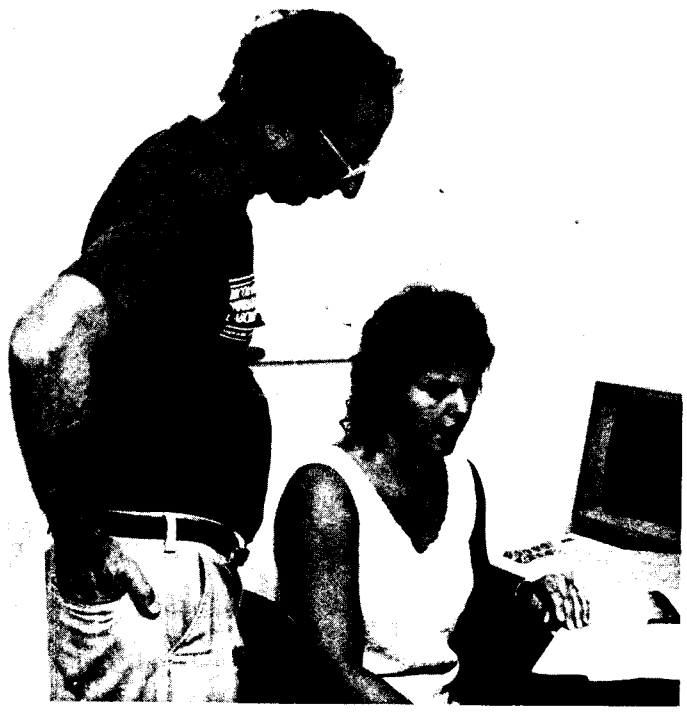
***

About 12 feet below ground, in a basement in-the-round of what once must have been an astronomical observatory, BNL's chemist Paul Klotz couldn't see the plane go by.

The air-sampling tube that passed through the round roof had led Klotz underground to two BNL devices, one that measured aldehydes in the air, another that determined concentrations of hydrogen peroxide.

Hydrogen peroxide is thought to be the oxidizing agent that transforms sulfur dioxide into sulfuric acid, the principal acid in acid rain. Hydrogen peroxide, it seems, is the chemical that limits this reaction because there is sometimes not enough hydrogen peroxide available in clouds over polluted areas to convert all of the sulfur dioxide.

So, if hydrogen peroxide is limiting the formation of acid within clouds, then restricting emissions of man-made pollutants may not directly reduce acid rain. This paradox about the science behind the control of acid



Discussing 3CPO data, BNL's Leonard Newman and Kathy Norden.

rain was what led to DOE's funding of PRECP.

The answer lies in the rain, which began softly as Klotz climbed above ground.

***

As their forecast of a "mesoscale convective complex" transformed into a here-and-now-cast of thundershowers, the forecasters lost their foreboding. So what if the storm was four hours late.

"Well within the range of predicability," rejoiced PNL's meteorologist John Thorp.

"Better late than never," cheered BNL's meteorologist Marty Leach.

***

The P-3 landed as hard as the rain. Lightning. Pause. Thunder. "If only it had rained two hours earlier," Paul Michael exclaimed, again on the ground. "Well, at least we got a lot of pre-storm data."

***

Data lay in the logbooks and the logbooks laid on everyone's lap during the mission debriefing. It was BNL's programming assistant Kathy Norden and PNL's Darla Sharp's mission to get the logbooks.

By the end of the summer, Norden and BNL's computer analyst Joyce Tichler, who had established the system for collecting and archiving the data, must give each 3CPO'er a copy of a data index, so the data can be analyzed in the following months.

So, after the debriefing when the last scientist had filed his logbook past the photocopier, his forms into the bin and himself out the door of Hangar 2 and into the rain, Norden and Sharp's workday had just begun.

It was 5 p.m. The clickety-clack of their computer keyboards kept perfect tempo with the slickety-smack of the rain on the runway.

***

As in many parts of the Great Plains, June was the driest month in Champaign's history, with a record low of only 0.01 inches of rain — all of which fell on Wednesday, June 8. Despite the little rain, BNL's Peter Daum believes that 3CPO will find three silver linings in that Wednesday's clouds.

First, pollutant concentrations in the storm clouds versus those in the rain can be compared and contrasted. Second, comparative data taken that day by the P-3 and the Sabreliner may prove that thunderstorms transport pollutants vertically. Finally, clear air measurements, made the previous day, will determine if pollutant concentrations vary within the boundary layer — and, if they do, challenge existing acid rain computer models.

As 3CPO field director, Daum will be heading the data evaluation effort, which he expects to be completed in one year. — Marsha Belford

Astronomical Society

The Astronomical Society invites you to spend an evening among the stars on Thursday, July 21, at 8:30 p.m., when the Observatory will be open to the public. The rain date will be Friday, July 22.

Admission for non-members is $1. Please call Keith Power, Ext. 7772, beforehand, to verify that the Observatory will be open.

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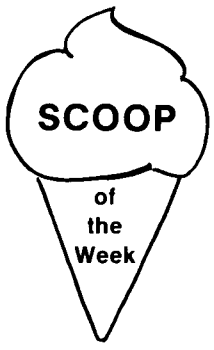
Scoop of the Week



Nicholas Gmur and Harvey Rarback, National Synchrotron Light Source (NSLS), each win a scoop in this week's Scoop of the Week contest. Gmur and Rarback gave the Bulletin the hot tip on the first light seen from the first NSLS Phase II x-ray ring insertion device (see box, page 1).

During the summer, if you have a hot tip that you wish to trade for a scoop of frozen yogurt, rush your news and feature ideas to the Brookhaven Bulletin, Bldg. 134, or call Ext. 5053, to enter the Scoop of the Week contest. 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.

Tennis Tournament

The last day to sign up for the annual BNL tennis tournament is Tuesday, July 19. Tournament play will include men's and women's singles and doubles, as well as mixed doubles. Sign up at the BERA Sales Office, where tournament rules are also available. The draw will be posted by Friday, July 22, both at the BERA office and the tennis courts. For more information, call Steve Shapiro, Ext. 3822, or Gerry Bunce, Ext. 4771.

PC Group Meeting

ASYST Software Technologies, Inc., will present a seminar on PC-Based Data Acquisition and Control, on Tuesday, July 19, at 2 p.m., in the Applied Mathematics Department Seminar Room. This seminar should be of interest to anyone who performs scientific computation, data analysis and statistics, publication-quality graphics, or instrument interfacing.

Att: Computer Users

If you work with computers — large or small, and especially those of you who use the MIS administrative systems — you should plan to attend a viewing of the 18-minute video tape, "Introduction to the Unclassified Computer Security Program, DOE Order 1360.2A."

Viewings have been scheduled during the week of July 18, in Room B, Berkner Hall, as follows:

- Monday, July 18 — 1:30, 2:30, 3:30 p.m.
- Wednesday-Friday, July 20-22 — 9:30, 10:30, 11:30 a.m.; 1:30, 2:30, 3:30 p.m.

Sharing 282-

How can the Suffolk County Farm and Education Center have a 282- exchange telephone number?

That is BNL's exchange, but not exclusively. According to Nicholas Pisco, Telephone Services Supervisor of the Telephone Office of the Applied Mathematics Department, it never was.

New York Telephone has reserved 5,000 telephone numbers for BNL, all beginning with 282-, but from -2000 to -5999, and -7000 to -7999. That leaves 282- extensions in the other series open for non-BNL telephone numbers — such as the one at the Suffolk County Farm.

To call the Farm after July 20, you first must dial 9, then the 282- exchange before the -1506 extension, as you would to call any non-BNL telephone number.

Before he delivered the first of two Pegram Lectures on "Late Twentieth-Century Viruses and Their Role in Cancer and AIDS," on Wednesday, July 13, Robert Gallo (right) met with Eugene Cronkite, Medical Department, Chairman of the Pegram Lecture Committee.

Robert Gallo: On AIDS Risk From Medical Waste Wash Up

Two visitors — one famous, the other infamous — came to Brookhaven Town this week. One came by plane, the other by sea. One was welcomed. The other was definitely unwanted.

BNL welcomed Robert Gallo, discoverer of the AIDS virus and of the first AIDS blood test, who delivered two Pegram lectures on "Late Twentieth-Century Viruses and their Role in Cancer and AIDS." Gallo is the Chief of the Laboratory of Tumor Cell Biology at the National Cancer Institute.

The infamous guest was medical waste, including a syringe and some bloodstained debris that washed ashore on the beach at Smith Point County Park last Sunday morning.

Before his first lecture on Wednesday, Gallo discussed the risk of contracting AIDS from a needle prick from a syringe, from AIDS-tainted blood in seawater and from stepping on a vial of AIDS-contaminated blood.

"As for needle pricks," Gallo explained, "dosage is important. Because the virus washes off in the ocean and becomes inactive with time, there would not be enough dose on the needle to cause infection."

In an update last month on precautions for preventing AIDS transmission, the Centers for Disease Control, in Atlanta, gave the risk of contracting AIDS from being stuck with an AIDS-infected needle as 0.5 percent — one in 200 cases. The chances of getting AIDS from a needle on the beach are even less because not all needles carry the AIDS virus.

AIDS-tainted blood in the water presents an "extremely remote threat," said Gallo, "because the dosage will be diluted by the size of the sea. A small amount [of AIDS-infected blood] diffused in the ocean is not dangerous."

"The only hazard I could reasonably conceive of," said Gallo, "is if there is AIDS-infected blood in a vial, you step on it, it breaks, and it cuts you. That could be dangerous," said Gallo. "I could not underestimate the danger of that."

— Alexandra Biesada

Summer on Long Island

Suffolk County Has a Farm

Despite suburban sprawl spreading east from Nassau, Suffolk County continues to maintain its own 300-acre County Farm, as it has since 1870.

Run for the County by Cornell Cooperative Extension, not only is the Suffolk County Farm a working farm, but it is also a fun place to visit with children. You can pet horses, sheep and goats, and learn about gardening and Long Island agriculture, foods and nutrition, and home repairs and other consumer projects.

Located on Yaphank Avenue, Yaphank, just south of Long Island Expressway Exit 67, the Suffolk County Farm and Education Center is a modern agricultural facility, annually producing 250,000 pounds of beef, pork and turkey and 500,000 eggs. The food is used to feed those in County institutions, such as the County's nursing home and jail, and for senior-citizen meal programs.

All year round, the County Farm is open seven days a week, 9 a.m. to 3 p.m. On weekends from April through November, the Farm offers a variety of programs for adults, the family and the children. During the summer, there are programs during the week as well.

In July and August, for example, Tuesday is kid's day at the Suffolk County Farm. At 11:30 a.m., they can see "The Chicken & the Egg"; at 11:45, they can "Get Hog Wise"; and at noon, they can learn, hands-on, various grooming techniques for different barnyard animals.

If you wish just to wander around the barnyard or the garden, you and your children are welcome — bring carrots if you want to feed the animals. No admission is charged for the visit, nor is there a fee for many of the programs. For a copy of the County Farm's summer 1988 programs booklet, call 924-4535, Ext. 506 (after July 20, call 282-1506).

It Will Pay To Be on the Winning Team

Twenty-six teams in three divisions of the Laboratory will have a chance to earn the safety payoff, beginning on Monday, July 18. That's when the Laboratory kicks off the new safety incentive program — TEAM SAFETY.

team safety

"We're starting TEAM SAFETY for two reasons," said Program Coordinator Robert Young, Safety & Environmental Protection Division. "First, we want a program that recognizes good performance, something that will be interesting and fun. Too often, we only concentrate on the accidents, but fail to recognize the successes. Second, by providing additional incentives and fostering team spirit, we believe people will take greater care in their jobs and accidents will be reduced.

"In the long run, we'd like to see employees avoid the pain and suffering produced by injuries, and the Laboratory reduce its costs — currently over one million dollars a year — associated with these work-incurred injuries."

To do this, TEAM SAFETY aims to increase employees' overall safety awareness and thus reduce workplace accidents that result in lost time. Teams that remain free from lost-time accidents for specified time periods will be winners.

Winning teams will be honored at a luncheon — their choice of pizza and soft drinks or a buffet with cold cuts, hot dishes and salads. At the luncheon, other prizes and awards will be presented to all participants. Teams will be further rewarded with additional time to relax and enjoy lunch.

Initially, three divisions will participate in the program: Central Shops, Supply & Materiel and Plant Engineering. The work force in each of these divisions has been divided into teams with similar jobs and overall risk exposure. Rather than competing against each other, each team will compete against a time goal established for that team based on its previous lost-time accident frequency. To win the luncheon, the team must go through that time period without a lost-time accident. Time goals range from eight to twelve weeks.

To keep track of their teams' progress, each division will install scoreboards at appropriate locations, listing the teams and their goals. A green disk will indicate each day that a team moves closer to its goal. If a lost-time accident is charged against a team, a red disk will replace the green for a day, then the team will begin trying for the goal all over again.

More information about the TEAM SAFETY incentive program can be obtained through Young, Ext. 2587.

May all the teams win!

Arrivals & Departures

Arrivals

Janet P. Baulch ..... S&M
Elise E. DeCarlo ..... Accel. Dev.
Walter R. Going ..... Plant Eng.
Meri A. Hasbrouck ..... Staff Serv.
Jeffrey P. Levine ..... App. Math
Ivan A. Ludwig ..... Plant Eng.
Daniel Martin ..... AGS

Departures

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

Lois C. Arns ..... DAS
Asher Auerbach ..... Biology
Genevieve C. Bahan ..... S&M
Walter C. Buckes ..... S&M
Yu-Shiaw Chen Hsieh ..... DAS
William A. Fleischer ..... Plant Eng.
Frederick J. Hill ..... Plant Eng.
Grace E. Kyhl ..... App. Math
Costas G. Magoulas ..... Accel. Dev.
Ella McLean ..... P&GA
Matthew P. Minasi ..... NSLS
Linda Morrell ..... Sfgrds. & Sec.
Richard W. Rosenka ..... Physics
Michael J. Sagurton ..... NSLS
Michael E. Salvitti ..... AGS
Harry D. Sweely ..... Instrum.
Yasutomo J. Uemura ..... Physics

Cafeteria Menu

Week of July 18

Monday, July 18

Lentil soup	(cup)	.75
	(bowl)	.95
Pasta w. turkey & 1 veg.		2.90
Batter-fried fish w. 1 veg		2.95
Broccoli & cheese quiche (lite-weight)		2.95
Hot deli: Pastrami	(bread or roll)	2.85
	(hero)	2.95

Tuesday, July 19

Chicken noodle soup	(cup)	.75
	(bowl)	.95
Italian lasagna		2.90
Shrimp chow mein over rice		2.95
Chef's salad plate (lite-weight)		2.35
Hot deli: Roast beef	(bread or roll)	2.85
	(hero)	2.95

Wednesday, July 20

Cream of tomato soup	(cup)	.75
	(bowl)	.95
Baked ham steak w/1 veg.		3.10
Braised Swiss steak w/sauce & 1 veg.		3.10
Broiled fresh fish w. 1 veg. (lite-weight)		2.95
Hot deli: International burger on a bun		1.95

Thursday, July 21

Chicken vegetable soup	(cup)	.75
	(bowl)	.95
Baked meat loaf w. 1 veg.		2.95
Chinese pepper pork over rice		3.10
Hot deli: Baked ham	(bread or roll)	2.85
	(hero)	2.95

Friday, July 22

New England clam chowder	(cup)	.75
	(bowl)	.95
Baked stuffed peppers w. 1 veg.		2.95
Moussaka		2.95
Broiled fresh fish w. 1 veg.		2.95
Hot deli: Corned beef	(bread or roll)	2.85
	(hero)	2.95

BERA Bus Trip To Atlantic City

There are still seats left for the BERA Board's first bus trip to Atlantic City. The trip to the Resorts International Casino is scheduled for Saturday, July 30. The initial cost is $20, but the casino returns $10 in coins to persons on the bus.

The air-conditioned bus, which has a lavatory, will leave BNL promptly at 9:30 a.m. There will be another stop at the Park & Ride at Exit 63 of the Long Island Exressway.

Prepaid reservations are now being taken at the BERA Sales Office in Berkner Hall, from 9 a.m. to 2 p.m. If you have further questions, call Louisa Barone, Ext. 3347; M. Kay Hunt, Ext. 2873; or Rosalie Piccione, Ext. 3160.

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.

2894. BUDGET ADMINISTRATIVE POSITION - Requires a bachelor's degree in an appropriate discipline or equivalent relevant experience. Extensive and significant Laboratory knowledge and experience establishing, developing and coordinating budgetary and other administrative matters is essential. Will have primary responsibility for a variety of administrative functions including budget, procurement, facilities and property management, and systems development. Biology Department.

2895. SECRETARIAL POSITION (temporary) - Requires AAS in secretarial science or equivalent experience and a knowledge of Laboratory policies and procedures. Duties will include preparing correspondence and technical reports on a word processor and making travel arrangements. Alternating Gradient Synchrotron Department.

2896. OFFICE SERVICES POSITION - Requires excellent clerical and communication skils and a knowledge of Laboratory policies and procedures. Duties include records and forms processing, file maintenance, report and document preparation, and preparation of data input. Requires ability to obtain and maintain DOE "Q" clearance. Possession of "Q" clearance desirable. (Reposting of Job #2880). Safeguards and Security Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2897. PROGRAMMING POSITION - Requires BS in an appropriate field and experience in "C", real-time programming, VME systems, 68020 microprocessors, VME I/O modules, CAMAC, motor controllers, process control and hardware/software definition. Will develop software in a control and data acquisition environment and assist in defining the hardware/software requirements of new systems. Previous experience in designing/implementing systems is necessary. National Synchrotron Light Source Department.

2898. ENGINEERING POSITION - Requires BS/MS in electrical engineering with a minimum of 5 years' experience in one or more of the following areas: instrumentation design and development, and small signal analog microprocessor systems (hardware and software), and/or VMEbus experience also desirable. Alternating Gradient Synchrotron Department.

2899. TECHNICAL POSITION - Requires AAS degree in mechanical technology or the equivalent experience. Will prepare samples for neutron irradiation, charge and discharge samples from reactors, assist with setup of experiments (placements of apparatus and shielding), and operate beam shutters at High Flux Beam Reactor and Medical Research Reactor. Ability to obtain and maintain DOE security clearance is required. Reactor Division.

Miscellaneous

AIRLINE TICKET - July 19, Islip to Ft. Lauderdale, $75. Duke, Ext. 2957 or 289-3586.

STEREO UNIT - am/fm, phone, tape, needs work, $30; speakers, $40/pr. Judy, Ext. 2590 or 924-7077.

MUSICAL EQUIPMENT - basses, amp, porta-studio, microphone, all excel. cond. 758-4919.

STEREO - turntable, receiver, loudspeaker, $250 together or can be sold separately. Susanna, Ext. 3959.

HARDWOOD DRESSER - w/mirror, good cond., $125; TV, b&w, 13", $25; GE toaster oven, unused, $25. Scott, Ext. 3369.

CLARINET - wood, LaBlanc Noblet, made in France, very good cond., used 2 yrs., $195. 751-5868.

AMISH QUILTS - handmade, various sizes & patterns. Dan, Ext. 7237.

CHAIN LINK FENCE - 10' high, 30' sections, poles, 2 doors, approx. 300' long, $800 neg. Ext. 2582.

TV - 19", Sony Trinitron, color, good cond., $100. Ted, Ext. 7992 or 821-2569.

DISK DRIVES - 8", two in cabinet, w/supply, aligned, checked, w/manual, $60. Rich, Ext. 4172.

AIR CONDITIONER - window/wall unit, $85. Ext. 3701 or 7771.

PING PONG TABLE - standard size, good cond., $25. Ext. 4120 or 689-7963.

TYPEWRITER - IBM Model C, long roller, electric, not selectric, good cond., $75. Dave, Ext. 2694 or 941-9022.

SPEAKERS - Arzax, pair, walnut, $100; various turntables, receiver. Ext. 4238 or 286-3509.

STEREO CABINET - 4 shelves, glass door, excel. cond., $30. Bill, Ext. 4986 or 563-1940.

DINETTE - w/2 swivel chairs, good cond, $50. 369-2716 after 6 p.m.

CARPET - nylon, 11'x11', orange print, very good cond.. $75. Bill, 929-6442 after 6 p.m.

FANS - box fan, 20", 3-spd., $10; window fan, 22", rev. thermo control, 3-spd., $35. Ernie, 588-4987.

TABLE - large, oak, kitchen or d/r, w/2 removable leaves, $35; heavy, ship's hatch cover coffee table, $35. Jim, Ext. 2432.

END TABLES - mahogany, $100/pr.; art-deco dresser, w/mirror, excel. cond., $150; brass chandelier, w/12 bulbs, $150. 689-7326 after 5 p.m.

FISH CREEK CAMPGROUND - 7 days, start July 23, lake site, $75. 585-2084.

Lost & Found

LOST - stainless steel bracelet, in area of field 1 or 2. Ext. 3569.

Free

WATCH DOG - female, medium size, spayed, shots, no children. 698-0961.

PUPPY - black lab mix, 5 months old, shots, adorable. Tony, Ext. 2050.

TABBY CAT - 4 years old, male, neutered, shots, declawed, litter box trained. 924-3449.

FIREWOOD - oak, you split. 878-1731 after 5 p.m.

Car Pools

BOHEMIA/OAKDALE - 2 drivers needed. Frank, Ext. 2314.

STONY BROOK - riders needed. Sid, Ext. 4125 or Paul, Ext. 2474.

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

BAYPORT - large upstairs studio, furn., carpet, priv. ent., single non-smoker, no pets, refs., req. $495/mo. incl. util., 1 mo. sec., ready July 15. 472-1734, 10 a.m.-8 p.m.

HUNTINGTON - 1 bdrm., l/r, eik, bath, 2nd floor, priv., suitable couple, no pets, $450/mo. + util. Walt, Ext. 2907/2913 or 698-0576.

MEDFORD - large 2 room apt., full kitchen, l/r-bdrm. combo, w/w, cable, priv. ent., single person, $550/mo. incl. all. 654-5411.

RIDGE - 4 bdrm. house to share, quiet neighborhood, priv. bath w/room, avail. July 11, $395/mo. + ¼ util. Jeff, Ext. 4407 or 924-2865.

RIVERHEAD - mobile home in adult park, 55 and over, waterview, on Peconic River, 2 bdrms., 1½ baths, all new interior & carpeting, option to buy, $500/mo. 369-2838.

SHIRLEY - 1 bdrm. apt., new, l/r, eik, full bath, w/w, priv. ent., working person or couple, $575/mo. incl. util. 281-1840 eves.

SHOREHAM - 1 bdrm. apt., clean, large, kitchen, l/r, full bath, priv. ent., working person, avail. August 1, $550/mo. all. 744-8659.

SOUND BEACH - 1 bdrm. apt., priv. ent., parking, full bath, eik, cable, single, non-smoker, $600/mo. all. Ext. 7918 or 744-3068.

STONY BROOK - 4 bdrm. extended Colonial, l/r, d/r, eik, FL rm., den, 2-car garage, deck, w/w, new windows, ceramic tile floors, 3 Village schools. 751-4868.

STONY BROOK - 3 bdrm., 1½ bath Cape, large l/r w/fp, eik, screened porch, bsmt., 1-car gar., walk to RR & SUNY, avail. July 1 or Aug 1, one-yr. lease, $1,100. 751-0453.

WADING RIVER - large studio apt., full kitchen & bath, priv. ent., quiet neighborhood, near beach, single, working person, $500/mo. incl. util. 929-4465 eves.

For Sale

CENTER MORICHES - 3 bdrm. ranch, 1½ baths, attached gar., storage shed, lot sized 111'x160' on cul-de-sac, excel. location. 878-0175.

EASTPORT - 2 bdrm., l/r, kit., bath, full bsmt., 100x120 property, good loc., close to school & shopping, beautifully landscaped, $115,000, firm. Ext. 2232 or 325-0835.

HOLBROOK - mint, Timberidge center hall, 3 bdrm. ranch, brick-faced, d/r, den w/brk fp, eik, 2 baths, 5 appl., prof. landscaped, new carpeting, sewers, Sachem schools, $164,000. Ext. 2679 or 472-6922.

MASTIC BEACH - 3 bdrm. house, large l/r, full bsmt., cabinet-lined country kitchen, ohw heat, stove, refridg., carpeting, 2 blks from marina. 281-8685.

MEDFORD - 4 bdrm. Colonial, fenced ½ acre, 2½ baths, FL rm., oversized garage, in-ground sprinkler, prof. landscaped, w/1 bdrm. apt., $182,000. Anne, Ext. 7814 or 475-8456.

MIDDLE ISLAND - Artist Lake condo, 1 bdrm., l/r, kit., full bath, a/c, new w/w, dishwasher, clubhouse, sauna, pool, gas heat, 5 min. to Lab, $82,500. Ext. 3144 or 234-2240, 698-5046 eves.

MILLER PLACE - Scotts Beach, 4 bdrm. ranch, ½ acre plus, private beach community, sunroom, spa, pool, city water, $190,000. Judy, 473-6631 after 5 p.m.

RIDGE - Strathmore 2 bdrm. townhouse, 1½ baths, storage shed, low maintenance, close to Lab, $98,500. Ext. 3346 or 345-3584.

RIVERHEAD - 4 bdrm. 2-level ranch, 2 baths, possible m/d, ⅔ acre, large l/r, den, deeded beach rights, quiet neighborhood, 5 appliances, $150,000. 727-0499.

SHOREHAM - 3 bdrm. ranch, carpeted, coal stove, priv. fenced backyard, 2½-car gar., low taxes, SWR schools, clean, move-in cond., $137,900. 744-9677.

SHOREHAM - 4 bdrm. Colonial, 2½ baths, in-ground pool, large deck, ¾ wooded acre, f/p, finished bsmt., asking $265,000. 744-9076.

STONY BROOK - 4 bdrm. extended Colonial, l/r, d/r, eik, den. 2-car garage, deck, f/p, w/w, new windows, ceramic tile floors, 3-village SD. 751-4868.

YAPHANK - 3 bdrm. townhouse condo. priv. end-unit, brick front, full bsmt., attached garage, central a/c, w/w, 5 appliances, many extras, $129,900. 924-0612.

Wanted

HOUSE TO SIT - free, caring, reliable, experienced, any duration, June to Sept. Jack Allentuck, Ext. 2412.

HOUSEMATE - share 3 bdrm., 2 bath, hi-ranch, 10 min. to Lab, avail. Sept 1. Ext. 4023 or 929- 3721.

RECORDS - 45 RPM & some LP's, various categories, 1950's & 60's. Frank, Ext. 3120.

DRAFTING TABLE - trade my 6' BNL drafting table for your 5' BNL drafting table. John, Ext. 4757 or 4615.

ROOMMATE - Manorville area, responsible, respectable, neat, $375/mo. + ⅓ util. Rochelle, Ext. 5459 or 874-2466.

CEMENT MIXER - Wet Saw/Bobcat, to buy or rent. Tony, 698-9274.

TICKETS - Jones Beach, Steve Winwood show. Ext. 7192.

ROW BOAT - or skiff. Marianne, Ext. 3846.

HOUSEKEEPER - for busy, working couple, upper west side of Manhattan, $200/wk. + room & board. George, Ext. 4406.

COMPUTER HARDWARE - Radio Shack TRS-80, FDC board & disk drive, power supply. Dan, 281-5439.

HOUSE TO RENT - East Moriches area, year round rental preferred. 874-2614.

MINERALS - mineral collextions, old mineral books, any language. Plotkin, Ext. 7974 Wednesday only or 798-2887.

BABYSITTER - 2 or 3 afternoons a week, during summer, Rocky Point, flexible. 821-2289.

ITEMS FOR YARD SALE - Boy Scouts. John, 924-3492.

In Appreciation

I thank my many BNL friends for your concern and well wishes during my illness. I have improved considerably and will return to work very soon. In the meantime, my love goes out to all of you.

— Sheree Flippen

Having retired from Brookhaven Lab at the end of June, I wish to thank everyone for 27 happy, productive years. I am particularly grateful to the people with whom I've worked in the old Hot Lab and the Virology Group; for the fascinating work, which gave me a constant education; and for all the Lab's benefits, pleasures and privileges.

— Lois Baranosky

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