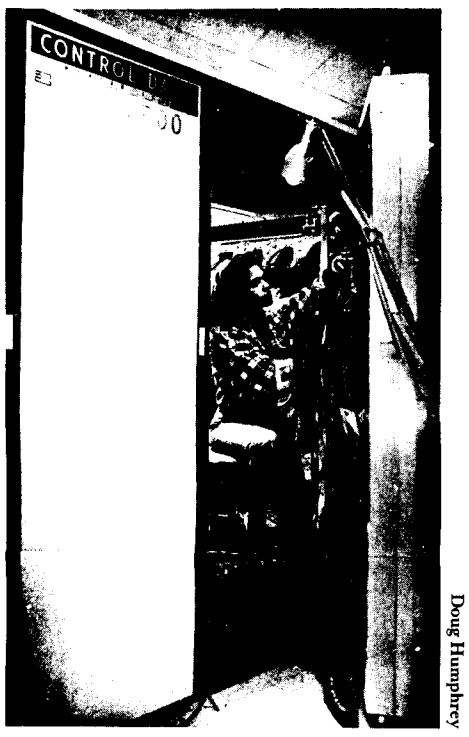
BROOKHAVEN BULLETIN
Volume 34 - Number 7 / February 15, 1980
BROOKHAVEN NATIONAL LABORATORY

Help For Crashing Computers

A little black box mounted on the wall of Clarence Pittenger's office flashes colored lights. They tell him if a computer is up, down, not available, or troubled.

"One thing about computers," says Pittenger, "when they're up, people take them for granted. But when they break down, you ought to hear all the irate phone calls that come in." Pittenger doesn't need the phone calls to tell him when something has malfunctioned. Thanks to his black box, he has probably already sent a team to check things out.

Pittenger heads a group of technicians who keep the computers and all their associated equipment running at the Central Scientific Computing Facility (CSCF) and at remote stations all over the Lab site.



Doug Humphrey

Karine Laudun, a computer repair technician, is working on a memory bank that came from a 6500 computer. It will become part of the 6600 System B computer in the Central Scientific Computing Facility.

On-site repair by BNL technicians did not start until about five years ago. It's unusual. "Not many companies or institutions want to take the responsibility of maintaining their own computer systems," said Pittenger. "It requires the support of good personnel and well-engineered equipment."

The CSCF has three computers: two 6600s and one 7600. The 7600 is still being serviced under contract because the economics of fixing it with BNL people are not as attractive. But fixing the 6600s in-house saves the Lab close to $300,000 a year, according to Michael Losquardo.

Losquardo supervises servicing of the 6600s and their peripheral equipment in the CSCF. Technicians in his group are Charles Brinkman, Ed Brosnan, Joe DePace, Don Gates, Karine Laudun, Stan Lowell, Paul Poleski, Larry Smith and Chris Willms.

The CSCF service group works in shifts from 6 a.m. to midnight. But they are on call at all other hours. Losquardo remembers working 16 hour days when they first started doing in-house servicing. "Things have settled down now, because of our comprehensive preventative maintenance program that keeps critical parts running longer," he said.

Still, the computers do break down. Most of the time, they malfunction because of power surges. A back-up battery system will be installed this spring to provide enough electricity to the computers to keep them going 15 minutes after a power outage. "At least that gives us enough time to bring the system down nicely, instead of having it come crashing to a halt," said Losquardo. When the system crashes, heat builds up, magnetic tapes can be destroyed (disastrous if they contain data from one-time experiments), and other damage done.

One of the technicians working the night shift is Karine Laudun, who is the only woman in the entire group. She admits that people are surprised to see her working on computers. "This is not considered a traditional female job," she said. "In this line of work, I get my hands dirty, I work on the floor, and I crawl all over machines."

Laudun has friends in computer work who first got her interested in the field. "It's very much a skill of today, and a very marketable one." she said.

She really enjoys her job. Of course, the longer she does it, the more experience she gains, and the easier it is because certain problems do tend to repeat. "But it's still a job that requires a lot of trouble-shooting, so it's always full of surprises." she said. "I find that exciting."

Repair of equipment outside of the CSCF is handled by a group under Bob Schuman's supervision. In the group are Rich Carlsen, Steve Lenski and John Pepe.

They service about 15 remote job entry stations, several hundred suitcase terminals (portable terminals about the size of a large briefcase), and other assorted equipment scattered

(Continued on page 2)

BNL Lecture

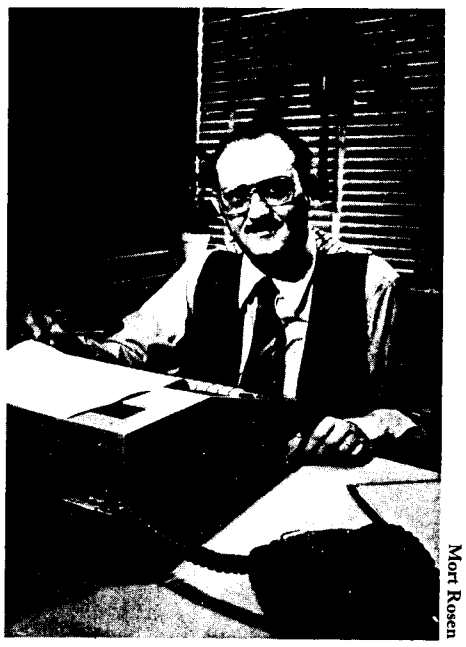
Towards 1984

"Integrated data bases are a potential threat to privacy; ways of protecting the traditional rights of privacy have been hotly debated within the computing community, the socially conscious public, and the U.S. Congress. Legislation, or the lack of it, can affect us all."

So says Kurt Fuchel, head of the Computational Assistance Division, Applied Mathematics Department. He will discuss this potential threat, together with the history and growth of computerization in a BNL Lecture, "Towards 1984 - The Computerized Data Base." The lecture will be given on Wednesday, February 20, at 8 p.m., in Berkner Hall.

According to Fuchel the amount of online storage accessible to today's computers has increased by orders of magnitude over the past few years, so the organization and retrieval of data has been an area of increasing concern for the computing community. Much data has a range of usefulness beyond any one application, and can be shared by many; in fact the data can be considered just another resource of a corporation, to be used as needed, by whoever needs it.

Thus, he says, an employee's record will contain information on the particular employee; however, he will also "own" a set of job history records, a set of medical claim records, and conceivably a set of records for projects with which he's been associated. These different record types have nothing in common, except a common owner. So a data base structure develops consisting of different records, their description, and the relationships between these records. The formalized description of these records and relationships is known as the data base *schema*. Fuchel will discuss various approaches to developing such



Mort Rosen

Kurt Fuchel

Data Description Languages.

Once a data base has been defined and data loaded into it, tools are needed to retrieve and change the data. The lecturer will point out how these tools come in a variety of Data Manipulation Languages, some independent and some embedded into existing programming languages.

"And," says Fuchel, "implicit in a collection of data accessible to many people are the twin concepts of security and privacy." He will address both the question of security measures to protect the data against accidental or deliberate disclosure to unauthorized persons, and the rights of individuals and organizations to determine when and to whom information about them may be disclosed.

Fuchel has been an Associate Computer Scientist in Applied Math since 1960. He holds a B.S. in Applied Mathematics and an M.S. in Management from the Polytechnic Institute of Brooklyn, and an M.S. in Mathematics from Adelphi University. He is a member of, and a past president of the Long Island Chapter of the Association for Computing Machinery.

A buffet supper is served at 6:30 p.m. at the Brookhaven Center before the lecture. Many find it convenient and it is a pleasant way to meet members of other departments. Reservations for the buffet should be made in advance by calling Ext. 3541 before 5 p.m. on the day of the lecture.

"Cheers" From The Chinese

BNL physicist Ling Lie Chau Wang and Deputy Chairman Deng Xiaoping toasted each other in Sichuan (Szechwan) dialect at a dinner in Beijing last month. Wang was invited to China to attend the 1980 Guangzhou (Canton) Conference on Theoretical Particle Physics, held at a resort area near Guangzhou from January 5-14. Following the conference, the participants were invited to Beijing where a reception and dinner were held for them in the Great Hall of the People. They were received with great cordiality by, and had a detailed exchange of views with, Chairman Hua Guofeng and Deputy Chairman Deng Xiaoping. Among other institutions, they visited the High Energy Physics Institute in Beijing where scientists acknowledged BNL's important technical assistance in the building of their 50 GeV proton machine. According to Wang, the Guangzhou conference was the first theoretical particle meeting in China since 1966. It was attended by about 50 physicists from around the world, including C.N. Yang and T.D. Lee, as well as 100 delegates from China. Wang said the conference was most successful as it was well organized and informative. She also noted that "the cooperation exhibited at the meeting marks a strengthening of our collaboration in physics research."

Inside Info

David C. Rorer has been appointed Deputy Division Manager of the Reactor Division. In making the announcement, Manager Gerald Kinne said Rorer would assist him in all phases of administration and would also continue as Research Coordinator for the Division. Rorer has held the latter position since December 1975.

Pick A Student

The Office of Academic Relations announces that applications for the 1980 Brookhaven Summer Student Program will be available for review in Building 460 starting February 19. All research departments are invited to send staff members to select students. Guidelines regarding the selection of summer students have been distributed to the departmental offices.

Cancer Researcher To Speak At BNL

Dr. Jenny Pickworth Glusker, x-ray crystallographer from the Institute for Cancer Research in Philadelphia, will speak on Monday, February 25, at 3:30 p.m. in the Walter Hamilton Seminar Room in the Chemistry Building. This is the first of a series of lectures planned by the BNL Women in Science Lecture Committee.

Dr. Glusker's talk is entitled "Structural Studies of Carcinogenic Compounds: Polycyclic Aromatic Hydrocarbons and Their Derivatives." Her work has implications and relevance to some current BNL programs, and her lecture will be of general interest.

Dr. Glusker's research is primarily in physical biochemistry. She received her Ph.D. from Oxford University, England, in 1957. Since 1956, she has been associated with the Institute for Cancer Research, and also holds a position as Associate Professor at the University of Pennsylvania. In 1979, she served as President of the American Crystallographic Association.

A dinner-reception will be held at 6:30 p.m. at Berkner Hall. Contact Betty Heldman, Ext. 3699, for reservations. Seating is limited, so if you plan to attend, reserve well in advance.

Tax Item

If you are in favor of the idea, don't forget to check "yes" on your income tax form to contribute $1 of your taxes to the financing of Presidential elections. No extra taxes are involved, nor does it reduce any refund due you.

Washington Visitor

Dr. Edward Frieman (center) Director of DOE's Office of Energy Research, visited the Lab on February 11 for a briefing on some of our research programs, and a look at the two principal facilities now under construction, ISABELLE and the National Synchrotron Light Source. Here, at the Light Source site, he is accompanied by (from left) Lab Director George Vineyard, Arie van Steenbergen, head of the NSLS Project, Associate Director R. Ronald Rau, and Martin Blume who heads the Synchrotron Radiation Scientific Program. —photo by Rosen

Service Awards

The following employees will receive service awards during the month of February, 1980.

Thirty Years

James G. Cottingham.....Accelerator

Twenty-Five Years

Veronica H. Brooks.....Medical

Twenty Years

Charles E. Anderson.....Accelerator
Joachim Fischer.....Instrumentation
Michael J. Stravino.....Medical

Ten Years

Anthony J. Fabiano.....Central Shops
Marjorie R. Neuberger.....Biology
Elaine Taylor.....Accelerator

Any Suggestions?

Over the years, distinguished anthropologists, economists, educators, politicians and other specialists have presented lectures at Brookhaven at the invitation of the Pegram Lectureship Committee. Open to the public, this series is designed to present speakers on all aspects of society.

The committee has two noted lecturers scheduled for this year, but wants suggestions for the future. All Laboratory employees are welcome to contact Dick Watson, Ext. 3788, Building 510A. He would like to hear from you about what speakers or subjects you consider interesting.

Response To Gym "Tune-Ins"

"Tune In" has received many letters protesting the conversion of the exercise rooms in the gymnasium into space for the new telephone system switch gear.

At the regular BERA Board meeting on Wednesday, Warren Winsche, Deputy Director, and Joseph Washburne, Manager, Personnel and Labor Relations, explained to Board members that the critical shortage of space of the Laboratory did not leave many options. Other locations that were considered were discarded because stringent requirements for fire protection could not be satisfied, and the gym was selected only after these locations proved inadequate.

The Board has been asked to work with the Laboratory on suggesting viable alternate arrangements. A decision about permanent replacement space will be made as soon as possible. For the interim, however, it does not appear possible to provide equally adequate space, so that some temporary adjustment of the physical activity programs may result.

Temporary accommodations for the exercise group will be made to the best of our ability before it is necessary for them to move out of their present quarters.

The BERA Board will be kept informed as plans are made for both temporary and permanent space for the exercise programs.

Computers (Cont'd)

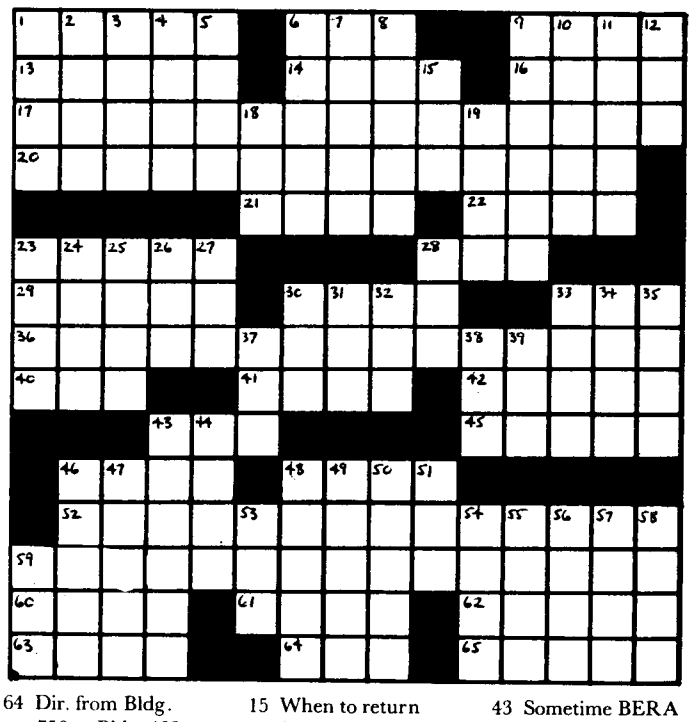
around the Lab site. "When someone has a problem, the big question is 'how long will it take to fix it?' Solving a problem can take just a few minutes. Finding it can take days," said Schuman.

Most of their repair work is done at the site of trouble, so they carry portable tool kits and an assortment of spare parts when they go out on a service call. To do some of the more complex jobs, they bring equipment back to a repair shop in the Applied Math building.

The group also does preventative maintenance. They service about four stations a week, which means that every station on site is inspected once a month. Still, the remote stations generally break down most often, because of high volume usage.

Although most of the repairs are routine, Schuman echoes Laudun's sentiments about encountering new problems. "No matter how long you've been in the field," he said, "it's impossible to have seen it all."

Crossword Puzzle



Across

1 "Jezebel" singer
6 Relative of a GI Jane
9 Slayer of Castor
13 Josh Kopp or Bonnie Biittner, at times
14 Inter - - -
16 One of the Chaplins
17 ISABELLE development
20 Gold League keglers
21 Have a wont
22 Ruth Stapleton, to Amy Carter
23 "Tourguide" at BNL, August '79
28 Unit important in Power Transmission Project
29 Alamogordo's county
30 Famous Cartoonist
33 Sign unnecessary on the L.I.E.?
36 One of Carl Thien's blooms
40 Kompong - - -, Cambodia
41 That hurts!
42 Exercise for a pianist
43 Mary of Medical
45 "Trickle - - - collector," BNL demonstration unit
46 Famous Toots
48 "The Banana Boat Song"
52 What Rosemary Cohen publicizes
59 Ingredient in Swedish Glögg
60 Infuriated
61 Arlene of Plant Engineering
62 Ms. Tonini of Admin. Sys. & Data Proc.
63 Thirsty, old style
64 Dir. from Bldg. 750 to Bldg. 480
65 - - - ghost (is spooked)

Down

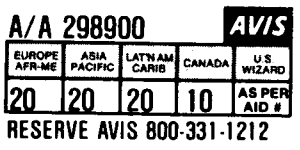
1 Nomadic Scandinavian
2 43,560 square feet
3 "Take - - - leave it"
4 Have - - - (the needy)
5 Suffix used by Cosell
6 Rasmussen of Physics
7 European range, to Germans
8 Roosevelt - - -
9 Thorium 230
10 "Lucky Lady" director
11 "- - - of robins in her hair"
12 "My Gal"
15 When to return from lunch
18 Mixed League softball team
19 Beehive State
23 Lowell of Plant Engineering
24 Peters of Plant Engineering
25 What ISABELLE will generate
26 Former Boston Bruin great
27 As well
28 Expression of wonderment
30 - - - Dhabi (Mideast state)
31 - - - room
32 - - - degree
33 Synagogue
34 Mother of Castor
35 Hebrew measure
37 Patricia of DEE
38 "- - - Miserables"
39 D.D.E.'s command
43 Sometime BERA show
44 Beaver State: Abbr.
46 Relative of 55 Down
47 Thrill at Shea
48 Uses FTS
49 Moffo and Magnani
50 Great Belgian violinist
51 Fall mo.
53 Agcy. involved at TMI
54 Suffixes with cash and cloth
55 A weapon for Stan Lekach
56 Hawaii's state bird
57 From Caban to Czyscinski, at BNL
58 Zeno of - - -
59 Newscaster Lindstrom

Volunteers Wanted

A limited number of healthy nonsmoking men and women of all ages are wanted to participate in a clinical study, which involves the determination of respiratory capacity by spirometry and measurement of blood gases. In addition, the localized distribution of inhaled air and flowing blood in the lungs will be determined with radioactive tracers. These normal values are required as a standard against which the results from patients with pulmonary disease can be evaluated. Anyone interested in participating in this study should call the Medical Research Center, 345-3672, for further information.

On Renting A Car

If you rent cars for official or personal use and don't recognize this label, you are missing out.



Check with the Travel Office for more information.

Concert Memo

German pianist Justus Frantz will perform on Tuesday, February 19 at 8:30 p.m. in Berkner Hall. His program will include music by Beethoven and Brahms.

Tickets are $5 general admission, $3 for students and senior citizens, and $2 for those under 18.

Selected Reading

Long Island Forum 42, December 1979
Port Jefferson: Suffolk County's Detroit. E.H. Yeager. 268-72 +

New Sci. 85, January 3, 1980
The role of scientists in 1980. Lord Todd. 2

Sat. Rev. 7, January 5, 1980
Environment. S. Schiefelbein. 10-12

Sci. News 116, December 22 & 29, 1979
Review of the year. 434-9

Time 115, January 7, 1980
Afghanistan: Steel fist in Kabul. 72-3 +

Nature 283, January 3, 1980
France plans world's largest science museum. J. Ritter. 6

New Sci. 85, January 17, 1980
Clever computers could lead to disaster; British inventors fare badly on the Continent. 160-3

Science 207, January 25, 1980
Research, innovation and university-industry linkages. D.J. Prager and G.S. Omenn. 379-84

Sci. Am. 242, February 1980
Zapotec writing. J. Marcus. 50-64

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Help Cambodians

To raise funds for the relief of starving Cambodians, the Brookhaven OXFAM Committee will present two motion picture classics on Friday, February 22, at Berkner Hall. Featured will be the Marx Brothers in "Animal Crackers" and Alfred Hitchcock's "To Catch a Thief," starring Cary Grant and Grace Kelly. A Bugs Bunny cartoon will also be shown.

Stay on site after work, or go home and bring back the family. Showtimes are:

5:30 p.m.	Bugs Bunny/ Animal Crackers
7:30 p.m.	To Catch A Thief
9:15 p.m.	Bugs Bunny/ Animal Crackers

Admission is $2.50 for adults, and $1.50 for children and senior citizens. Admission is good for one, two, or all three shows. Entire proceeds go toward saving Cambodian lives. Tickets at the door, or in advance through Chip Balzer, Ext. 2256, Bud Protter, Ext. 4423, Tony Fainberg, Ext. 2920.

Arrivals & Departures

Arrivals

James M. Loman ..... Physics
James A. Mills ..... Accelerator
Nancy R. Siemon ..... Biology
Wendy W. Westfall ..... Director's Ofc.

Departures

Karen A. Kalish ..... Energy & Env.
Hsi-Nan Lee ..... Energy & Env.
Joan Lukachinski ..... Energy & Env.

Diners Note

The Center Club will be closed Sunday, February 17, the day preceding Washington's Birthday. However, it will be open on Monday evening, February 18 at 5:00 p.m.

The Cafeteria will be open from 9:00 a.m. until 2:00 p.m. on Sunday and Monday, February 17 and 18. On Saturday, February 16, the Cafeteria will be closed. Snack Bar Service will be available from 9:00 a.m. until 2:00 p.m. at the Brookhaven Center.

The Vended Food Service in Building 912 is in operation continuously.

Women In Science

The Women In Science Association will hold a luncheon meeting on February 20, from noon to 1 p.m., in Room A, Berkner Hall. Research Associate Kathleen M. Barkigia (DEE) will be present to talk to the group about x-ray crystallography.

Volleyball

Mixed League

2nd quarter standings
(1st quarter rank)

A:	No Names	13-2	(1)
	Nuts & Bolts	11-4	(4)
	Family Affair	9-6	(3)
	High Society	7-8	(2)
	Thrints	3-12	(5)
	Deegenerates	2-13	(6)
B:	Diamonds	14-1	(1, tie)
	Le Mufs	11-4	(5, tie)
	Leftovers	9-6	(3)
	Nads	8-7	(1, tie)
	Underalls	3-12	(4)
	MNL	0-15	(5, tie)

Open League

Standings February 6, 1980

A:	Toga	6-3
	Spikers	5-4
	Moles	4-5
	Bumps	3-6
B:	OTHG	9-0
	E & P	4-5
	Monday Terrors	3-6
	Players Pool	2-7

Bowling

Red League

This Isa Team bowled unopposed and knocked down 3102 sticks. R. Barberich had games of 276/216 for a 672 scratch, 711 gross series. E. Sperry IV (223) had 634 gross, J. Sauls 609. The 76'ers (3049 pins) and the Old Timers (3053 pins) split 6-5. R. Adams had a 274/642 gross. J. Morris (210/202) grossed 640, L. Musso 638, J. Petro (209) 635, T. Holmquist 622, R. Smol (224) 614, W. Reams 224 game. The Designers took 11 from the Pinball Wizards. E. Sperry (246) had a 653 gross. The Freon Loaders won 8-3 over the trouble Shooters with 3059 wood. R. Marlow (208) grossed 662, F. Hohmann 633, T. Rudolf 612. The Sandbaggers took 8 from the Light Source with R. Jones bowling a 612 gross. The Old Timers II took 11 from the Strangers.

Gold League

High games were bowled by Fran Scesny 178, Claudia Tyler 170, Fran Brown 163, Chris Bortscheller 158/160/156-474 series, Alice Alberico 159/153/164-476 series and Marie Susa 162/175/139-476 series. The Swingers had a high game of 856.

Purple & White League

The Sick Six remain undefeated in first place by 9 points. Ed Meier had high series for the men with a 553 and Caryl Mac Dougall had a 244/595 series. Ed Meier and Bob Brown had games of 204, Marshall Bull 201, Lynn Boyd 207, Joyce Pinelli 202, Jeanne Penoyar 199, Pat Manzella 199, Sharon Smith 197, Marge Belligan 180, Lorraine Petro 179, Jean D'Alsace 178.

Green League

The Old Timers II are in first place after taking 11 from the Strangers. N. Carciello had a 200. The Sparks took 9½ from the Phoubars. The Blue Jays salvaged 3 from Isa Team. P. Stelmaschuk had a 206 and D. Stelmaschuk 245. The Trouble Shooters took 3 from the Freon Loaders with H. Arnesen bowling a 200 and M. Angelone 204. The Pinball Wizards lost 11 to the Designers while the Light Source took 3 from the Sandbaggers.

Pink League

Congrats to P. Jencius for her first 200 game for the year (it was right on the nose). E. Kristiansen also had a 202 (but then it was her second of the year). Nice games were bowled by M. Grahn 168, D. Johnson 163, R. Rosati 163, M. Stoeckel 163, F. Nusz 162, M. Meier, 162, E. Adams 161.

BERA Leap Year Dance

Tickets are now selling for the February 29 BERA Dance, to be held in the Berkner Hall Cafeteria. The dance will run from 8:30 p.m. to 1:00 a.m. The $3 admission covers snacks, and a one-hour Showtime Revue in the Berkner Hall Auditorium. The $3 ticket is also your chance to win numerous door prizes.

A cash bar will be open throughout the evening. The Newports are the musicians, led by Charlie Zein (Table Tennis Club), and they can deliver any beat on demand.

The Showtime Revue will provide light entertainment for everyone. On stage will be talented BNL performers in acts that range from Mark Twain to the Marx Brothers. Sandy Lane, Tony Fainberg, Joe Indusi, Janet Sillas and Bill Love are just some of the players in the show.

This is a joint effort by the BERA activities. Volunteers to help with the final preparations, or offer special suggestions, are encouraged to call Marge Stoeckel, Ext. 2459.

Employees frequently ask for social events that are open to all. This is one of them, so support the BERA effort by turning out in full force. Tickets are selling at the BERA Sales Office, from Activity Chairmen and BERA Board members, and at the Cafeteria each noon. Buy your tickets soon so the people arranging this event can finalize their plans.

Tony Fainberg (right) and Joe Indusi, as Harpo and Groucho, give a preview of one of the acts offered at Showtime at the BERA Leap Year Dance, February 29. —photo by Rosen

Cafeteria Menu

Week Ending February 22, 1980

Monday, February 18		
Washington's Birthday		
Snack bar service from 9:00 a.m. to 2:00 p.m.		
Tuesday, February 19		
Cheese chowder	(cup)	.45
	(bowl)	.55
Chopped steak & 1 veg.		1.30
Turkey tetrazzini		1.35
Hot Deli - French toasted grilled ham & cheese		1.35
Wednesday, February 20		
Clam & celery soup	(cup)	.45
	(bowl)	.55
Saga's homemade lasagne & 1 veg.		1.40
Fish & chips		1.40
Hot Deli - Philadelphia steak & cheese hoagie		1.50
Thursday, February 21		
Chicken rice soup	(cup)	.35
	(bowl)	.45
Beef liver & onions & 1 veg.		1.45
Hot Deli - Hot Italian sausage & pepper hero	(on bread)	1.30
	(on roll)	1.40
Friday, February 22		
Fish chowder	(cup)	.45
	(bowl)	.55
Sukiyaki beef on toasted Chinese noodles		1.45
Fish cakes w/noodles & cream sauce		1.40
Hot Deli - Smoked tongue	(on bread)	1.35
	(on roll)	1.45

Theater Notice

Tonight's meeting at 8 p.m. in Berkner Hall is cancelled. Please pass on the news to other members of the theater group.

R/C Aircraft Club

The R/C model aircraft club will meet on Wednesday, February 20 at noon in Room C, Berkner Hall. Anyone with questions about the club is invited to attend. For more information, contact Bob Larson, Ext. 4656 or Jim Durnan, Ext. 2485.

Mountain Club

A planning meeting for Winter and Spring activities will be held Tuesday, February 19 in the North Room of the Brookhaven Center at 5:00 p.m. Input from members is needed for deciding on purchases of books, camping and canoeing guides, and camping equipment. Candid slides of several recent canoe trips by the club will also be shown.

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, with preference to those within the immediate work group; (2) present employees within the Laboratory as a whole; and (3) outside applicants.

The determination of the best-qualified candidate for available positions will be based upon education, experience and other job-related criteria. Such factors will be evaluated and measured against the demonstrable requirements of the available vacancy, as well as the Laboratory's Affirmative Action objectives.

The Laboratory is committed to a policy of Equal Opportunity in its selection and placement of personnel. Its objective is equality of opportunity in employment, training, and promotion without regard to race, color, religion, national origin, sex, age or handicap.

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all nonscientific 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, as indicated below. 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 Personnel Placement Supervisor, Ext. 2882.

POSITIONS OPEN: Scientific. The following staff positions are open. Candidates may apply directly to the department representative named, or through the Office of Scientific Personnel, Ext. 3338.

RESEARCH METEOROLOGIST - Development and application of regional scale air pollution models for the prediction of deposition (wet and dry), with emphasis on the "acid rain" problem. Requires doctorate and several years' experience. Contact: Dr. Paul Michael, Atmospheric Sciences Division, Department of Energy and Environment.

CHEMIST - Conceptualization of new processes and laboratory work on the chemistry, kinetics and thermodynamics of coal gasification. Requires advanced degree in Chemistry. Contact: Dr. Michael Sansone, Process Sciences Division, Department of Energy and Environment.

LABORATORY RECRUITMENT: Opportunity for present Laboratory employees.

1253. METAL CUTTER A, GROUP LEADER (temporary) - Central Shops.

1254. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent experience performing diverse secretarial duties including technical typing. Must have background in or capability to learn word processing. Excellent communication skills are essential. Will provide secretarial assistance for research and service groups. Safety and Environmental Protection Division.

1255. SECRETARIAL POSITION - Requires excellent administrative, secretarial and communication skills. knowledge of laboratory policies and procedures and a familiarity with word processing equipment is highly desirable. Will function as primary secretary for DOE-funded waste management research group and perform diversified secretarial duties for scientific and professional staff members. Department of Nuclear Energy.

1256. PLUMBER, GROUP LEADER - Plant Engineering Division.

1257. SECRETARIAL POSITION (part time) - Requires excellent technical typing ability and working knowledge of laboratory policies and procedures. Will supply secretarial assistance to nuclear energy systems group. Department of Nuclear Energy.

1258. CLERICAL POSITION (part time/evening) - Requires ability to organize and process technical reports utilizing MICOM text editing equipment. Working knowledge of the MICOM or other related word processing systems is essential. Will supply typing assistance to National Center for Analysis of Energy Systems. Department of Energy and Environment.

OPEN RECRUITMENT: Opportunity for present Laboratory employees and outside applicants.

1259. MECHANICAL TECHNICIAN - AAS degree or equivalent with experience in the proper use of hand tools, the ability to assemble components carefully and the ability to coordinate work with others. Experience in soft soldering and cryogenic devices desirable. Shift work required. Accelerator Department.

1260. DEVELOPMENT ENGINEER - BSEE or equivalent with a background or interest in instrumentation and controls. Should have experience in digital design, microprocessors and analog-to-digital conversion techniques. Accelerator Department/ ISABELLE Project.

1261. DEVELOPMENT ENGINEER - BSEE or equivalent with experience in heavy electronics, power supplies and analog and solid state power conversion techniques. Experience in the multi-kilowatt (5-1000) range of power supplies and/or fast pulsed power techniques is desirable. Accelerator Department/ISABELLE Project.

1262. DATA SERVICES CLERK - To assist in the operations of the remote batch terminal. Familiarity with computer programming, keypunching and the desire to learn operation of tektronix graphic equipment highly desirable. Department of Nuclear Energy.

1263. PHYSICS ASSOCIATE (part time/temporary) - Requires BS/MS in physics or equivalent capabilities in experimental physics. Working knowledge of scientific programming and electronics is essential. Will perform software and physics data analysis utilizing small and large computer systems. Will also be responsible for testing and evaluating electronic components and assisting with the assembly and surveying of experimental apparatus. Physics Department.

1264. ECONOMICS ASSOCIATE - Requires MS or equivalent in energy systems analysis, economics, policy science or city and regional planning. Responsibilities will include data acquisition analysis and preparation of written and oral reports for cost, benefit, and feasibility studies relating to energy conservation programs. Department of Energy and Environment.

1265. TECHNICAL POSITION (Mechanical) - Requires AAS in mechanical technology or equivalent capabilities with working knowledge of performing stress tests of various chemicals and stainless steel materials. Ability to operate furnaces, pressure vessels and electronic equipment is desirable. Work will involve mechanical testing of materials for various scientific staff members of the Corrosion Science Group. (Re-posting of Job No. 1140.) Department of Energy and Environment.

1266. EXPERIMENTAL MACHINIST - Experienced all-round machinist for non-production work in research development shop. Project assignments are from raw material to final assembly, and candidates must show demonstrated ability and imagination in all phases of machine shop work. Experience in job print interpretation, layout and machine set up required. Central Shops Division.

Autos & Auto Supplies

73 OLDS WGN - Custom Cruiser, all pwr, trailer towing pkg, must sell. Asking $1200. 728-0338.

P/S PUMP - Chrysler 1.06 model. $10. 698-0013 after 6.

73 DODGE VAN - 318 V8, all windows, clean in & out, no rust, excel cond. $2300. Joe, Ext. 7961.

68 PONTIAC SEDAN - 6 cyl, a/t, needs little work. $350 or best offer. Ext. 2414/2301.

76 FORD VAN E-100 - new radials, p/b, AM/FM cassette, 38,000 mi, V8. $2500. 475-9131, 1-5 p.m.

(4) ,TIRES - General P155 80D13 (Chevette), w/w slightly used. $10 ea. 929-8317 after 6.

71 MAVERICK - good transp car. $350. Cynthia, 475-1931.

RIMS - (2) 15" Ford dis, like new, $6 ea; (2) Buick 15", very good shape, $3 ea. M. Tesla, Ext. 3284.

77 CHEVY PICKUP - ½ ton, 305-V8 manual w/camper cap, new tires. $3700. Bill, Ext. 4052.

LINCOLN MARK IV - excel cond, all options, silver/ red int. Sacrifice, $4000. 981-1327, 549-8811.

69 FORD STA WGN - ps/pb, a/c, good cond. $350. 289-5380.

TIRES - new, used, rims, repairs, Gillette, BF Goodrich, mag wheel service. F. Usack, Ext. 4798 lunchtime.

68 BUICK GS400 - high mi, new batt & muff tail & eng pipe. $300. Lucille Ext. 2902.

TIRE - inflatable spare for 77 Buick, never used. $20. Nick, Ext. 4701.

TIRES - H78-14 on Ford rims, good cond. $30/pr. Bob, Ext. 2450.

76 TRIUMPH SPITFIRE - excel cond, must see. Beck, 234-9087.

69 CHEVY C-10 - 30,000 on eng, good cond, h/d rear & clutch, good cond. $1000. Ext. 2350.

72 BMW 2002 - eng rebuilt, snows on wheels, excel mech cond. P. Curtis, Ext. 4375, 744-1318.

78 HORIZON - 4 dr, std, hatchback, top cond. $4000. L. Green, Ext. 2933, 473-2764.

75 FORD MAVERICK - 2 dr, 6 cyl, a/t, p/s, a/c, radials, good mi, 48,000 mi. $2000. Fred, Ext. 2057, 261-5735.

75 CHEVY C-10 PICK-UP - 6 cyl, 3 spd shift, 8 ft bed with cap, all weather steel belted w/w radials, full wheel covers (chrome), AM radio, mint condition. $2,995. R. Skelton, Ext. 7520/4220, or 473-4558.

65 EL CAMINO - new eng, brakes, clutch, exhaust, reg gas, excel. 289-3114 eves

73 PONTIAC FIREBIRD - good cond, ps/pb, a/t. $2300. 928-8522.

72 DODGE STA WGN - p/s, a/c. Jim, Ext. 2485.

MOTOR HOME - 4 w/d, sleeps 4, 6 std, set up for beach. $5000. 589-9103.

68 T-BIRD - very good cond, runs well, chrome rims, tilt steering, seats, must see. $500. 588-8492 after 6.

71 CHRYSLER NEWPORT - hdtp, ps/pb, tinted glass, very good cond, clean, no rust. $550. Ext. 3783.

74 PLYMOUTH FURY - excel cond, ps/pb, a/c, snows. Jim, 981-6780.

14" & 15" Wheels - 5-hole, species unknown. $2 ea. Ext. 2493.

72 RENAULT R-16 - hatchback, new tires, recent valve job, excel mpg. $800. 286-2320.

76 CAPRI - V6, sunroof, 4 spd, 35,500 orig mi, 26 mpg hwy, mint. $3300. Bob, 286-8116.

BODY PARTS - 69 Chevy carryall. John, Ext. 4976, 744-4386.

69 TOYOTA - a/t, new exhaust sys, tires, snows, batt, starter, good body, needs eng work. 751-7140.

74 TOYOTA CELICA GT - 5 spd, silver, a/c, AM/ FM cassette, michelin tires, good cond. $2000, must sell. Ext. 2008, 928-5875.

70 VW - AM/FM, 4 spd, new eng, good gas mi, A-1 cond, must sell. $1000. Ext. 3284, 981-2872, 588-4703.

Boats & Marine Supplies

11' SAILBOAT - 2-man, fiberglass hull over wood, 1 sail, bargain. 289-0925.

SEAGULL OUTBOARD ENG - 5½ hp 1978, long shaft, used 1 season, like new. $390. Wes, Ext. 3760.

1977 MERC OB - 115 hp pwr trim, tank, controls, prop, excel cond. 281-6325 after 5.

Miscellaneous

MOVIE CAMERA - XML super 8 f1.1, auto exposure, auto zoom, used once, $50; movie projector, super 8mm, std 8mm , zoom control, used once, $40. Jiri, Ext. 3589.

CANNON AE-1 - almost new, w/flash, $250; bar stools, $5 ea; new 15 ton hydraulic jack. 399-5095.

SINGER SEWING MACHINE - zig-zag, hemmer, wood cabinet, 9 yrs old. hardly used, $325 new. Make an offer. 281-0804.

METAL DESK - 2½'x5', w/stool, good cond. $65. 286-3565.

HOUSEHOLD ITEMS - humidifier, blender, hair dryer, bicycles, fan & others. Ext. 3009.

CRAFTSMAN JIG SAW - 26" throat, 37" overall, no motor. $50. 475-2075.

SLIDE PROJECTOR - new, timer, autofocus, etc. $125. Ext. 2403/3206.

¾ HP MOTOR - Franklin f/jet pump, 115/230v, rebuilt, like new, fully guaranteed. 924-3236.

NEW NAVY PEA COAT - never used, size 42. $35. Ext. 3254.

CONSOLE COMBO - stereo hi fi, record player, AM/FM radio, tape deck & recorder + 2 mikes, $125; receptionist's desk & chair, cocktail table, leather chair & ottoman. 472-4025.

BATH TUB - 5', white, l.h. drain, very good $20; stove, airtight, Gibraltar III, used little, cost $500, sell $350, cash & carry. 588-0805.

SINGLE SLIDE PROJECTOR - Kodak 35mm, 300 watt, new cond. $55. Ext. 4058, 286-0436.

23" RCA COLOR TV - console, working cond. $50. Sal, Ext. 2460.

CRIB MATT - $20; car seat, $10; changing table w/ matching curtains, $7. Paul, Ext. 4156.

FREE - 6 wk old puppies, 2 males, 2 females. Ext. 7654, 472-0172.

MIRROR-SCOOTER - $2; tour-a-bed, $9; 10-gal tank w/slate bottom, $9. Sue, Ext. 4267.

MAILBOX - $2 (door mount); hair dryer, $5; dice game, $4; wig holders, 50¢. Susan, Ext. 4207.

ROCKING CHAIR - colonial maple, $60; ladderback chair, rush seat, ebony, $30; desk, 3 drawer, 43", 2-tone fruitwood contemp, $75. Jack, Ext. 7942, 864-2236.

MAGNIFIER - Stereoptic 6x8 w/neon light, $50; car coat, men's med, brown corduroy, quilted lining, $35. 751-2867.

HEAD SKIIS - 190cm, good cond. Carol, Ext. 4398.

BABY DESSER - $40; dressing table, $20; both good cond. 286-3565.

HEAD SKIIS - 5' Nevada bindings, poles, boots, like new. $85. 331-3024 after 6.

DIN RM MIRROR - 52x40, excel, best offer; fold-away cot; brass fp set, best offer; mirror, 2'x2'6"; 2 lamps, best offer (ea piece). Ext. 3139.

FIGURE SKATES - size 4. $8 or best offer. 286-3742 eves & weekends.

STOVE - elec, GE 30", gold, window door, excel cond, 4 yrs old. $150. 331-2779.

ICE SKATES - size 7, blk. $10. 878-2615.

40" ELEC RANGE - GE. $25. Linda, 929-3023.

AIRTIGHT FP INSERT - Timberline, 2 mos old, Cost $749, sell $549; fp tubes w/blower, 1 yr old, cost $85, sell $50. 281-2549.

GIRL'S ICE SKATES - size 7, $5; 2 girl's watch stretch bands, 1 gold tone, 1 silver, non-working watches incl, $4 ea. Ext. 4324.

CONTENTS OF HOUSE - 35 Leonard Lane, Centereach, month of February. 588-2596.

HAM RADIO - Drakes T4XB trans R4B rec, MS4 pwr supply MN2000, matching network, mint cond. $700. 281-4439.

Real Estate

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

For Sale

MASTIC BEACH - 3 bedrm ranch, corner lot, roofed patio, pleasant loc near water. Low 30's. 281-7531.

SOUTH HAVEN - 3 bedrm ranch, D/R, full bsmt, Franklin stove, patio, oversize gar, near lab & park, 49 Candeta. $40,000. Ext. 3210, 281-6535.

MASTIC BEACH - 4 bedrm cape, near water, stores & schools, L/D, D/R, eik, porch, $1100 taxes, 160x 100, 8% Farmers Home mtg. Asking $28,000. Ext. 3284, 281-0360.

BELLPORT - south, prime loc, old-fashioned charm, 9-rm, 2-story colonial, oak & tile fp, lg D/R, duplex den, 4-5 bedrms, 3 baths, 2-car gar, gas heat, .6 acre. $55,000. Anne, Ext. 3404, 286-3764.

SHOREHAM - prime loc N of 25A, 4 bedrm ranch, DR/LR w/fp, country kit, den, ent hall, 2 baths, lg deck, 5 appl, 2-car gar, ½ acre, beach rts, must sell. Low 60's. Ext. 3462, 744-8449.

BELLPORT VILLAGE - 3 bedrms, lg eik, all appl, att gar, patio, stockade fenced rear yard. $37,000. 286-0795.

MEDFORD - close to LIE, mother/daughter, all newly remodeled on ¾ acre incl buildable lot, upstairs 3 bedrms, LR/DR w/fp & w/w down stairs, eik, 1 bedrm, L/R, sep elec & heat. $53,000. 475-2769 after 5.

SOUND BEACH - great investment, mother/daughter house, must see. Make me an offer. Ext. 2926, 281-0268.

GLENS FALLS - 1½ story colonial style, 3 bedrms, 2 baths, country kit, gas heat & hot water, near downtown. $24,500. Ext. 2501, 765-2953.

1 ACRE PLOT - over 100'x400', quiet, non-development residential area, ideally located for space oriented family, minutes from Lab. Asking price negotiable. 924-3236.

BELLPORT SOUTH - walk to beach, golf, tennis & shops, beautifully planted 1 acre, garden, fruit trees, playhouse, excel cond, 4 bedrms, 1½ baths, gas heat, city water. 286-2320.

For Rent

RIDGE - 3 bedrm L-shaped ranch, lg L/R, eik, full bsmt, 5 min from Lab, will rent for 6 mos. $400/mo + util, immed occupancy. 981-5993 after 6.

WADING RIVER - sm Cape Cod, 2 bedrms, fp, all-yr sun porch, cathedral ceiling L/R, across from Sound, beach rights. $350/mo. Ext. 4444.

SHIRLEY - near Lab, apt in house, bedrm, L/R, bath, kit & heat. $265/mo. Connie, 981-3256.

WADING RIVER - prvt house, 2 bedrms, kit, dinette area, washer/dryer, walk to beach, 15 min from Lab. $300 + util. Ext. 4768, 929-6677.

PORT JEFFERSON STA - house w/att gar, 2 bedrms, L/R, full bsmt. $300 + util. 473-0484.

MANORVILLE - 1 bedrm chalet w/view, a/c, dishwasher, fp, w/w, 3/7-9/1 for $312 + security, or 2 yr lease for $322 + security w/club membership free. Ext. 2028.

Wanted

DOG SITTER - 2 wks, 2 wire hair terriers, April 12 thru 26, reliable. $50. Lois, Ext. 2921.

BABYSITTER - for 9 mo & 3 yr old, adult, on site or Shirley, Mastic Beach. Ext. 4495.

ROOMMATE - $175/mo incl all util, Brookhaven. 286-9249.

DEHUMIDIFIER - for basement use, reasonable. 589-5490 eves.

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

COMIC BKS - for my collection, goodbye old comics, hello new TV. John, Ext. 4543, 924-4262.

GM CHILD LOVE SEAT - reasonable, have 1, have twins, need 1. Jeannie, Ext. 2364.

TRAINS - toys, also wind-up, top prices, collector. Al, Ext. 7772, 751-8962 after 6.

WOMEN FIELD HOCKEY PLAYERS - need club players, affiliation Suffolk County Field Hockey Assoc. Call Karen, Ext. 2456.

LAWNMOWER - rotary 20", in good cond, Briggs & Stratton motor preferred. 286-8724.

USED FILE CABINET - 2-drawer; used, reliable washer, baby carriage; playpen. Jean, 399-5095.

ORGANIST/CHOIR DIRECTOR - for April & May. I. Meyer, Ext. 3038.

Car Pools

BAYPORT - existing car pool needs 1 more driver. Ken, Ext. 3574, 472-3329.

PATCHOGUE - driver needed for prompt 4-man car pool, 8:30 -5:00. Joe, Ext. 4477.

SETAUKET - 1 driver/rider for 8:45-5:00. Ling Ling, Ext. 2864.

PATCHOGUE - driver to compl existing car pool. Bob, Ext. 3309.

MDDLE ISLAND - form or join for 8:30-5:00. Sam, Ext. 4386.

Lost & Found

LOST OR BORROWED - blk ring binder of reprints of calorimeter papers. P. Gollon, Bldg 902B, Ext. 7799.

FOUND - several car/truck keys on road to south gate 1/29. Anne, Ext. 3404.

Services

TAXES - prepared by tax consultant, your home or mine, reasonable. John, 732-2472.

FIREWOOD - full cord, hardwood, seasoned, split, delivered. $129; half cord, $68. Lou, 281-7273.

JEWELRY REPAIR - gold & silver repaired & polished. Dan, Ext. 3289.

HOUSECLEANING - on Sat or party, serving weekends or night. Joan, 281-3183.

FIREWOOD - cut, split, delivered, all hardwood. ⅔ cord, $100; full cord, $139. Ken, 924-3756.

FIREWOOD SPECIAL - 4'x8'x18" all seasoned & delivered. Russ, LT9-0750.

AUTO BODY - ext & int repair, cond & custom design, expert. Carl, 698-2235.

FIREWOOD - split, seasoned oak, 4'x16'x18". $110 delivered. 924-4284 after 5:30.

EXPERT TUTORING - by certified teacher in my home, all elem subjects, HS math, French, German. $10/hr. 941-4328.

BABYSITTING - good care, meal incl, nurse on duty. $5/day, weekly & hourly rates. Lynn, 475-6326; Jean, 654-9446.

RUGS CLEANED - steam cleaned, 2 rooms, $25. Call Bob, 286-8116 or Jim 924-3689.

Ads left out of this issue due to lack of space need not be re-submitted to appear in next week's issue. Please note that ads may not be more than 15 words long and must be received in the Bulletin office by 4:30 p.m. Friday, for inclusion in the following week's Bulletin.

Classified Ad Policy Deadline is 4:30 p.m. Friday for publication Friday of the next week.