BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Computing Corner

Personal Computers

This article is the third in an occasional series of stories addressing the changing role of the Applied Mathematics Department (AMD) at BNL.

A stereotype in journalism is the reporter standing in the midst of a smoke-filled room, moments from deadline, ripping a sheet of strike-over-riddled copy from a typewriter. Today, reporters, like much of the population, have largely given up smoking. And, with the advent of personal computers, they've also given up most paper copy, typewriters and strikeovers. In fact, about the only part left to the stereotype is the deadline.

Newsrooms represent only a fraction of the workplaces that have changed because of personal computers (PC). In the laboratories and offices of BNL, for example, many scientists and secretaries, technicians and managers, programmers and designers use PCs as the means to their respective ends.

At present, Kurt Fuchel, manager of computer technical information and user support in AMD, says there are close to 300 IBM PCs on site. The influx of PCs began in earnest about two years ago. As various types of PCs came on the market, AMD was besieged with requests for information about many different models. With limited manpower resources, however, AMD could not support a variety of computers. The IBM PC proved the most popular one, and so, for the time being at least, AMD limits its support to IBM PCs and a limited set of peripherals, such as printers, not necessarily made by IBM.

Fuchel believes the PC's popularity is related to its cost, capability and ease of use. "The price of a PC is not much more than a 'dumb' terminal cost a few years ago, and you can do so much more with very little difficulty," he says. Though Fuchel's group will do what they can to assist Lab users who have other types of PCs, they are expert with the IBMs. AMD runs a "computer store," maintaining stocks of IBM PCs, as well as associated hardware and software.

Anyone interested in obtaining an IBM PC should contact Don Litcher, who is responsible for PC hardware support. Litcher and Technician Ed Taylor customize each computer to meet the needs of the requestor, then check it out, deliver it and install it. If a component needs service during the warranty period, they handle it, leaving a "loaner," if need be, while repairs are made. Long-term maintenance is done by an AMD group headed by Mike Losquadro and Ed Brosnan.

Of course, any PC is only as good as its software. That's why Fuchel's group also stocks programs and related documentation to support IBM PCs. Shelves overflowing with new copies of manuals and disks for over 120 programs, the "software store," run by Technician George Taylor, now occupies a small room in AMD. Soon, however, it will move to a new area being readied near the Central Scientific Computing Facility (CSCF). The center will feature the software library, a demonstration section where people can look over new equipment and try out PCs and programs, and a reading room where users can peruse literature from various software companies.

With all the available software, Fuchel believes, "It's a mistake to think of the PC primarily as a machine you sit down and program. For just a few hundred dollars, you can buy a professionally written, maintained, documented, distributed program with built-in tutorial and help functions, which does a lot more than you would be able to do — unless you have a *small* scientific application or a very specific need to analyze data in a certain way. And some people do, because they use this as a data collection device and hook it up to an experiment. But I do not think that is the main use of this machine."

Fuchel sees the main use of the PC as a personal workstation, for such things as:

• **spread sheets** — Basically intended to be used in financial analysis to automatically recompute totals when entries are changed, these programs are also proving useful in other areas. In the Department of Applied Science (DAS), for example, scientist Paul Michael is running models for acid rain research on CSCF computers, then, via intraLab communications, bringing those results into a spread sheet program on his PC, where he does interactive analysis of the results. In another application, DAS Administrator Dick Melucci frequently needs spread sheets for work on electric power distribution and budgets, while communicating with the Hewlett-Packard computers in the Management Information Systems Division. With a terminal emulator program, Melucci's PC behaves like a Hewlett-Packard terminal. With another program, it can do two kinds of processing simultaneously.

• **graphics** — Using a program called Autocad, Lab designers do computer-aided drafting on PCs. Many other programs, such as spread sheets, have built-in graphics capabilities.

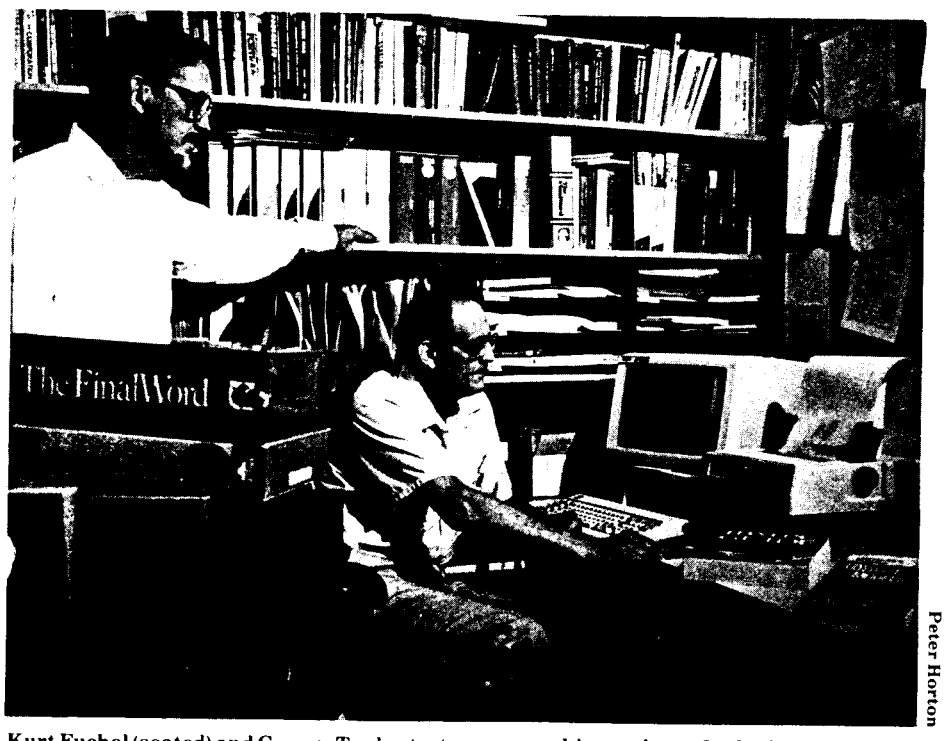
• **data base systems** — Managing data is an essential enterprise at BNL. These systems greatly facilitate the collection and interpretation of data, be it experimental or administrative. Working at the NSLS, Librarian Judy Liu, Technical Information Division, has set up a data base to handle all the technical reports the branch library receives from BNL and around the world. The system is also applicable to other branch libraries and small collections at the Lab.

• **office organization** — When certain programs are entered into a PC, the user can check a calendar, update a schedule, look up a phone number and have the machine dial it, or use a desk calculator, at any time, without affecting the main program in use.

• **word processing** — With word processing, Fuchel says, "I, who know how to type with only two fingers, can write my own memos, edit them and print them." But secretaries, long accustomed to dedicated word processors, are also turning to PCs. They enable Paul Michael and secretary Lola Kopp to work in concert: He drafts a report on his PC, then she takes his disk to her machine for formatting and printing. Also at DAS, new secretarial workstations are being evaluated, where, for example, a PC might be linked to a laser printer, for quiet, letter quality output. At High Energy Facilities, Audrey Blake works with budgets on a PC and would like to use it for more of her work. Now she's investigating scientific word processing programs that can do the math symbols her typing so frequently requires.

• **communications** — With boxes called modems and access to the right networks, a PC user is within easy reach of almost any other computer in the world. From his PC, for example, Fuchel can send documents, via AMD's Gandalf communications device, to the much more powerful VAX computer at the CSCF. There,

(Continued on page 2)



Peter Horton

Kurt Fuchel (seated) and George Taylor test a new graphics package. In the foreground are some of the more popular programs in stock in the "software store" and a few related publications.

Grahn to Head Financial Management

Henry C. Grahn, who has been Assistant Director for Financial Planning since 1976, is moving into a new title and a new office. On October 1, he will become Assistant Director for Financial Management and will move to another office in the Director's Office.

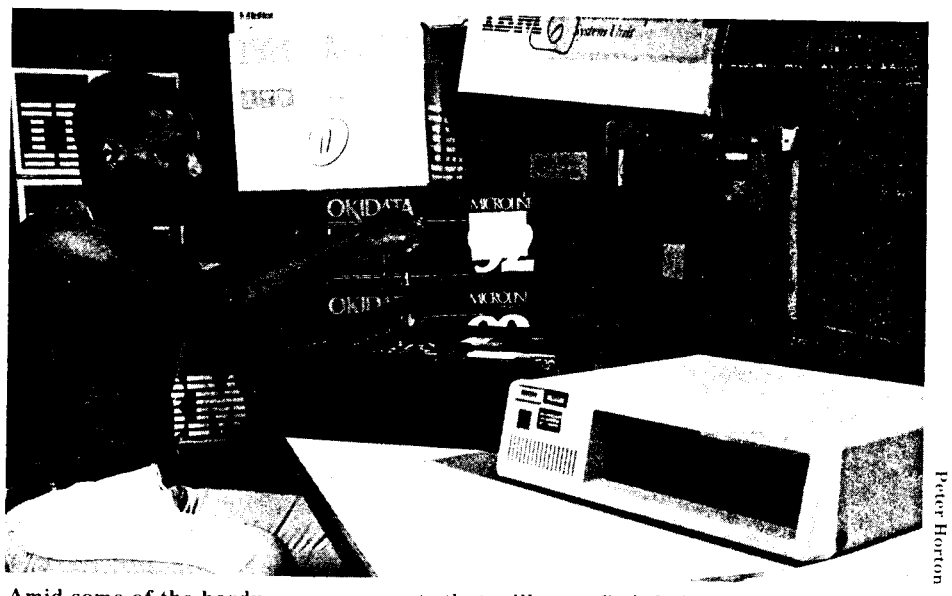
Reporting to Grahn will be the Budget Office, the Fiscal Division and the Management Information Systems Division. The biggest change for Grahn is that, for the first time since 1969, he will not have direct responsibility for the preparation and submission of the Lab budget. A new budget officer will be appointed and a search is currently under way to fill the position.

As Lab Director Nicholas Samios said when announcing the appointment: "This reorganization affords a logical consolidation of fiscal operations and allows for a more effective integration of our resources."

Grahn feels that by the nature of their work, Budget and Fiscal should interact closely and that increased communication and cross training will strengthen this understanding. The Management Information Systems Division has embarked on an ambitious program to upgrade the Lab's administrative information capabilities. Says Grahn, "Much of the current and future work (a new payroll system and a new personnel forecasting and budgetary system) heavily involves the Budget Office and the Fiscal Division. With everybody under the same roof, this should facilitate the implementation of the new systems."

Mort Rosen

Henry Grahn



Peter Horton

Amid some of the hardware components that will soon find their way into offices and laboratories all around the Lab, Ed Taylor prepares an IBM PC for distribution.

Six Avenues of Communication

Blue and white posters listing the six parts of the Employee Relations Program were put up around the Lab last Friday to remind employees that "at Brookhaven, there are many avenues open to you" to resolve any work-related problems. The poster is one-half of the Employee Relations Program's recent effort to let employees know how their work-related problems and complaints can be resolved promptly and fairly.

The other half of this effort is a booklet, which will be distributed next week, to be inserted in the orange Employee Guide binder. The booklet describes what the poster advertises: the Affirmative Action Program, Employee Assistance Program Coordinator, Employee Relations Committee, Employee Relations Counselor, Women's Program Coordinator and the Tune In Program.

"If a situation cannot be solved within a department or division, other options are available," says Edward McFadden, chairman of the Employee Relations Committee, which conceived the idea for the poster. "The poster outlines what these options are and the booklet will describe them."

If a problem is not resolved within the department or division, or if employees prefer not to consult their supervisors, the following avenues, in alphabetical order, are open, with the exception that employees covered by a collective bargaining agreement do not have access to the Employee Relations Committee or the Employee Relations Counselor.

Affirmative Action Program

As Affirmative Action Assistant to the Director, Earl Blanton has the responsibility to inform all employees of the Lab's affirmative action program and to monitor the Lab's equal employment opportunity effort. Blanton can be reached at Ext. 3318, Directors Office, Bldg. 460.

Each department has an Affirmative Action Representative who serves as liaison to the Office of Affirmative Action and to whom problems and questions may also be brought.

Employee Assistance Program Coordinator

Clinical Psychologist Judith Katsin can assist with mental health problems affecting job performance and can provide information on mental health issues. She has counseled employees for such difficulties as alcohol and drug abuse, family, marital and personal problems. All employee communication with Katsin are confidential. Katsin can be contacted at Ext. 4567, in the Medical Building, Room 5-5.

Employee Relations Committee

The seven-member Employee Relations Committee is appointed by and reports to the Director of the Laboratory. Lab-wide policy changes may come about as a result of the Committee's problem solving. The committee reviews problems brought by non-bargaining unit employees themselves or referred by the Employee Relations Counselor.

Any member can be contacted, and the members of the current committee include: Chairman Edward McFadden, Ext. 4005; James Costanzo, Ext. 4040; April Donegain, Ext. 2903; Patricia Fox, Ext. 2939; Betty Heldman, Ext 3699; Vincent Racaniello, Ext. 7336; and Madeline Windsor, Ext. 5069.

Peter Horton

(From left, rear) Assistant Director Jerome Hudis, James Costanzo, Edward McFadden, Personnel & Labor Relations Manager Robert D'Angio and Patricia Fox. (From left, front) Gail Williams, April Donegain, Susan Foster and Judith Katsin holding the new Employee Relations Program poster, Betty Heldman, Madeline Windsor and Vincent Racaniello. Absent from the picture is Earl Blanton.

Employee Relations Counselor

Susan Foster, the Employee Relations Counselor, is available to non-bargaining unit employees to discuss work-related complaints, including personnel problems and problems with Laboratory policies and practices. Foster is located in the Personnel Office, Building 185, Ext. 2888. If she cannot resolve the problem, Foster may, with the consent of the employee, refer the question to the chairperson of the Employee Relations Committee.

Women's Program Coordinator

Gail Williams has been appointed Women's Program Coordinator by the Director to address the particular concerns of women as part of the Affirmative Action Program. She may be found in the Office of Scientific Personnel, Bldg. 460, Ext. 3338.

Tune In !

Tune In! is a means of anonymously questioning Laboratory policies and practices. Orange, pre-addressed Tune In forms can be found in wall boxes at bulletin boards and mail drops. After completing the form, the employee can deliver the Tune In! to the Editor of the Brookhaven Bulletin, Public Relations Office, Bldg. 134, or mail it. The editor keeps the letters confidential and acts as a go-between to obtain an answer from the appropriate source within the Lab; she may assist in preparing replies, but is not the source of the reply.

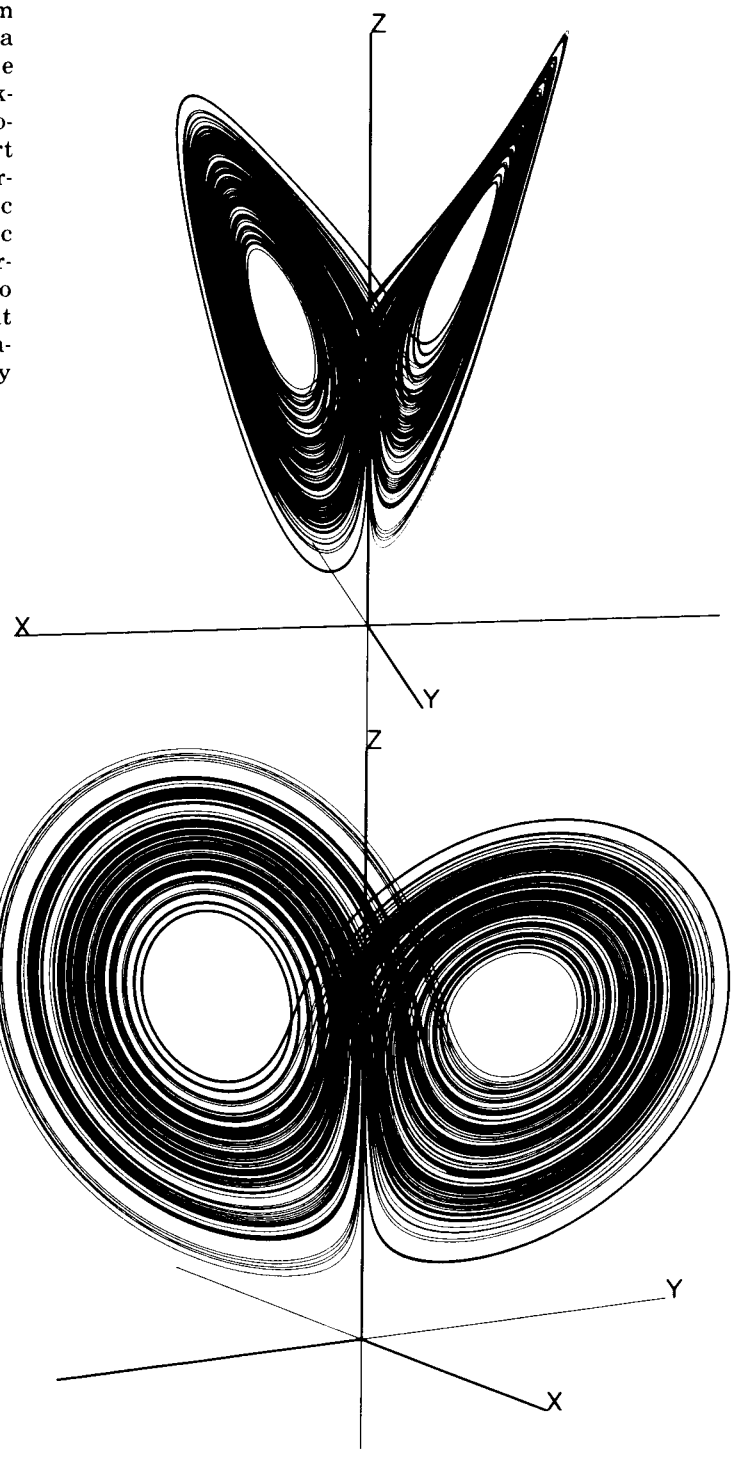
Computers (Continued)

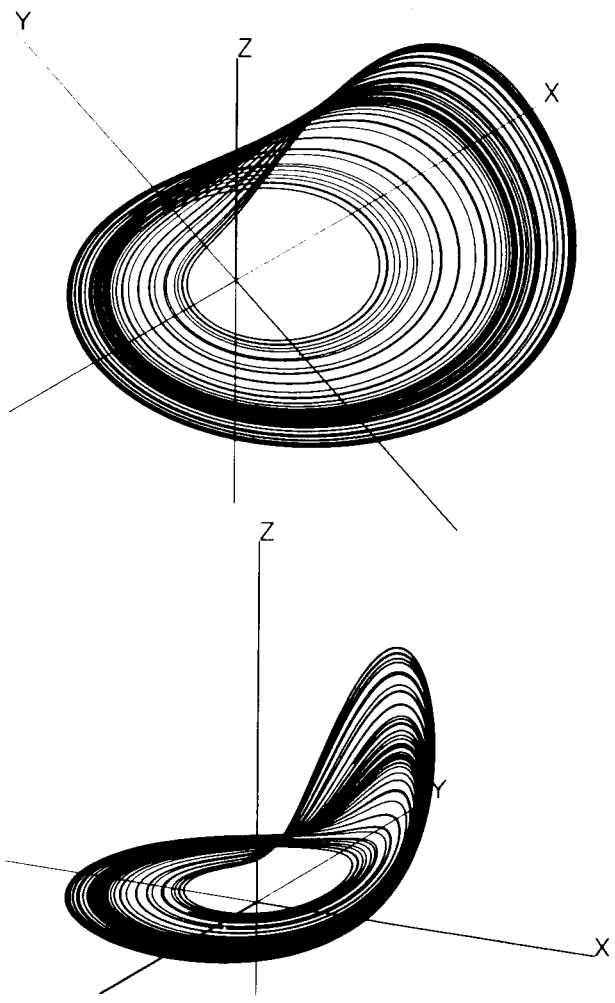
his data can be computed further and/or faster. Or it might be processed through a program called TEX. When run on the laser printer hooked to the VAX, this typesetting program produces printer quality documents.

And speaking of typesetting, anyone with a PC can have documents typeset by the Composition Group in Photography & Graphic Arts. That's what happened with this Bulletin story, which was written on a PC in our "newsroom," using word processing. No typewriter was involved and any hard copies were strikeover-free. When completed, the story was telecommunicated to Composition for typesetting — in plenty of time to meet this week's deadline.

— Anita Cohen

To the uninitiated these drawings may appear to be clam shells, a party mask and a figure-eight racetrack. But to a mathematician, they are representations of "chaos." The illustrations appear in Bruce Stewart's published Brookhaven Lecture, "The Geometry of Chaos," and were produced on the COMp80 micrographics system. Stewart explains, "Chaotic dynamics might be defined as apparently random recurrent behavior in a simple deterministic (clockwork-like) system." These pictures are of chaotic attractors. Below, a three-dimensional trajectory of differential equations on a Rössler band attractor seen from two different vantage points. The Lorenz attractor on the right was the first chaotic attractor observed by computer graphics, in 1963. Copies of Stewart's lecture, BNL 51892, may be requested from JoAnn Langan, Ext. 4142.





PC Postscripts

It's illegal to copy software. Even if it's not copy-protected, it's still copyrighted.

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The expression "boot up," which computer users use to indicate that they are loading a program into a computer, comes from the expression "pull up by the bootstraps." Kurt Fuchel suggests that the expression arose because starting a computer activates a very small program, which then loads a larger one.

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Disks should be protected from any particulate matter. In addition to dust, smoke can affect disk drives and disks. AMD's Don Litcher advises that disks should always be covered and kept away from "heat, electromagnetic sources and peanut butter and jelly."

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If you have any questions about IBM PCs, you should go to AMD. For hardware help, contact Don Litcher, Ext. 7587; for software assistance, call Kurt Fuchel, Ext. 4116.

BROOKHAVEN BULLETIN

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Sales Office Hours Changed

As of Monday, September 9, the BERA Sales Office in Berkner Hall will be open from 9 a.m. — 2 p.m.

Pool/Gym Schedules

Swimming Pool

Open: Saturday and Sunday, August 31 and September 1
Closed: Monday, September 2, Lab holiday
Normal Schedule — Beginning Tuesday, September 3.
Weekdays, Monday through Friday
11 a.m. — 1:30 p.m. (employees only)
5 p.m. — 9:30 p.m. (employees/families/ guests)
Weekends, Saturday and Sunday
1 p.m. — 6 p.m. (employees/families/ guests)

Present season tickets are valid through Monday, September 30. A new four-month season will begin on Tuesday, October 1.

Daily Admissions:
employee/family member $1.25 each
guest 1.75 each

Gymnasium

Closed: Saturday, Sunday, and Monday, August 31, September 1, and September 2.
Maintenance Closing: Tuesday, September 3 through Friday, September 6
Open: Saturday, September 7
10 a.m. — 6 p.m. employees/family members/guests
Open: Sunday, September 8
1 p.m.— 6 p.m. Indoor tennis (sign-up system)
Beginning Monday, September 8, Monday through Friday
11 a.m. — 2 p.m. (employees only)
5 p.m. — 9 p.m. (employees/families/ guests)
Saturday:
10 a.m. — 6 p.m. (employees/families/ guests)
Sunday
1 p.m. — 6 p.m Indoor tennis (sign-up system)

Guest Ruling (Applies to all recreation facilities)
One Guest - An employee is allowed to bring one guest per visit without special permission or prior arrangement. The guest must be accompanied by the employee.
Two to Five Guests - Advance arrangements for two to five guests may be made at the Recreation Office. (No more than five guests per employee is ever permitted.) When such an arrangement is made, the Recreation Office issues an admission card stating the sponsor's name and life number, the number of guests permitted, the date of visit, and the facility to be visited. Guests must be accompanied by the employee, who will be requested to show the admission card at the main gate and at the swimming pool ticket desk.

Aviation Club

The Aviation Club invites members and non-members to join the club for their next fly-in planned for Tuesday, September 17 to Block Island. Call Bob Larson on Ext. 4656 if you would like to participate.

1985-86 BERA Concert Series

The first concert of the new season is less than two weeks away, so mark your calendar for this and the other concerts scheduled at Berkner Hall.

September 12
Agustin Anievas, pianist
October 16
Ensemble for Early Music
November 22
The Concord String Quartet
March 11
The New Zurich String Quartet.
April 15
Musica da Camera Praga.

All concerts begin at 8:30 p.m. and are open to the public.

Admission is $9 for adults, $6 for students and those over 65, and $5 for those under 18. Block tickets, good at any concert, are available at $6 each for five or more tickets. Deadline for their purchase is the night of the first concert. Single tickets for each concert will be sold at the door, and all tickets may be purchased in advance from the following:

Arnold Aronson	475B	2606
Clemens Auerbach	197D	2914
Howard Gordon	510A	3740
Geoffrey Hind	463	3400
Richard Holroyd	555A	4329
Blanche Laskee	185	2873
Donald Lazarus	911B	4643
Myron Ledbetter	463	3418
Benjamin Magurno	197D	5207
Edwin Popenoe	490	3622
Stephen Schwartz	426	3100
T. Laurence Trueman	510A	3767

Met Opera Tickets

Tickets for the 1985-86 Metropolitan Opera Season will go on sale at the BERA Sales Office in Berkner Hall at 8:00 a.m. on Wednesday, September 11. On-site employees may purchase as many pairs of tickets as they wish. All sales will be final; no refunds or exchanges.

Copies of the schedule, including a listing of available Family Circle seats, may be picked up at the Sales Office between the hours of 9:00 a.m. and 2:00 p.m. For more information call Ext. 3347.

Golf

The sixth tournament of the BGA golf season will be held on Monday, September 16 at the West Sayville Suffolk County Golf Course. The tournament will be run as a two-player, pick your own partner, team scramble, with teams playing in flights based on the combined team handicap.

Tee times will begin at 11:30 and may be obtained by contacting John Usher, Ext. 2096, Bldg. 130. There will be a $1 entry fee for BGA members and a $2 entry fee for nonmembers. Deadline for signing up for the tournament is Monday, September 9. Those interested in playing, but who are unable to find a partner should contact Usher.

Softball

Games of August 19
League I
Ravens 22 - Phoubars 8
Cool 'N Gang 11 - Blue Jays 10
Moles 9 - Six Pax 8
Protested game of 6/25:
Ravens 11 - Phoubars 5
League 11
Magnuts 27 - Random Errors 6
Makeup game of 7/31:
AMD 7 - Random Errors 5
League III
No games reported
League IV
Mole-Esters 11 - Who Cares 6
Turkeys 7 - Kidz-R-Us 3
Septembers 14 - Farm Busters 12
League V
Foul-Ups 14 - Space Kadets 6

Peter Horton

A 1915 Model T.

Model Ts on Tour

Last week Friday, a dozen Model T Fords putt-putted down Brookhaven Avenue on their way to the Exhibit Center. Earlier in the day, they had been parked near the tennis courts, drawing a crowd of lunchtime visitors. Not since Camp Upton days has the site seen so many Model Ts, which was Ford's first mass-produced car.

The antique cars belong to members of a Connecticut Model T Ford Club, who were on a tour of Long Island. Dressed in period costume, the club members attracted nearly as much attention as their cars as they got their lunch in the cafeteria, went off to Berkner Hall to watch the Lab's slide show, Quest, and then leisurely caravanned up to the Exhibit Center for a visit. One BNL antique car aficionado commented that Model Ts can get up to about 40 mph, but they tend to rock and roll at that speed because of the front spring.

The Model T Club tour was arranged by the Public Relations Tour Program, which throughout the year handles special interest groups such as this one, as well as groups from schools, professional societies and other organizations.

The Tour Program also handles summer tours, which just ended last Sunday. All told, with equal numbers from the summer and weekday tours, Brookhaven has been visited by over 16,000 people in the past year.

Cafeteria Menu

Week Ending September 6

Monday, September 2		
Snack Bar Service 9:00 a.m. - 2:00 p.m.		
Tuesday, September 3		
Cream of chicken soup	(cup)	.65
	(bowl)	.85
Roast turkey w/stuffing & cranberry sauce		2.30
Veal scallopini & 1 veg.		2.30
Hot Deli: Knockwurst & sauerkraut	(bread)	2.15
	(roll)	2.35
Wednesday, September 4		
French onion soup	(cup)	.65
	(bowl)	.85
Baked meatloaf & 1 veg.		2.25
Roast pork loin w/apples & prunes & 1 veg.		2.30
Hot Deli: Chili dogs		2.25
Thursday, September 5		
Lentil soup	(cup)	.65
	(bowl)	.85
Chicken Cordon Bleu & 1 veg.		2.35
Broiled flank steak & 1 veg.		2.40
Hot Deli: Pastrami	(bread)	2.15
	(roll)	2.35
Friday, September 6		
Manhattan clam chowder	(cup)	.65
	(bowl)	.85
Old fashioned beef stew w/baking powder biscuit		2.35
Tuna noodle casserole & 1 veg.		2.25
Hot Deli: BBQ fresh ham	(bread)	2.15
	(roll)	2.35

R/C Model Club

The regular meeting of the R/C model airplane club will be held on Tuesday, September 3, at noon, at the club field. All interested are invited to attend.

Food Service

At the cafeteria, the snack bar will be open from 9 a.m. to 2 p.m. daily on Saturday, Sunday and Monday, August 31, September 1 and 2.

The Tap Room at the Brookhaven Center Club will be closed on Saturday and Sunday, reopening at 5 p.m. on Monday, September 2.

The vended food service in Building 912 will be in operation throughout the Labor Day weekend.

Hospitality News

The Hospitality Committee's next morning get-together will be Tuesday, September 3. We will meet at the Brookhaven Center at 9 a.m. for coffee, tea and danish. At 9:45, we will leave the Center and go to Berkner Hall to see a movie about the new Danish House, which is located in the apartment area. After the movie, we will go on a tour of the house.

Wives of Laboratory employees and guests are welcome. Please come and bring the children. Babysitting will be provided free of charge.

Arrivals & Departures

Arrivals

None

Departures

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

Rabindranath Bandy ..... DNE
Roland A. Brocke ..... Physics
Sheree L. Flippen ..... DNE
Ioannis A. Papazoglou ..... DNE
Deborah M. Rodhouse ..... DAS

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. 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.

2312. FIREFIGHTER/EMT - Previous substantial firefighter experience is required. Completion of New York State EMT course and possession of training certificate is highly desirable, if not, completion of course within one year is required. Must be willing to work shifts at the completion of a thirteen week training period. Safeguards and Emergency Services Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2313. INDUSTRIAL HYGIENIST - Requires an MS or equivalent in industrial hygiene, toxicology, environmental health, occupational epidemiology, or a related field plus several years of relevant experience. ABIH certification and computer application skills are desirable. Safety and Environmental Protection Division.

2314. TECHNICAL POSITION - Requires an AAS degree or equivalent experience in electronic technology or related science fields. Familiarity with reactor safety, control and process instrumentation, and previous reactor experience desirable. "Q" clearance required. Reactor Division.

Autos & Auto Supplies

EARLY BUICK - or Jeep V-6 parts, blocks, heads, pistons, etc.; (2) 350 Chevy blocks, $50 ea.; Manley pistons, 043 rings, $150; alum. super rods, $100. Bill S., Ext. 4434 or 399-6168.

81 AMC EAGLE - p/s, p/b, a/c, 6 cyl., stereo, new clutch, 4 wd, clean in/out, runs great, $5,000 firm. Rose, 744-5069.

76 FORD PINTO - good running cond., clean in/out, $500. 567-8618 after 6 p.m.

79 RABBIT - 2 dr., 5 spd., excel. cond., new brakes, struts, $1,895. 751-1347 after 5 p.m.

76 HONDA 750 - good cond., reasonable. 363-7032.

74 FORD MAVERICK - many new parts, best offer. 732-6871.

74 FORD SQUIRE WAGON - a/t, p/s, p/b, a/c, am/fm cassette, rebuilt eng./trans., new elec. ign., comp. tuneup, snows/wheels, $1,200. John, Ext. 2050 or 588-6853 after 6 p.m.

71 VW BUG - 4 spd., runs but needs work, best offer. Ext. 3670 or 744-1760 eves.

73 VOLVO 1800ES - am/fm, cb, radar, a/c, 4 spd. w/overdrive, new cam, clutch, tires, exhaust, $2,700. Jim Boomer, Ext. 4669.

73 BUICK ELECTRA 225 - runs excel., many new parts, $300. 981-5993 after 6 p.m.

80 VW RABBIT - 4 dr., 4 spd., diesel, 80k mi., excel. cond. Scott, 661-3777 or 281-1862 after 5 p.m.

80 FORD SUPER WAGON - V-8, 15 pass., a/c, am/fm cassette, cb, dual fuel tanks, cruise cont., a/t, encl. roof carrier w/lock, excel., best offer. 286-2020 after 8 p.m.

81 PONTIAC PHOENIX - 4 dr., hatchback, excel. cond., 4 cyl., a/t, a/c, p/b, p/s, new tires, $3,500. Ext. 3504 Tues. and Thurs. or 878-1013.

RIMS - 6.00-13; 8.25-14; 5.50-16. Dolores Janes, Ext. 2950.

73 OLDS 88 - good trans. & eng., needs body work, good for parts, $75; 72 VW 411, station wagon, a/c, good in/out, good for parts. Ext. 2705.

78 PONTIAC WAGON - $2,800. Ext. 2058.

TIRES - (1) L78-15; (1) J78-15; (2) G78-14 snow, $10 ea. Tony, Ext. 7772.

69 CHEVY - 9 pass. wagon, $350; 1975 Suzuki 400 cc, $450; several 14" tires, some w/rims. John, Ext. 4214 or 475-5543.

73 PONTIAC - good shape, runs great, $650. 588-1464.

72 TRAILER - 19', sleeps 6, Tandem wheels, $2,100 neg. 588-1464.

74 CHEVY WAGON - V8, p/s, p/b, a/t, clean, excel. cond., $900. Lengeler, Ext. 3525 or 5611.

78 OLDS 88 - 4 dr., a/t, a/c, p/s, p/b, new tires, battery, excel. cond., $2,800. Ext. 4169 or 981-5696

80 RENAULT LE CAR - very good cond., 47k mi., $1,600. Jerry, Ext. 5506 or 732-4701.

82 PLYMOUTH RELIANT - 4 cyl., 4 spd., 4 dr., excel. cond., $3,895. Ext. 2674 or 325-1322 after 5 p.m.

77 CAMARO LT - 3 spd., p/s, spoiler, cassette, runs well, looks good, $2,800 neg. Steve, Ext. 5163 or 475-6964.

73 MERCURY COUGAR XR7 - p/s, p/b, a/c, a/t, p/w, am/fm stereo cass. w/equalizer, new custom wheels & tires, excel. body & int., $2,100. Barry, Ext. 5624.

75 OLDS OMEGA - p/b, p/s, a/c, am/fm, good cond., snows with wheels. Harvey, Ext. 4550 or 286-8639.

79 PONTIAC SUNBIRD - a/t, a/c, stereo, 57.5k mi., clean, $2,350. Ext. 4175 or 298-4089.

71 FORD LTD - excel. running cond., p/s, p/b, am/fm radio, vinyl roof, $650. Don, 281-7595.

TRAILER - 28' Coachman Bunkhouse, sleeps 9, like new, self-contained, must see, $6,000. 732-5445.

TIRES - (3) GR78-15, 20k mi., left on them, $15 ea. 475-4596.

73 FORD PINTO - good tires, battery, new exhaust, needs some body work, $250. Ext. 3705 or 862-7998.

INSPECTION EQUIPMENT - New York State, various types. Dan, Ext. 4677 or 698-7322.

TRAILER - add-a-room, 10'x12', zipper top to awning cont. Helen, Ext. 4677.

74 PINTO WAGON - 56k mi., inspected 7/85, incl. 4 spare tires, (2) snows, $700. Raul, Ext. 4331 or 924-1421.

FORD RIMS - (2) 15", with H78-15 tires, $8 ea. Mike, Ext. 2705.

73 VW BUG - 4 spd., still runs, needs work, best offer. 281-8458 eves./weekends.

71 DODGE CHARGER - 318, runs well, $500. Don, Ext. 2075 or 654-2106.

77 HONDA CIVIC - 38 mpg, 40k mi., rebuilt motor, stand. trans., good mech., $925. Ext. 3164.

RIMS - (4) white spoke, 8x15, chrome nuts, hub covers, no rust, 5 hole. Bob, 467-4222.

72 DODGE CHARGER - white, runs well, body good, $600. Gary, 472-3278.

74 BLAZER - blue, 36" tires, roll bar, 4 spd., 4x4, V8, many new parts, good cond., $2,200. Vera, Ext. 5064 or 929-8294.

73 PONTIAC CATALINA - 350, V8, 4 dr. sedan, p/s, p/b, a/t, 76k mi., $700. Bill, Ext. 4774.

76 FORD PINTO - new muffler, battery, good cond., $975. Lenny, Ext. 2091 or 422-2416.

76 OLDS DELTA 88 - 4 dr., 8 cyl., a/t, a/c, p/s, p/b, (2) snow tires. 475-5789.

78 MAZDA - 2 dr. sedan, excel. running cond., $1,350. 265-0501 after 6 p.m.

79 MONTE CARLO - 267 eng., excel. cond. in and out, 73k mi., $2,500. 924-0960.

81 CHEVY CHEVETTE - excel. cond., $2,000. 473-5289.

76 NOVA CORONET - 2 dr., a/t, 55k mi., good cond. 369-1768 after 4 p.m.

52 CHEVY TRUCK - engine & body excel., $2,000 firm. Rick, 698-1838 after 5 p.m.

74 INT. PICKUP - a/t, heavy duty, 3/4 ton, new brakes, battery, trans., good tires, recently insp., 50k mi., $1,500. 751-8240.

FIBERGLASS CAP - 8' bed, sliding front window, 2 roof vents, excel. cond. 325-0447 after 6 p.m.

Boats & Marine Supplies

MARINE SEXTANT - professional model, hand-bearing compass, both in traditional hardwood cases. Ext. 2482.

22' SAILBOAT - all glass Mac Wester, sloop-rigged, sleeps 4, galley, head, price neg. 324-3246.

90 HP MERCURY - 1978, lower unit w/SS prop., brand new pump, comp. engine, good for parts, $600. Ext. 2939.

25' CHRIS CRAFT - 10' beam, new engine, water jackets, many new extras, $7,000. 234-7225.

27' O'DAY - 1977 Atomic 4, (4) sails, UHF, knotmeter, fathometer, $21,000. Bob Drew, Ext. 3575 or 689-9089.

23' CONNELLY - wood skiff, 6 cyl., Chevy inboard, center wheel house, extras, $1,200; 36' Gibson houseboat, 318 cid Chrysler, loaded, excel. cond. Ext. 2075 or 654-2106.

16' MFG - 1972 Tri-hull, full canvas, '79 Mercury 50 HP motor, elec. start, '83 Cox galvanized trailer, extras, $2,800. 281-8458 eves./weekends.

30' CATALINA SLOOP - tall rig, furling, wheel, instruments, dodger, radio, many extras, $37,000. Ext. 2015 or 269-2974.

KAYAK - Fox Waveski, extras, $425. Paul, 286-3923.

ANCHOR - for small boat. Ext. 4846.

19' CAP COD SKIFF - fiberglass, Hong Cong sails, needs repair, bring your own trailer, best offer. Harvey, Ext. 4550 or 286-8639.

12' ALUMINUM BOAT - heavy duty, excel. cond., $300. 369-0432.

SOLAR CHARGER - 2-5 amps/hr., for marine installations, never used, $400. Ext. 4142 or 286-0745 eves.

Miscellaneous

BICYCLE - 10 spd., Shogun, used once, $100; Admiral freezer, 13.2 cu. ft., $100. 744-4133 between 5-7 p.m.

CANNING JARS - (4) dozen, $3 dozen; hand push lawnmower, $10; lawnspreader, $10; high chair, $7; playpen, $7; dresser, $40. 878-6637.

MOWER - sit-on, Sears, pull start, all O.K., $150 firm. 924-6751 eves.

WOOD SHUTTERS - exterior, (4) pairs, 43"x14", $5 pr.; alum. storm and screen door, 36"x79", $8. 744-9474.

POOL TABLE - Brunswick, 3/4 slate, auto. ball return, Belgium balls, (6) sticks, $225. Jim Boomer, Ext. 4669.

BICYCLE - 2 spd., Schwinn, $18; sturdy dinette set, formica, $30; highchair, $7; playpen, $7; 5 gal. crock, $12. 878-6637.

TABLE SAW - 7-1/2", 1 HP motor, belt drive, plus access., $75. Victor, Ext. 2395.

BEDROOM SET - Bassett, dk. pine, Colonial, excel. cond., $800 neg.; brass candlestick lamps, $45 pair. Karen, Ext. 4262.

HOT TUB - 6' dia., Muskin Redwood, complete with 6' round insulated hard cover, used one season. F. Thomsen, Ext. 7684.

CHAIRS - (2), good cond., burnt orange w/brown flowered cushions, $75 pair. Susan, Ext. 4267.

FISHING REEL - antique, German, silver; drapes, (2) pair, beige, rust & blue, 80" long; fur jacket, size 12-14, brown. 924-8722.

TYPEWRITER - Smith Corona, elect., new, $215. 363-7032.

MOLDING - 2-5/8", Sprung Crown, white, good cond., 190 ft., .25¢ ft., or $40 for all. Ext. 2452.

ANTIQUE BOTTLES - milk, tonic, elixir, etc., early 1900's, name your own price. Dan, Ext. 4677.

PUNCH BOWL - canvas for oil painting; curtain rods, 5.5' and 7'; ceramic steak cooker; meat grinder, slicer. Ext. 3482.

FENDER AMP - pre-CBS, deluxe reverb, $200; Les Paul type elec. guitar, $50. 751-3551.

BASKETBALL RIM - $5; children's adj. metal stilts, $20; Reese single lever equalizer hitch, $50. Ext. 4846 or 363-6940 after 5 p.m.

DINING ROOM SET - Burlington, all oak, large table, (2) leaves, (6) chairs, china closet, mint. Ext. 2438 or 689-8958.

TWIN BED - (2) box-springs, like new, $40 ea.; hair dryer, salon-style, excel. cond., $20. Ext. 3370.

MEN'S BIKES - (2) 10 spd., 27", $40 & $50. Artie, Ext. 2674.

ELECTRIC TYPEWRITER - Olivetti, 1 yr. old, used approx. 2 hrs., cost, $200, asking $85. Les, Ext. 2920.

GE STOVE - and range hood, self-cleaning, electric, top of line, mint. Peggy, 929-8784.

FURNITURE - queen size Castro couch, love seat, (2) pine tables, $300 or best offer. Ext. 2883.

FURNITURE - triple dresser, mirror, twin bookcase, headboard, night table, $95; large galvanized compressed air sprayer, $12. 751-1884.

FURNITURE - double bed spring mattress, clean; triple dresser, all $125. 281-7844.

VACUUM - Eureka Upright, $35; 9x12 oriental design wool carpet, $85; antique china cabinet, $425. 751-8240.

WHIRLPOOL WASHER - excel. cond., $150; Hoover vacuum, excel. cond., $50. Ext. 4106 or 689-8675.

TELESCOPE - 3" Equatorial mount, unitron compact, tripod, cases, etc., perfect cond., new $1,300, asking $595. 589-3608.

CABINET DOORS - wood, fit Levitt house kitchens, or useful for wood content. Ext. 4192.

WESTERN SADDLE - good cond., $75. Joe, Ext. 4660 or 821-2515.

PUMP AND TANK - 2 yrs. old., 3/4 HP, for deep well, glass-lined tank, price neg. Ext. 5139.

TENNIS RACQUET - Yonex, R-22, 4-1/2", Prince Synthetic 60, cost $140, used once, $85. Wang, Ext. 2185.

CARRIAGE - Perego Coach, like new, $60 or best offer; Swyngomatic baby swing, like new, $15. 289-1665 after 6 p.m.

HOOVER HANDI VAC - broom-style, like new, $15. Ext. 4240 or 286-0295.

COCKATOO - and cage. 289-9528.

DINING ROOM SET - Danish modern, walnut, table, chairs, breakfront, good cond., moving. Ext. 4349 or 654-1326.

DINING ROOM SET - table w/leaf, (4) chairs, china closet and buffet, must sell, $175. Ext. 7732.

DINING ROOM SET - Traditional, hutch, chandelier, $850; formal drapes, $150; Thermagard drapes, 2 prs., 120" and 56" widths, matching valence and king size spread. Harry, Ext. 3675 or 744-2581 eves.

BRICKS - red, make offer, you pick up. 399-4840 eves.

GE REFRIGERATOR - coppertone, good cond., $50. Alice, 286-9483 eves.

WOMEN'S SHOES - size 8, all leather, dk. brown, $30 each or 2 pairs for $50. 924-0960.

WOMAN'S BICYCLE - 26", 3 spd., good cond., $50. Ralph, Ext. 4171 or 878-1280.

KITCHEN SINK - stainless steel w/faucet and drain, good cond., $20. Victor, Ext. 2395.

DRAFTMAN'S TOOL SET - Nomis, antique, mint cond., 13 pieces, $75. 727-3145.

ELECTRIC DRYER - $50; baby crib, $25; baby buggy, $25; 6' radio/phono and cabinet. Ext. 4214 or 475-5543.

FURNITURE - sofa bed; coffee and end tables; platform bed; crib; chest; dinette; tv; stereo and much more, moving. Ext. 2438 or 689-8958.

Free

DOG - weimaraner, adult male, needs loving home. 473-6432.

OAK LUMBER - 25" dia. tree trunk, to anyone with big enough chain saw. Kathy, Ext. 3420 or 281-2849.

Yard Sales

MIDDLE ISLAND - 4 family/block, benefit scout troop, 3 days, Labor day weekend, 4 Rustic Rd.

Car Pools

STONY BROOK - Strathmore vicinity, needs rider/driver(s). Ext. 4192.

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 Rent

HILTON HEAD, SC - 2 bdrm. condo., pool, tennis, golf, beach, $400 week, after Sept. 15th, $350 week. 585-4194.

MILLER PLACE N. - 3 room apt., 1 bdrm., l/r w/fp, eik, $600 includes all, avail. Sept. 1. 473-5663 or 821-3843.

HAMPTON BAYS - large, 1 bdrm. apt., suitable for couple, no pets, $400 mo. plus util. 728-2104 eves.

HAMPTON BAYS - waterfront house, for winter rental, (Oct. 85 to Apr. 30, 86), no pets, couple preferred, $300 mo. 728-2104.

MT. SINAI - 3 rm. apt., bdrm., l/r, kitchen, bath, single or couple, no pets, avail. Sept., $450 plus elec., 1 mo. sec. 928-5031.

SHOREHAM - 4 bdrm. Colonial, mid-Sept. to mid-Dec., $400. John, Ext. 3853.

EAST MORICHES - large 1 bdrm. apt., priv. ent., beautiful setting, overlooking pond, $650 incl. util. 878-2310.

WHITE MOUNTAINS, NH - 3 bdrms., 2 baths, new riverfront condo, f/p, heated pool, clubhouse, Jacuzzi, tennis, hiking, golf nearby, lovely area attractions, scenic fall foliage, 3 nights $240, weekly $375. 914-232-4039.

WADING RIVER - 2 story, 3 bdrm. house, water view, fully furn., $600 mo. plus util., lease Nov.-May, non-smokers only. Barclay, Ext. 4587.

CORAM - Strathmore East, 4 bdrm. contemp. ranch, 2 baths, f/r, patio, fenced yard, gas heat, (5) appl., $800 plus util., deposit, princ. only. Ext. 3791 or 928-7154.

SHOREHAM - studio apt., water view, priv. beach, priv. ent., suitable for single occup., $550 mo., incl. all util., avail. Sept. 1. Ext. 3369.

SHIRLEY - 1 mi. Smith Point, 8 mi. BNL, immac., 3 bdrm. ranch, l/r, d/r, eik, util. rm., w/w, appl., fenced-in yard, quiet street, $700 plus util. 744-5448.

SELDEN - studio basement apt., priv. ent., eik, l/r-b/r combo, walk to transp. and stores, mature adult, no pets, $450 all. 698-8514 after 5 p.m.

PORT JEFFERSON - 3 bdrms., 2 baths, f/r, f/p, all appl., vill. beach, avail. Oct. 1, for 1 yr. 331-4768.

For Sale

COOPERSTOWN - 200+ acres, adjoining state forest, deep well, bldgs., $425 per acre. 363-7032.

PORT JEFFERSON VILLAGE - Harbor Hills, 3 bdrms., 2-1/2 baths, 1 car gar., lg. den, l/r w/cathedral ceiling, d/r, eik, bsmt., patio, 1/3 landscaped acre, pvt. beach rights, avail. immed., $160,000 w/some financing flexibility. 928-2803.

BROOKHAVEN HAMLET - 12 acres, trees and shrubs, 12" top soil, former nursery. Jim, 289-0876 eves.

MIDDLE ISLAND - Artist Lake, spacious, upper level, corner condo., eik, a/c, 5 appl., 1 bdrm. (possible 2), pool, tennis, $76,500. 924-8675 eves.

SHOREHAM - 3 bdrm. ranch, p/r, attached util. rm., patio, 1 acre, 13 yrs. old., cul-de-sac, bordered by woods, $1,300 taxes, SWR school dist., $138,500. Ext. 7786 or 744-7796.

RIDGE - new log cabin, 3 large bdrms., 2 baths, 1.5 acres, new appl., possible m/d. Ext. 4098 or 732-5696.

WARRENSBURG - 10 min. from Lake George, (2) plots, approx. 4.5 acres, each wooded, across from stream, $7,000 each or both for $12,000. 744-2715 before 9 p.m.

Wanted

HOUSE TO SIT - going away on vacation or business, I will stay with your house. Ext. 3671 or 736-2131 eves.

DONATION/CONSIGNMENT - of items for (4) family yard sale, to benefit scout troop. John, Ext. 4243 or 924-3492.

HOUSE TO RENT - Bellport Village or Brookhaven Hamlet. Anne, Ext. 5055 or 286-0919.

PROJECTOR - Bell & Howell, slide cube-type, reasonable. Bill, Ext. 2378.

LOVING HOME - tiger kitten, female, will help spay. Ext. 3046 or 286-2915.

RIDING LAWN MOWER - 8/10 HP. S. Kiss, Ext. 2674.

EXTENSION LADDER - wood or alum. Ext. 3401 or 744-6229.

ROOM/APT. TO RENT - close to Lab, for 1 male and pet, for Oct. 1. Bob, 735-0691 after 6 p.m.

GOLF BAG - Ext. 4379.

1/2" ANGLE DRILL - and bits. Joe, Ext. 4255 or 289-1831.

ROOMMATE - to share apt., non-smoker, mature, female, Brookhaven Hamlet, $250 mo., no rock music. 286-8243 or 286-0129.

ASPHALT ROOFING PAPER - and black roofing shingles, any qty. Al Campbell, Ext. 2043.

BABYSITTER - Mon.-Fri., full or p/t, for 7-month-old boy, non-smoker, your house or ours. Peter, Ext. 7190 or 369-1844.

Answers to last week's Quiz.

1. b. Thalidomide was used in Europe; it led to the birth of thoussands of badly malformed children.

2. c

3. c. Judge Kaufman was the judge in the Rosenberg trial; Professor Smyth was the author of a famous report on atomic energy.

4. b. Fermi led the group that produced the first controlled chain reaction at the University of Chicago. Though they played a role in the atomic bomb project, Teller and Ulam are usually identified as the fathers of the H-bomb.

5. a. E.B. White is a writer but not on science and government, and he's not British; he was associated with the *New Yorker* magazine in its early years. Snowden is the former husband of Princess Margaret. Desmond Morris was head of the London Zoo and wrote, among other books, *The Naked Ape*.

6. c (Office of Management and Budget). ABM refers to an antiballistic missile, IBM to an intercontinental ballistic missile or to the International Business Machines Corporation, and CBS to the Columbia Broadcasting System.

7. b (*roughly* 300,000 doctors in a population of two hundred million). A 40-hour-per-week work load gives 3 hours per year per patient.

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