

BNL/Yugoslav Industrial Health Study

Researchers Shoot for Complete Picture With Focus on New Programs

Most tourists travel with a camera, or buy one on arrival — and Behxhet Canhasi, Byrhan Dida and Ilir Zeka, visiting scientists from Kosovo, Yugoslavia, are no exception. They came to BNL in January and bought a camera. And they are taking a second one back home.

"Only this is a very different type of camera," said Canhasi, who had flown from BNL to California to arrange shipment for the camera, a gift from the University of California in San Francisco. "It's a gamma camera," explained Zeka. "Instead of my carrying it around my neck, it could carry me."

The gamma camera is equipment for the respiratory program being added to a longstanding U.S./Yugoslavia health science study of workers in the Kosovo coal gasification plant near Pristina, Yugoslavia. At the Kosovo industrial complex, lignite coal is mined, then used to produce gas for industrial heating and hydrogen for ammonia synthesis.

With funding from the Environmental Protection Agency (EPA), staff from BNL's Department of Applied Science (DAS) and Medical Department are helping researchers from Kosovo plan for two new aspects of the project: biochemical testing and studying indoor pollution levels.

Eugene Premuzic, a Chemist from the Environmental Chemistry Division, DAS, joined the project in 1983 as

an advisor on chemistry. His work led to the idea of widening the study to include biochemical testing of the workers.

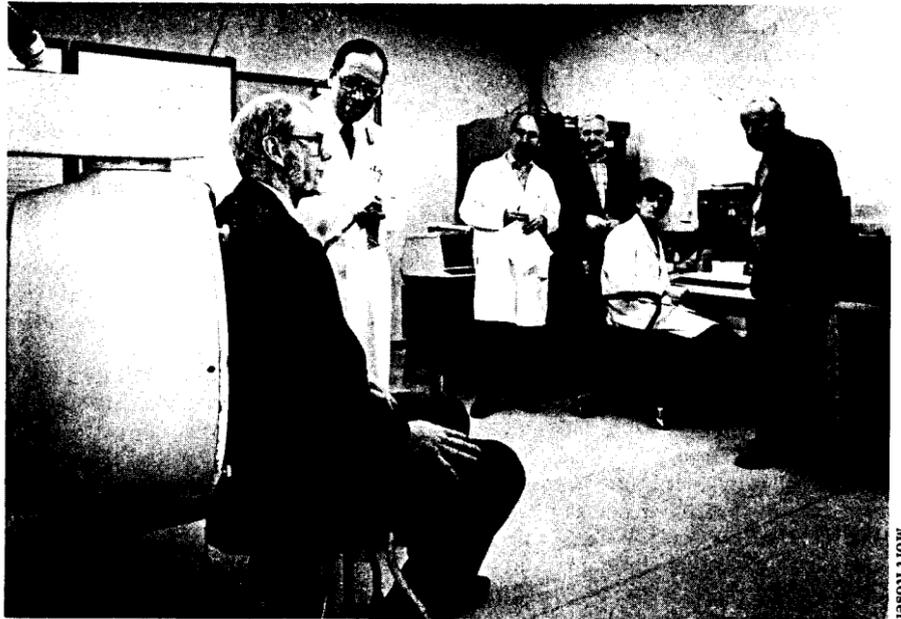
At present, Dida, Head of Clinical Biochemistry at the University of Kosovo School of Medicine, is considering other clinical biochemistry tests to be integrated into the health study. Out of several blood, urine, and respiratory tests, he and Premuzic will choose six or so of the most appropriate to use in Kosovo on Dida's return.

"To check results from the gasification workers, we have also been studying a group of Kosovo miners," said Premuzic. "The BNL Medical Department's experience with studies on coal miners and steel workers from 1981 to 1986 is proving useful to the Yugoslavs. The data from the finished Kosovo project will be of value in the U.S., where similar industrial plants are under consideration."

One member of the BNL group that completed studies of lung function of coal miners from West Virginia is Herbert Susskind, a Biomedical Engineer in Medical. He is introducing Canhasi and Zeka to nuclear medicine procedures developed here using, among other instruments, the gamma camera.

Respiratory Test Procedures

"The camera is used to measure alterations in regional epithelial permeability of the lung, or the amount of



Mort Rosen

Seated in the place of a patient in front of the gamma camera is Sam Morris, Department of Applied Science (DAS). Herbert Susskind, Medical, holds the control switch to adjust the camera height. Byrhan Dida (left) and Behxhet Canhasi, School of Medicine, University of Kosovo, Yugoslavia, stand in front of the computer, and Ilir Zeka, Kosovo Institute, Yugoslavia, sits at the console monitoring the lung image. Eugene Premuzic, DAS, completes this group from the BNL/Kosovo Industrial Health Study.

damage done to the lung lining by inhaled coal dust or other pollutants," said Susskind. "If the lining is damaged, it becomes more permeable, and tracer particles that are breathed in diffuse more rapidly through the lung lining into the blood stream."

During the test, the subject inhales a radiotracer aerosol for two to three minutes, then sits back against the gamma camera, which is connected to a computer system. As the camera detects the gamma rays emitted from

the radiotracer, the computer records the decrease in activity for ten minutes as the aerosol clears from the lungs. The faster it clears, the greater the indication of damage to the lung lining.

Another BNL-developed indicator to be used in the Kosovo project determines the air and blood flow distribution in the lungs, which affects the efficiency of gas exchange.

The person being tested inhales air

(Continued on page 3)

Solid State Theory Workshop: Quenching Materials Via Computer

About 80 solid state physicists and quantum chemists from the U.S. and abroad participated in the workshop entitled "Electronic Structure and Atomic Dynamics: Simulated Annealing and Related Methods." It was held at BNL on March 13 and 14 and was sponsored by the Division of Materials Sciences, Department of Energy.

Annealing is a process for treating a metal, alloy or glass with heat, then cooling, or quenching, the material to reduce its internal energy and, as a result, making it less brittle. Simulated annealing is the use of the computer to predict the lowest energy state to which a material can be

reduced. By controlling the initial temperature and the rate at which materials are cooled, theorists can calculate the energy and state of order of metals and semiconductors, for example.

During the two-day meeting, participants discussed the use of new mathematical techniques and computer software for calculating the energy of materials after annealing. Of particular interest were papers presented on predicting the arrangement of atoms within liquid and amorphous silicon, on melting of metals and on performing quantum Monte Carlo calculations.



Mort Rosen

Pictured are the workshop's organizers: (from left) Richard Watson, BNL Physics; Phillip Allen, State University of New York (SUNY) at Stony Brook; Jeremy Broughton, SUNY at Stony Brook; James Davenport, BNL Physics; and Michael Weinert, BNL Physics. Absent from the picture is Nancy White, BNL Physics, workshop coordinator.



Mort Rosen

Meet the Brookhaven Council

The 1987-88 Brookhaven Council is pictured at its March meeting. Its 16 members are elected from the tenured scientific staff for three-year terms. They meet monthly to advise the Director on scientific policy and procedural matters, such as staff appointments and tenure recommendations. Hobart Kraner (seated, second from right), Instrumentation, was recently elected Council Chairman. Suresh Srivastava (standing, right), Medical, is serving as Secretary, the Council's other officer.

Council members include: (seated, from left) Stephen Schwartz, Applied Science (DAS); Gerry Bunce, Alternating Gradient Synchrotron (AGS); Jane Setlow, Biology; Krsto Prelec, AGS; Kraner; Morris Reich, Nuclear Energy (DNE); (standing, from left) Robert Bari, DNE; David Welch, DAS; John Axe, Physics; Carl Anderson, Biology; Samuel Aronson, Physics; Richard Casten, Physics; Peter Haustein, Chemistry; Jerome Hastings, National Synchrotron Light Source; and Srivastava. Absent from the picture is James Muckerman, Chemistry.

To Trap an Acid Raindrop

"We build a better mousetrap!" declared John McNeil of the Atmospheric Sciences Division, Department of Applied Science (DAS). "That is, if you're aiming to catch clean samples of rain, not mice."

McNeil is part of a research group working in the Washington, DC, area, and the group is definitely interested in rain, not mice. Headed by Aristides Patrinos (DAS), they have been looking in that area since early last fall for sulfate and nitrate ions, among others, in rain samples.

By the end of the study, they expect to collect enough data to be able to determine the contribution of emissions from urban, as opposed to long-range, sources. Upper atmosphere samples are being obtained by aircraft, and other areas are monitored by elaborate ground equipment.

"Although we had planned on the air and ground samples," said McNeil, "we wanted to cover 31 more sites. Our budget was very tight, and most of the additional sites have no electricity. We could have set out containers and caught rain, but if the container had no lid, contaminants might have spoiled the sample before a drop of rain fell. Our sampling area was so extensive, it was impossible to run around uncovering each container exactly when it rained. We had a problem. So — the creative juices had to flow."

McNeil's creative juices flowed effectively. He invented a slight, but crucial modification to the tripping mechanism of an ordinary mousetrap — so that the spring could be released only by an inward movement.

Now for the action!

Rain falls, causing an electrical short in a sensor grid next to the mousetrap. Electric current from a battery flows to a solenoid valve, initiating an inward movement. This jolts the spring of the mousetrap, which snaps shut. As the mousetrap snaps downwards, a dowel fixed to the trap wire moves with it, jerking away a plastic bag covering a funnel. The funnel is left exposed to catch the rain.

"And all for under \$4," commented McNeil. "We put them together in the lab in Bldg. 51, and in October, set them up in the field. They've been working perfectly."

The sampling project is ongoing for at least another fiscal year. Will the mousetrap rain catchers still be operating?

"Not only operating, but improved," said McNeil. "We realized how useful it would be to know the exact time of a rain event. So I am in the process of adding a cheap watch into the mechanical sequence set off by the rain. Last year was the stripped-down version. This year, the model will be deluxe!"

— Liz Seubert



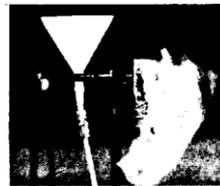
(At left) John McNeil demonstrates his mousetrap raincatcher (empty coffee cans came from numerous coffee drinkers who answered McNeil's wanted ad in the Bulletin):



Rain on the sensor grid springs the trap.



The dowel jerks the bag off the funnel.



All set to collect rain.

—photos by Rosen

BNL's Fabulous Forty

"We work *months* to prepare a special event," said Marge Stoeckel, member of the BERA Special Events Committee since 1972. "In fact, as this year's event celebrates our 'fabulous fortieth' year, we want the celebrations to be extra special. So, although it's not till September, we started work on it at least three months ago."

Stoeckel, who came to BNL in 1965 and who is Senior Executive Secretary in the Fiscal Division, is retiring at the end of this month. Retiring from BNL is one thing — but retiring from the Special Events Committee, when you are part-way through arrangements for the one of the biggest celebrations ever held at the Lab, is another.

Said Rosalie Piccione, who chairs the committee, "We voted to keep Marge on, as her expertise would really be missed. It's the first time anyone has continued on the committee after retirement, and we are very pleased that Marge's enthusiasm and ability will still be available to us."

Stoeckel's enthusiasm for BERA activities has resulted in her being, at various times, a BERA Board member, a president of the Bowling League and a Tennis Committee member. She serves on the Awards Committee and is a keen member of the Aerobic Dance Club. Her other Lab activities have included being a blood captain, United Way representative, tour guide and on-site dance instructor.

Right now, though, her efforts are concentrated on the fortieth anniversary celebration. Stoeckel explained that to prepare such an event, the committee brainstormed for a few sessions. Then each person takes responsibility for an area of preparation, such as advance publicity or electrical arrangements. "I usually get involved with the music," said Stoeckel. "If we need a band, dancing, or a fashion show — that's my job. But we all count on each other for additional support."

"There's no exact schedule for special events," continued Stoeckel. "It's just whenever it seems appropriate. For each occasion we come up with a theme to go on all the fliers and programs. 'This One's for You!' was the 1982 picnic theme, and we chose



Mort Rosen

Marge Stoeckel

'Broadway Comes to BNL' for the 1975 four-night Dinner Dance. That was a sell-out! You couldn't squeeze another table in the place."

Stoeckel recalled the old days when shows were given in the gym. "When the floor was re-done, though, it would have been ruined by dancing," she said. "So we moved to the Brookhaven Center, but it is really too small. Berkner is better."

Stoeckel has a less pleasant memory of the evening before the 35th Anniversary picnic in 1982. "We were in the parking lot next to the tennis courts," she remembered. "We had to set up tables, mark out races, arrange parking areas — and it poured. We were soaked and so worried. All the food had been ordered, and there was no way to cancel. But next day's weather was wonderful."

"It's been a lot of work, over the years," Stoeckel said, "but worth it. I've always enjoyed the Lab, and I've enjoyed doing things for the people here."

During the months that stretch ahead, committee members will be booking caterers, choosing programs, deciding on seemingly endless details — and wondering how the weeks can fly so quickly. "We'll have the theme of the event drumming through our heads by the time September comes along," joked Stoeckel.

But what's the theme? What's the date? What's the event? "You'll know in time," she said.

— Liz Seubert

Reports Available

The following reports are now available to the Laboratory staff and to affiliates of the DOE, AUI and NRC. Others may purchase the reports from the National Technical Information Service, U.S. Dept. of Commerce, 5285 Port Royal Rd., Springfield, VA 22161. Staff members should call the designated contact at the extension listed.

BNL-51970
Contact: S. Zuhoski, Ext. 3359
Chemical/Hydrogen Energy Systems. Annual Report Jan. 1, 1985 to Dec. 31, 1985. M. Bonner, et al.

NUREG/CR-4565
BNL-NUREG-51973
Contact: A. Fort, Ext. 2114
Probabilistic Safety Study Applications Program for Inspection of the Indian Point Unit 3 Nuclear Power Plant. J.H. Taylor, et al.

NUREG/CR-4588
BNL-NUREG-51983
Vols. 1 & 2
Contact: L. Gilbert, Ext. 4909
Soil-Structure Interaction. Vol. 1 — Influence of Layering. A.J. Philippopoulos
Vol. 2 — Influence of Lift-Off. C.A. Miller

NUREG/CR-4607
BNL-NUREG-51991
Contact: A. Spira, Ext. 2352
The Effects of Environment and Gamma Irradiation on the Mechanical Properties of High Density Polyethylene. Topical Report. P. Soo, et al.

NUREG/CR-3705
BNL-NUREG-51751
Contact: L. Hanlon, Ext. 7517
Improved Modeling and Numerics to Solve Two-Dimensional Elliptic Fluid Flow and Heat Transfer Problems. B.C. Chan.

NUREG/CR-4048
BNL-NUREG-51834
Contact: C. Conrad, Ext. 2272
A Methodology for Allocating Reliability and Risk. N.Z. Cho, et al.

NUREG/CR-4404
BNL-NUREG-51930
Contact: D. Miesell, Ext. 4962
Analysis of Allowed Outage Times at the Byron Generating Station. N.Z. Cho, et al.

BNL-51955
Contact: K. Hauser, Ext. 2223
Accelerated Leach Test(s) Program. Annual Report. D. Dougherty, et al.

BNL-51958
Contact: G. Callister, Ext. 3694
Medical Status of Marshallese Accidentally Exposed to 1954 Bravo Fallout Radiation: January 1983 through December 1984. W.H. Adams, et al.

NUREG/CR-4588
BNL-NUREG-51983
Vol. 3
Contact: L. Gilbert, Ext. 4909
Soil-Structure Interaction. Vol. 3 — Influence of Ground Water. C.J. Constantino.

NUREG/CR-4601
BNL-NUREG-51987
Contact: N. Yerry, Ext. 2335
Technical Considerations Affecting Preparation of Ion-Exchange Resins for Disposal. Final Report. B.S. Bowerman, et al.

NUREG/CR-2331
BNL-NUREG-51454
Vol. 5 #4
Contact: J. Wilson, Ext. 2922
Safety Research Programs Sponsored by Office of Nuclear Regulatory Research. Quarterly Progress Report Oct. 1 - Dec. 31, 1985. Compiled by: A.J. Weiss.

NUREG/CR-4374
BNL-NUREG-51917
Vol. 3
Contact: T. Skelaney, Ext. 2484
A Review of the Oconee-3 Probabilistic Risk Assessment. Containment Performance, Radiology Source Terms and Risk Estimates. C.K. Park, et al.

NUREG/CR-4589
BNL-NUREG-51984
Contact: D. Miesell, Ext. 4962
Review of Selected Areas of Yankee Rowe Probabilistic Safety Study. L. Arrieta, et al.

NUREG/CR-4594
BNL-NUREG-51986
Contact: S. Flippen, Ext. 2507
Estimated Safety Significance of Generic Safety Issue 61. J.R. Lehner, et al.

NUREG/CR-4619
BNL-NUREG-51996
Contact: A. Spira, Ext. 2352
Stress Corrosion Cracking Tests on High-Level-Waste Container Materials in Simulated Tuff Repository Environments. T. Abraham, et al.

BNL-51997
Contact: A. Rementer, Ext. 3604
Workshop on Photon Activation Therapy. Held at BNL April 18, 1985. Ed: R.G. Fairchild.

BNL-52000
Contact: E. Taylor, Ext. 4075
Semiannual Report for the Period 1 April 1985 - 30 Sept. 1985. 1) Cable Insulation Development. 2) Superconducting Power Transmission System Development. A.C. Muller.

NUREG/CR-4644
BNL-NUREG-52004
Contact: A. Spira, Ext. 2352
Geochemical Studies of Commercial Low-Level Radioactive Waste Disposal Sites. Topical Report. R. Dayal, et al.

BNL/Yugoslav (Cont'd)

mixed with a gaseous radioisotope — krypton-81m or xenon-127, produced at the Brookhaven Linac Isotope Producer facility. Blood flow is measured with intravenously injected human albumin particles labeled with technetium-99m, a radioisotope originally developed at BNL. Computer analysis then determines the point-by-point activities of each isotope, and a heterogeneity index is calculated. In patients, this index is significantly higher than in a healthy population.

“Chest x-rays do not usually show changes in lung structure until the disease is well-established,” said Susskind. “These nuclear medical studies, on the other hand, measure functional changes and can therefore give much earlier warning. Fortunately, the equipment required for the aerosol clearance test — two portable scintillation detectors in place of the bulkier gamma camera — is fairly simple. It’s well suited for use in the field.”

Indoor Air Pollution Study

The respiratory and biochemical tests will play an important part in the new indoor air pollution study. Sam Morris, an Environmental Health Scientist from the Biomedical and Environmental Assessment Division, DAS, and Otto White, Industrial Hygienist, Safety and Environmental Protection Division, are “founding members” of the project, which BNL joined in 1980. Said Morris, “We picked surface coal miners as a clean comparison group, but were puzzled by their higher levels of respiratory disease. It turned out that the miners live in small villages with heating and cooking fueled mainly by free coal from the mine. So they get a double dose of pollution — at work and at home.

“It was important to verify whether indoor pollution was causing the levels that we were measuring,” continued Morris. “We proposed a project extension to help resolve this and also address the indoor air pollution question — a high priority at EPA. The Joint U.S./Yugoslavia Board approved the proposal, and work has begun.”

Premuzic summed up the advantages of the study. “The stable population and accessibility of data back to 1971 give us unusually long medical histories of the workers,” he said. “Now, with the new biochemical and indoor air studies, we’re hoping to obtain the most complete picture available in this type of industrial health study. We also hope that our results will encourage similar studies in other areas, both in the U.S. and abroad.” — Liz Seubert

Arrivals & Departures

Arrivals

Zion Armoza Accel. Dev.
Robert A. DeBiasse Instrum.
Richard T. Geib Plant Eng.
Wayne W. Hulse Plant Eng.
Joseph J. Vignola S&EP
Fred Wojtuniak Plant Eng.

Departures

This list includes all employees who have terminated from the Laboratory, including retirees:
Joseph J. Vetter Central Shops
Charles W. Tierney DAS

BROOKHAVEN BULLETIN

Published weekly for the employees of BROOKHAVEN NATIONAL LABORATORY

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

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Tax Form Book Now at Library

The Research Library has available a volume of selected *reproducible* Federal Tax Forms. This volume was published as an aid to taxpayers who have a need for specific tax forms and find it more convenient and timely to obtain photocopies at their local library. Ask for this book at the Reference Desk.

CREF Values

Effective the first of the year, CREF accumulation units were converted to new total return units. As of December 31, 1986, CREF accumulation units were valued at \$101.49. For each accumulation unit held on January 1, 1987, participants received 3.4113 new total return units worth \$29.7514 each. The CREF values below are listed in the new units, rounded to the nearest cent:

January 30 — \$33.54
February 27 — \$34.99

For a recorded message quoting the latest CREF unit values, call (800) 223-1290.

IBEW Meeting

Local 2230, IBEW will hold its regular meeting on Monday, March 23, at 6 p.m. in the Knights of Columbus Hall, Railroad Avenue, Patchogue. On the agenda will be regular business, committee reports and the President’s report.

Intro to IBM 3090

The Central Scientific Computing Facility will offer a three-hour “Introduction to the IBM 3090,” on Wednesday, April 8. The lecture, which is intended for CDC 7600 and VAX Cluster users who need to migrate their number-crunching programs to the IBM 3090, will be an overview of what is required to log-on and use the system.

Those interested in attending this lecture should register by calling Paula Appling, Ext. 2132.

Equipment Demo

Conax Corp. and Norman Bragar Co. will exhibit their products at Berkner Hall on Tuesday, March 24, and Wednesday, March 25, from 11 a.m. to 2 p.m. These companies make custom designs for every application — nuclear-qualified, military standards and more.

On display will be temperature sensors and transmitters, fiber-optic limit switches, environmental pressure and vacuum seals for wires, probes, etc., and the Opto 22 Optomux and Pamux distributed control systems, a computer/process interface.

Camera Club

The Camera Club meets on the fourth Wednesday of each month at 5:30 p.m. in the Recreation Bldg. All employees are welcome to attend and participate in the evening’s program and discussion. The next meeting will be held on Wednesday, March 25.

Good Nutrition

March is National Nutrition Month, and this year’s theme is “Good Nutrition: A Personal Choice.” For help in making that choice, the U.S. Departments of Agriculture and Health and Human Services have developed a pamphlet, “Dietary Guidelines for Americans.” For a copy, send 25 cents, along with your name and address to: Dietary Guidelines for Americans, Home Economics Program, Cooperative Extension, 246 Griffing Avenue, Riverhead, NY 11901.

Music for the Whole Family

Children’s entertainer Viki Diamond will perform at BNL next week in a concert sponsored by the Upton Nursery School. Diamond, who first delighted audiences at the Lab over ten years ago, provides entertainment for the entire family. Her songs and stories, accompanied by guitar, autoharp or hammer dulcimer, will begin at 3 p.m. on Sunday, March 22, in the Recreation Bldg. The concert is open to the public. A donation of \$3 per family is requested.

The Upton Nursery School is a cooperative nursery school open to children of BNL employees and BNL visitors. At the concert, applications will be distributed for September enrollment in the school’s classes for three- and four-year-old children.

Daffodil Day

To welcome spring and to support a worthy cause, BERA is participating in the Daffodil Days, an annual event of the Long Island Division of the American Cancer Society.

BNL’s Daffodil Day will be next Friday, March 27, beginning at 11 a.m. in the Cafeteria lobby. BERA will sell a limited number of bunches of daffodils, each containing ten flowers, at \$4 a bunch. So stop by while supplies last, to add a little sunshine to someone’s day or brighten up your own.

Aerobic Dance

If spring is in the air, can summer be far behind? And if summer is that close, are you in shape for it? You can be, if you sign up for the next ten-week sessions of aerobic dance and/or stretch classes.

Which type of class is for you? If you’re interested in a choreographed program of exercises that concentrate on stretching and strengthening various muscle groups, sign up for stretch classes. To emphasize cardiovascular improvement through vigorous, choreographed exercise, you’ll want to take aerobic dance.

Classes in aerobic dance are held on Tuesdays and Thursdays, and stretch classes are held on Mondays. All classes run from 5:15 to 6:15 p.m. Participants may take any or all of these classes. Those signing up for aerobic dance are encouraged to take it both afternoons, or one class of aerobics and one of stretch.

The fee for each ten-week session (M, T or Th) is \$30, payable at registration, which will precede the first classes. These classes will be held on the third floor of the Collider Center, Bldg. 1005S, as follows:

- Aerobic Dance — Tuesday, March 31, and Thursday, April 2.
- Stretch — Monday, March 30.

For more information, call Paula Bennett, Ext. 3293, or Bill Leonhardt, Ext. 2378.

Bowling

Pink League

High games were bowled by Renie Rosati 181, M-G Meier 180/176, Maryann Reynolds 175.

White League

Joe Mayeski rolled a 233, Bob Jones 215/207, Ted Erickson 215, Bill Cahill 203, Skelly Frei 199, Maryanne Rignola 182, Sharon Moore 180.

Red/Green League

T. Prach had games of 234/201 for a 607 scratch, N. Combatti 229, R. Jansson 215/601 scratch, C. Bohnenblusch 209, E. Sperry IV 209, J. Ferrante 208, H. Arnesen 203, J. Petro 203.

Purple League

Tom Holmquist had a 240, Jim Vogel 215, Frank Gaetan 210, Millie Connelly 206, Joe Ferrante 201, Karen Vogel 200/185, Paul Callegari 200, Lee Barberich 199/188/183, Jeannette Theide 188, Alice Alberico 185, Denise Monteleone 183/180, Fran Brown 183.

L.I. Industrial Tournament

Ken Riker bowled a 259, Ed Sperry IV 200/195, Kenn Asselta 191.

Softball

The beginning of another BERA Softball season is fast approaching. Any existing or new teams wishing to participate must submit preliminary team rosters for planning purposes, to Sharon Smith, Bldg. 510, or George Green, Bldg. 820, by March 27. Organizational meetings will be held after the receipt of preliminary rosters.

Astronomical Society

Join us in viewing the spring sky. The observatory will be open tonight at 7 p.m., provided skies are clear. Admission is \$1 for non-members. Those interested in attending should call Rick Jackimowicz, Ext. 3803, or Bob Mills, Ext. 5043. The rain date is next Friday, March 27.

Basketball

First Game			
Longshots	53	Hollywood	43
J. Cyr	16	R. Domenech	10
W. Cummings	13	B. Gunther	10
R. Seymore	10	D. Nordstrum	8
J. Garrison	9	G. Mock	6
F. Molone	3	L. Lawrence	5
R. Rowley	2	R. Kowalski	4
Second Game			
Runaways	69	Celtics	68
J. Desmond	21	T. Mendez	21
R. Moran	17	J. Gaeta	19
M. Anerella	11	M. Williams	12
T. James	11	P. Ratzke	8
G. Shepherd	9	N. Schaknowski	5
		P. Browne	2
		T. Farmer	1

Cafeteria Menu

Week of March 23

Monday, March 23	
Cream of mushroom soup	(cup) .75 (bowl) .95
Baked quarter chicken w/1 veg.	2.75
Baked quarter chicken skinless w/1 veg. (lite-weight)	2.75
Spinach soufflé w/1 veg.	2.65
Hot deli: Meat loaf sandwich	(bread) 2.45 (roll) 2.65 (hero) 2.70
Tuesday, March 24	
Cream of chunky vegetable soup	(cup) .75 (bowl) .95
Turkey & dressing w/1 veg.	2.85
Chili mac w/1 veg.	2.75
Hot deli: Corned beef	(bread) 2.45 (roll) 2.60 (hero) 2.65
Wednesday, March 25	
Split pea soup	(cup) .75 (bowl) .95
Eggplant Parmesan w/1 veg.	2.95
Chicken pot pie	2.65
Hot deli: BBQ pork on onion roll	2.65
Thursday, March 26	
Beef noodle soup	(cup) .75 (bowl) .95
Chicken Kiev w/1 veg.	2.95
Spanish macaroni w/1 veg.	2.65
Turkey salad in melon half (lite-weight)	2.45
Hot deli: Baked ham	(bread) 2.45 (roll) 2.60 (hero) 2.65
Friday, March 27	
Tomato lentil soup	(cup) .75 (bowl) .95
Ravioli w/garlic bread	2.75
Broiled fish w/1 veg. (lite-weight)	2.95
Hot deli: Kielbasi	(bread) 2.45 (roll) 2.65 (hero) 2.70

Volleyball

Standings — Week of March 9 Open League

A. Phoenix	48-3
B. Dakota	41-10
C. Odds & Sods	31-20
D. Target	24-27
E. Court Jesters	23-28
F. Rowdy Radicals	22-29
G. Duituits	9-42
H. Out of Control	6-45

League I

Dinkers	37-8
Upfagrabs	34-8
Xrayted	24-18
Phoubars	18-24
Bumpers	10-32
Net Results	6-39

League II

Cannonballs	29-10
Nuts & Bolts	27-12
TNT	25-8
Fossils	23-16
Chunga's Revenge	16-23
Upton Ups	5-28
Misfits	4-32

League III

Floater	33-12
Printouts	31-14
Foul Ups	26-19
Screwballs	21-21
Sourcerers	17-25
Not Yets	15-30
Odd Couples	10-32

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.

2571. CRAFT APPRENTICE - CABINETMAKER — Participate in a formal, four-year training program during which time the apprentice receives on-the-job instructions and enrolls in outside study programs in subjects related and supplementary to the apprentice's occupation. At the successful completion of the four-year program, the apprentice will be graduated to the position of Cabinetmaker. The position description for Cabinetmaker is as follows:

Under minimum supervision lays out, constructs, modifies and maintains furniture, laboratory equipment and buildings and component parts. Works with wood, wood substitutes and combination materials and flooring, roofing and wall materials. Uses hand, portable and fixed tools common to building construction and cabinet making trade. Works from prints, rough sketches and verbal instructions. Requires broad shop skills to perform difficult operations requiring ingenuity on complex jobs where previous standards or methods of operation do not offer complete solution. May perform Carpenter duties as required.

2572. CRAFT APPRENTICE - MACHINIST (2 positions) — Participate in a formal, four-year training program during which time the apprentices receive on-the-job instructions and enroll in outside study programs in subjects related and supplementary to their occupations. At the successful completion of the four-year program, the apprentices will be graduated to the position of Experimental Machinist. The position description for Experimental Machinist is as follows:

Works on various materials from prints, sketches or verbal instructions. Sets up and operates machine tools and also performs benchwork on jobs where standards of operation may require unique application. Performs layout, preparation, measurement, setup, assembly and installation. Makes own tools, performs maintenance incidental to operation of machines, and may specialize.

2573. CRAFT APPRENTICE - PLUMBER — Participate in a formal, four-year training program during which time the apprentice receives on-the-job instructions and enrolls in outside study programs in subjects related and supplemental to the apprentice's occupation. At the successful completion of the four-year program, the apprentice will be graduated to the position of Plumber. The position description for Plumber is as follows:

Under minimum supervision lays out, constructs and installs, repairs and maintains water and gas distribution systems, related facilities and auxiliary equipment, and equipment utilizing water, gas and heat distribution services.

2574. CRAFT APPRENTICE - STEAMFITTER (2 positions) — Participate in a formal, four-year training program during which time the apprentices receive on-the-job instructions and enroll in outside study programs in subjects related and supplementary to their occupations. At the successful completion of the four-year program, the apprentices will be graduated to the position of Steamfitter. The position description for Steamfitter is as follows:

Under minimum supervision lays out, constructs and installs, repairs and maintains heat, steam and water distribution systems, related facilities and auxiliary equipment and piping and equipment utilizing heat, steam and water distribution services.

Applications for the Apprentice Program are available in the Personnel Office.

2575. ADMINISTRATIVE/TECHNICAL POSITION - Requires a minimum of an AAS degree in a technical field and a comprehensive knowledge of Laboratory policies and procedures. Computer literacy is essential. Experience utilizing a personal computer is desirable and excellent communication skills are necessary. Will be involved in performing statistical and work measurement analyses, investigation of new options for work flow management, analysis of daily work flow and research of system abnormalities. Knowledge of industrial engineering techniques and/or maintenance management concepts is highly desirable. Commitment to complete formal education in industrial engineering is desirable. Plant Engineering Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2576. TECHNICAL POSITION - Requires an AAS degree with an emphasis on engineering or physical sciences (AAS in health physics is desirable). Responsibilities include routine radiation and contamination surveys around the AGS experimental areas. Requires participation in respirator, industrial hygiene and general safety training programs. (Part-time 20 hours per week). Safety & Environmental Protection Division.

Autos & Auto Supplies

77 PLYMOUTH VOLARE - stand. trans., am/fm radio, almost new tires, runs very well, slant 6 engine, \$800. 924-6751.

TIRES - (1) P225-75R-15 Michelin, \$35; LR78-15 snow, \$30. Ext. 4597 or 924-8213 after 5 p.m.

84 FORD ESCORT - black, 2 dr., htchbk., a/c, 4 spd., \$2,750. Ext. 4293 or 567-9362 after 6 p.m.

80 FORD FIESTA - 2 dr., htchbk., a/c, stand. trans., new tires, brakes, 48k mi., \$1,800; 78 Moped Honda Express, good cond., \$250. 286-8448.

FORD RIMS - 15" truck w/tires, \$15/ea. or \$25/pr. Jack, Ext. 7869.

80 BUICK REGAL LTD - new tires, all options, excel. cond. Chris, Ext. 4185 or 698-9116.

WESTERN WHEELS - (4) cast aluminum, Cyclone II, 15x7 w/all parts, includes locks, 4 lugs, \$175. Sue, Ext. 4931.

79 CHEVY PICKUP - 6 1/2' bed, 6 cyl, 3 spd., 10x15 lt. front tires, 11-15 lt. rears, white spoke rims, stereo, extras, asking \$2,100. Ray, Ext. 3536 or 289-7615.

79 MALIBU CLASSIC - wagon, 6 cyl., a/t, p/s, p/b, a/c, am/fm, trlr. hitch, good tires, brakes, more, \$1,250 or best offer. Fred, Ext. 2057 or 261-5735.

80 DATSUN 200SX - 5 spd., htchbk., am/fm tape, a/c, p/b, p/s, good cond., 76k mi., \$2,800 neg. Louise, Ext. 3397 or 924-3547 evs.

76 DATSUN 510 - wagon, tires, runs, excel. for knock about, or station car, \$200 or best offer. 928-4683.

77 VIKING POP-UP - trailer, electric refrigerator, 12 V or 120 V conv., good, \$1,000. Dan, 698-7322 or Ext. 4987, evs.

75 PINTO - p/s, p/b, am/fm, htchbk., good cond., \$700. Don, Ext. 4661 or 654-2106.

73 CHARGER - mech. sound, new brakes, tuned, good transp., asking \$600. 698-4341 after 6 p.m.

78 COUGAR XR-7 - 351, excel. cond., blue, am/fm cass., a/c, new tires, \$1,500. Bert, Ext. 2050.

78 TOYOTA COROLLA - 5 spd., am/fm, runs well, some rust, \$500. 475-4199.

TRAILER HITCH - class 2 for mid-size GM cars, will install free, \$50. Ext. 2799 or 757-1581.

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

77 MONTE CARLO - landau, 305 motor, \$1,100; 76 Chevy Malibu, 6 cyl., a/t, \$350; both run well. Ext. 4797, noon.

71 FORD 350 - pickup, camper special, 1980 box high-cap, extra duals, orig. owner, very good cond., \$3,000. 878-6637.

72 PLYMOUTH - full-size station wagon, excel. running cond., Ext. 2022 or 744-8386.

75 CHEVY CAMARO - many new parts, depend., \$500. 878-0516 after 5 p.m.

75 PONTIAC LeMANS - p/b, p/s, a/c, low mileage, excel. cond., \$650. 928-0687.

77 DODGE - window van, p/s, p/b, a/c, smoked windows, excel. cond., 884-2868.

75 CAMARO - rebuilt 6 cyl. eng., radio, wire wheels, excel. tires w/raised letters, \$2,500. Ext. 2529.

70 PLYMOUTH BARRACUDA - best offer. 981-7715.

SPARE TIRE CARRIER - for truck front, \$15; Blazer/truck rear seat, \$30. Bill, Ext. 2807 or pager 923.

79 MUSTANG II - 4 spd., 80k mi., good rubber, good body, new exhaust, engine OK, asking \$900. Loretta, 929-8287.

81 PLYMOUTH CHAMP - 62k mi., troubled a/t, no other problem, new tires, exhaust, \$1,300. Ext. 2344 or 751-4254.

TRANSMISSION - for Chevy Chevette. Ext. 3015.

84 BUICK REGAL - 4 dr., wire wheels, power windows, tilt wheel, am/fm radio, lt. blue w/vinyl top, 30k mi., \$7,000. 758-1149 after 4 p.m.

85 TOYOTA CELICA GT - lift-back, black, 5 spd., power package, \$7,800, firm. Ext. 3613 or 323-2611.

71 CHEVY MALIBU - 2 dr., 307 engine, a/t, p/s, orig. owner, \$550. Gordon, Ext. 3216.

84 MAZDA RX7 - GSL-SE, 27k mi., sunroof, alarm, am/fm, many extras. 368-6704.

70 DODGE DART SWINGER - new battery, brakes, tires, 318 eng., runs very well, good transp., \$750. Ext. 2075 or 473-4937.

74 DODGE DART - \$50. Monika, 821-3243.

79 FIAT X19 - 5 spd., black, hardtop, convertible, new Blaupunkt stereo, exhaust system. 981-0838.

77 CHEVY MONTE CARLO - a/t, p/s, p/b, am/fm, blue w/white int., swivel bucket seats, runs well, \$1,500 or best offer. 929-4734.

77 DATSUN B210 - 4 spd., htchbk., a/c, am/fm, maintained by fanatic mechanic, 82k mi., \$1,200. 928-4683.

78 FORD PINTO - runs well, \$500. Ext. 3102.

TIRES - P215/75R15, white wall steel-belted radial, (1) new, driven 50 mi., (1) driven 16k mi., both for \$50. Ext. 2981 or 473-7809.

Boats & Marine Supplies

28' OWENS - 1965, wood hull, fg. flying bridge, motor not running, hull sound, dual controls, asking \$700. Ray, Ext. 3536 or 289-7615.

19' LIGHTNING - fg. sailboat, spinnaker, trailer, excel. cond., \$2,500. 399-1679.

17' BOSTON WHALER - 50 h.p. Johnson, trailer, fish finder, all canvas & safety equipment, extras, \$3,000 or best offer. 281-5456, evs or wknds.

19 1/2' RENKEN - 75 h.p. Evinrude w/trailer, \$3,500. Ext. 4797.

17' SPORTCRAFT - 1982 bowrider; 1986 Suzuki, 75 h.p. O/B; 1985 E-Zload trailer, more, asking \$6,200. 929-8105, evs.

ANCHOR - Danforth-type, super hooker, 18 lbs. for 30-34' boat. Brian, Ext. 2799.

CHAIN - 3/8" galvanized, \$2 per foot, 50' minimum. 399-1679.

SUNFISH SAILBOAT - good cond., 298-4398, evs.

18' RENKEN - 1983, I/O, 120 h.p., OMC w/trailer and full cover, excel. cond., \$5,900. Ady, Ext. 4531 or 331-3785.

20' FABUGLASS - cuddy, fiberglass, 150 h.p. Merc., new lower unit, glav. trailer, teleflex, gauges, \$2,500. 399-3899 5:30-9 p.m.

22' SEARAY - 1977, CUDDY, 198 Merc. I/O, VHF, CB dual batteries, trim tabs, depth finder, full galley, more, excel. cond., \$7,000 firm. 286-1358.

19 1/2' BAYLINDER CAPRI - Bowrider, 1984, Volvo I/O, trailer, coast guard & ski equip., full canvas, all covers, many extras, \$9,400. Ext. 2931 or 473-7809.

Miscellaneous

COLOR T.V. - Magnavox 23", \$120. tennis rackets (2) for beginners, \$10 both. Ext. 3015.

MOVING SALE - 8 pc. d/r set, table pads, slip-covered couch, club chair, 2 Colonial swivel rockers, all in good cond., 273-5574.

DEEP WELL - jet pump, 3/4 h.p., glass-lined water tank, all excel. cond., \$75. 924-6751.

CAMCORDER - Sony, 8mm, CCD8AFU, like new w/all accessories, \$995, firm. Paul, 727-4859.

BUNK BEDS - L-shaped, wood, attached mirror, dresser; trundle bed, dresser w/6 drawers, mirror, \$250. Joan, 475-8252.

TYPEWRITER - Underwood portable, good cond., \$20. Jack, Ext. 7869.

WALKIE-TALKIE - (2) WWII vintage, w/manual, \$25 pr.; ham station, Heathkit H.F., MR-1, MX-1 & ac pow. sup., am & cw 80-10m. Jack, Ext. 7869.

ENGINE - 2 h.p., Briggs & Stratton w/cent. clutch, #35 chain for go-kart, \$50. Dan, Ext. 4987 or 698-7322.

BICYCLE - 26", 10 spd., woman's, speedometer, less than 1 yr. old, \$85. Leslie, 878-0375 after 6 p.m.

PROJECTOR - Kodak, 8mm, brand-new, used twice, negotiable. 281-5792.

SLIDE PROJECTOR - and video camera. Ripp, Ext. 4672.

CLOCK - Seth Thomas, \$25; boy's 10 spd. bike, \$25. Frank, Ext. 5105 or 981-2529.

SHEET SET - King size w/4 pc., \$20; kerosene drum, vented, 55 gal., spouted, \$10. gas stove, 24" wide, \$35; GTE desk phone, new, \$15. 924-7476.

FIREWOOD - oak, seasoned, \$75 per cord, Ext. 4142 or 286-0745.

LAWN MOWER - 3.5 h.p., rear bagger, power driver, needs work, \$35; Caloric elec. range, self-cleaning, 30" x 66", clean, Jim, 734-5556.

NAILS - coated drywall, 1 1/2" long, 28 lbs., \$10. Rick, Ext. 3932.

FOX JACKET - brand-new, size 9-10, \$200.; Frigidaire washing machine, needs mirror work, \$100. 286-0466.

FIREHOSES - (2) 50', clean cond., only used to pump out water, \$25 ea. 727-5455.

MATH SOFTWARE - for PC compatibles, grade 3-9, fractions, decimals, equations, probabilities. 751-1042, evs.

BICYCLE - Ross, man's, w/Shimano components, 12 spd., 21" frame, 27" wheels, extras, 2 months old. Ext. 2022 or 744-8386.

SOFA BED - queen-size, very good cond., asking \$75. Ext. 7505.

WICKER COUCH - loveseat or rocker, good cond., reasonable. 286-3847.

CURL BENCH - all welded, like new. Frank, Ext. 2377 or 325-9584 after 6 p.m.

SUMP PUMP - brand-new, immersible, \$80. Ext. 2529.

SOFA BED - Castro, queen w/attached storage, best offer. Craig, Ext. 2760 or 395-1084.

PLAYER PIANO - antique, oak, excel. cond. 265-5426 after 7 p.m.

TABLE SAW - Sear's, 7 1/4", older model w/stand, miter, fence, extra blades, \$75. Mark, Ext. 5350.

KEROSENE STOVE - w/cans, \$35; bath scale, white, \$5; RCA XL100, 19" color TV, \$75; white corner china cabinet, \$60. 924-2726.

MOPED - Jawa classic, no license or helmet required, \$300. Bob, Ext. 4002 or 924-7658.

LIVING ROOM SET - 4 pc., heavy pine couch & loveseat, maple coffee table & end table, best offer. Jerry, Ext. 2198 or 744-4662.

BICYCLES - BMX, high quality, \$100; unicycle, \$40; 10 spd. Schwinn and Fuji, \$60 ea. 473-2473.

WATERBED - kingsize, bookcase headboard, drawer base, padded rails, mattress heater, excel. cond., asking \$350. Henry, Ext. 5110.

SNOW BLOWER - 3 1/2 h.p., 1 yr. old, \$250; leaf vacuum, 3 1/2 h.p., used 4 times, \$175. 281-4159.

DRAPES - 2 panels, 83" x 50" each, tan tones, like new, \$20. Ext. 5400 or 874-3447.

ENGAGEMENT RING - 14k gold, .27 carat, premium stone & 2 side diamonds, appraised \$625, asking \$450. Pete, Ext. 7627 or 929-3847.

ELECTRIC STOVE - Hardwick, 30", white, 4 burner, oven & drawer, \$25. Bill, Ext. 2906 or 929-6189.

SOFA - traditional, dark red, 8' x 3', 4 cushions, \$225. Ext. 4532 or 277-4091, evs.

CARPET - w/w, gold sculptured, good cond., make offer. Karen, Ext. 4262.

FAMILY ROOM FURNITURE - rocking chair, tables, lamp, etc. Marion, Ext. 2902 or 281-5667.

WOOD STOVE - Scandia, air-tight, metal floor-pan, brick base, 44k Btu, fireplace cover, \$175. 928-4683.

DESK - walnut, glass top, T-top drawer, side drawer, 5' x 2", excel. cond., \$75. Ext. 4532 or 277-4091, evs.

PINBALL MACHINE - Williams, good working cond., kids love it. Rich, Ext. 3499 or 435-4316.

KITCHEN SLICING MACHINE - Rival, excel. cond., \$25. Ext. 2981 or 473-7809.

Car Pool

LIE EXIT 54 - Wicks Rd., driver needed for 4-man car pool, 8:30 a.m.-5 p.m. Mike, Ext. 2705.

Yard Sales

PATCHOGUE - 6 First Ave., 1 block north of Woodside on Rt. 112 (Medford Ave.) March 21, 8-4.

Free

CALICO KITTEN - 6 months old, very affectionate, clean, litter trained was abandoned, neutered, needs home. 924-5192.

DOG - male, needs a good home with a lot of love and running room. Ext. 2953.

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

HILTON HEAD, SC - 2 bdrm. condo, sleeps 6, beach, tennis & golf, many extras, \$300/wk., before April 11, \$400/wk after April 11. 585-9149.

PORT JEFF STATION - off Canal Road, 5 rooms, 2 bdrms., 1 bath, bsmt., oil hot water, elect. stove, G.E. refrig., garage (large), \$800 + util. 473-6432.

MANHATTAN - E. 34th St., weekends, for 1 yr., \$525 per month, four couples share okay. Don David, Ext. 4821 or 286-2267.

For Sale

PATCHOGUE - cape, 2 bdrm., bdrm./den, l/r, d/r, eik, new bath, 1 1/2 car gar., bsmt., unfinished 2nd floor, porch, many extras, taxes \$1,000, 1/4 acre, \$123,000. Jim, Ext. 4606 or 654-5049.

E. SETAUKET - 3V school district, mint, move-in cond., 4 bdrm, center hall Colonial, 2 car., bsmt., custom fp, den, eik, owner, \$169,900. 473-6429.

MOUNT SINAI - ranch, 3 bdrm., 2 bath, 1/2 acre, full fin. bsmt., w/bar, pool table, large redwood deck, 6' fence, a/c, w/w carpet, all appl., burglar alarm, fp,