BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Computing Corner

Four Newcomers to AMD

It's becoming harder and harder these days to find anyone at BNL who does not rely on a computer to some extent. From scientific experiments to secretarial offices, from plant engineering to the mailroom, computers are the means by which Lab employees reach their various ends.

This expansion has taken place over a single decade. Assuring a smooth transition has largely been the job of the Applied Mathematics Department (AMD). How AMD has met that challenge so far and the directions planned for the future will be discussed over the next several months, in an occasional series of Bulletin articles. This first story addresses AMD's changing role at BNL. Future pieces will explore such subjects as specialized workstations, networking, personal computers and software.

The four newcomers to AMD's Central Scientific Computing Facility (CSCF) are not very imposing. Each is only about five feet tall. But looks can be deceiving. Each is also a separate, highly intelligent computer, with enough memory to store eight million characters. What's more, the four devices are cooperative. All files and disks can be completely shared among them.

Together, the four computers comprise the VAX cluster (VAX is a type of computer made by the Digital Equipment Corporation) that came on line at the CSCF in the beginning of May. According to Ron Peierls, head of AMD, the acquisition of the VAX cluster is the first step in replacing the CSCF's computing workhorses: two CDC 6600s, which were used for all interactive computing and which acted as a front end to the larger and more powerful CDC 7600, which has no direct tape access. The VAX cluster will take over most of the CDC 6600s' duties, except for tape staging, which will be done by a modern, small CDC machine scheduled for delivery later this year. By the end of the calendar year, AMD hopes to be able to turn off the CDC 6600s completely. Planning for the acquisition of a replacement for the 7600 has already begun and should be completed by 1986.

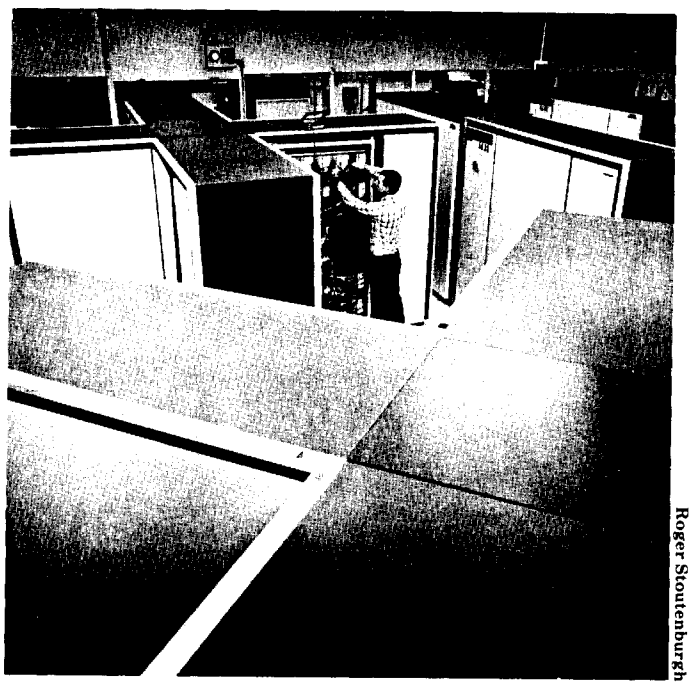
When the CDC 7600 came on board in 1973, it represented the latest in computer technology. That event also marked the beginning of interactive computing at BNL. Instead of bringing programs and data, in the form of card decks and/or tapes, to the CSCF for processing, then coming back to pick up output and results in similar forms, users began to make significant use of terminals. From other rooms and other buildings, they could interact with the 7600 via the interactive system on the 6600s.

Though those distant terminals began as simple input devices, they underwent an evolution and began to get smarter and cheaper. "The way computing is done is governed, in a sense, by what kind of facilities can be bought for some fraction of a scientist's salary," said Peierls. "When, for the money that used to buy a terminal you can buy a considerable amount of computing capacity, you're likely to do the latter."

In consequence, summed up Peierls, "Current computing generally consists of somebody sitting at a keyboard with a screen in front, and there's usually some intelligence associated with it. For more file storage, specialized software or higher power computing, that terminal will often be connected to some larger computer in the building, which, in turn, is likely to be connected by some form of network to a larger machine at the central site. Even beyond that, through off-site networks, there is access to supercomputers or special purpose computers."

In what Peierls called "the old-fashioned days," a lot of information was exchanged by users visiting the CSCF or gathering around a group's machines. As people work at their private terminals, this communication mechanism has largely disappeared.

These changes have led to AMD's present mandates in non-research areas: to provide all types of computer services, from computers and operating systems to the software, communications and networking that go with them, and to provide and encourage technical interaction, information and support.



Roger Stoutenburgh

At the Central Scientific Computing Facility, John Pepe works on one CDC 6600, while another looms behind him. In contrast, Dennis Morgenthaler leans on one of the four relatively small units that make up the VAX cluster, which is taking over most of the CDC 6600s' duties.

Peter Horton

This mandate recognizes that there is a definite place in computing at BNL for both private terminals and central facilities. As Peierls explained it, "The real question is: How much useful science can you get out of a particular machine?

"Dedicated machines are far more responsive than large, shared ones," he said. "You can manage your own resources if they are totally under your control. But the more computing power you have on your desk, the more your appetite increases, and you will find you want to do jobs which are just not doable on a machine of that size. So, whatever happens to technology and however cheap computing gets, we'll always need resources which can't be afforded by an individual."

Housekeeping and software are two more reasons to maintain good networks and central facilities. With these, said Peierls, "The human labor

(Continued on page 2)

Space Traveler Returns to BNL

This NASA photo shows Joseph Allen picking up a faulty satellite deployed on a previous mission. His feet are held to the space ship by a clamping arrangement. The satellite weighed at least 1,000 pounds, but Allen was able to handle it with ease because, in space, it is weightless. Another astronaut prepares to assist (see lower third of photo, by wheel).

Astronaut Joseph P. Allen is coming back to Brookhaven on Thursday, June 6, to talk about "Satellite Retrieval." He is one of the few people in the world who can talk about it from first-hand experience. His lecture will begin at 8 p.m. in Berkner Hall and is expected to be non-technical and of interest to all ages. The public is invited.

Allen's latest space flight was as a mission specialist on the shuttle Discovery, which launched from Kennedy Space Center on November 8, 1984. In the first space salvage ever made, the crew successfully retrieved two communications satellites for return to earth. They completed 127 orbits of the earth in the eight-day flight in space.

Two years before, Allen was aboard the shuttle Columbia, and the crew, among many other projects, made a successful first deployment of two commercial communications satellites. This was his initial venture in space, and he came to the Lab a few months after his return and recounted his experiences to an enthusiastic audience.

Allen is a physicist whose relationship with the Laboratory began in 1963 and continued until 1967, the years when he did research for his doctoral thesis in nuclear physics at the 3.5 MV Van de Graaff. Allen received his Ph.D. from Yale in 1965 and was appointed an astronaut in 1967.

In the next 15 years, before his first flight in space, he gained wide experience in many aspects of NASA: as a member of the astronaut support crew for Apollo 15, as a staff consultant on science and technology to the President's Council on International Economic Policy, as NASA Assistant Administrator for Legislative Affairs in Washington, D.C., as support crew member and entry CAPCOM for the first orbital flight test of the Space Transportation System, and as the technical assistant to the director of flight operations.

Allen has logged over 3000 hours flying time in jet aircraft and now has 314 hours in space.

—Roger Stoutenburgh

On May 22, BNL's volunteer tour guides gathered at the Brookhaven Center for a luncheon in their honor. These men and women volunteer their time to escort college and professional groups on tours of the site during the work week. Pictured are: (seated, from left) Lucy Sanchez, Janice Lamb, Graham Smith, Janet Tempel, Victor Gonzalez, Elaine Borowski and Jackie Mirzadeh; (middle row, from left) Thelma Dawson, Florence O'Brien, Elaine Zukowski, Arlene Clay, Vinnie Lo Destro, Sue Monteleone, Juanita Heyliger, Peter Kohut, Evelyn Ritter, Peter Boyle and Lucien Wielopolski; (rear, from left) Rick Jackimowicz, Frances Scheffel, Janet Sillas, Jean Stafford, Audrey Bangel, Betty Pergan, Payman Mortazavi, George Taylor, Richard Seebeck, Dave Comstock, Geraldine Callister and Ron Clipperton. Missing from the picture are Les Lawrence, Mark Culp, Don David, Tom Dickinson, Andy Feldman, Garfield Hawthorne, Vincent Lettieri, Elizabeth Mogavero and Rich Sautkulis. If you are interested in becoming a volunteer tour guide, contact the Tour Program at Ext. 4049.

No Parking

Brookhaven Avenue is one of the busiest streets on site, and it is not intended to be a parking lot. Nor is any other street on site, unless it is so designated, e.g., in front of the Post Office. If, for instance, Brookhaven Avenue becomes too clogged with vehicles, it makes it difficult for deliveries to be made and also creates a visibility problem for drivers at the intersections. Large parking areas are scattered around the site, and employees are asked to keep their cars on these lots.

Tick Talk

While hiking through the woods or playing in the fields during the warm months, beware of ticks, as they are making their usual seasonal appearance in Suffolk County. The American Dog Tick is responsible for Rocky Mountain spotted fever, and the Northern Deer Tick can cause Babesiosis and Lyme Disease. Not all ticks carry disease, and most people do not suffer any illness as a result of a tick bite.

However, don't take chances — prevent a tick from biting. Before a tick bites, it will crawl around you for two to three hours. If noticed before it is attached, remove it with blunt tweezers. If the tick has bitten, use blunt forceps to grasp it at the point of attachment and pull it straight out. Avoid squeezing the tick's abdomen or leaving its mouth parts imbedded in the skin. If a rash, fever or general run-down feeling results after a tick bite, see a physician.

If one must go into tick-infested areas, wear protective clothing and a tick repellent. The Department of Agriculture has determined that two available types of insect repellents protect people against ticks that transmit Lyme Disease: those containing 0.5 permethrin and 30% DEET.

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 Ext. 5068.

NUREG/CR-2482
BNL-NUREG-51494
Vol. 5
Review of DOE Waste Package Program. Subtask 1.1 - National Waste Package Program April 1983 - Sept. 1983. P. Soo, Editor

NUREG/CR-3469
BNL-NUREG-51708
Vol. 1
Occupational Dose Reduction at Nuclear Power Plants. Annotated Bibliography of Selected Readings in Radiation Protection and ALARA. J.W. Baum, D.A. Schult

BNL-51799
Fischer-Tropsch Synthesis of Hydrocarbons. A. Lampert, J. Erickson, B. Smiley, C. Vaughan

BNL-51803
Evaluation of Modifications to the Mastin Double-Envelope House. G. Dennehy, W. Loss, R.F. Jones

BNL-51817
Development of Static Feed Water Electrolysis for Large Scale Hydrogen Production. Final Report. A.J. Kovach, F.H. Schubert

BNL-51818
Semiannual Report for the Period 1 October 1983 — 31 March 1984. 1) Superconducting Power Transmission System Development 2) Cable Insulation Development. E.B. Forsyth

BNL-51827
1983 Environmental Monitoring Report. L.E. Day, J.R. Naidu, Editors

NUREG/CR-3765
BNL-NUREG-51766
Minet Simulation of a Helical Coil Sodium/Water Steam Generator, Including Structural Effects. G.J. Van Tuyle

NUREG/CR-3750
BNL-NUREG-51769
Job Analysis of Nuclear Power Reactor Health Physics Technicians. L.T. Davis, et al.

BNL-51770
Condensing Heat Exchanger Systems for Residential/Commercial Furnaces and Boilers. Phase III. R. Razgaitis, et al.

BNL-51772
Advanced Amorphous Materials for Photovoltaic Conversion. Annual Report for 1983. P.E. Vanier, et al.

NUREG/CR-3603
BNL-NUREG-51733
MINET Validation Study Using EBR-II Test Data. G.J. van Tuyle.

BNL-51730
Proceedings of the First International Symposium on Neutron Capture Therapy. Held at Massachusettss Inst. of Teechnology, Oct. 12-14, 1983. R.G. Fairchild, G.L. Brownell, Editors

NUREG/CR-3713
BNL-NUREG-51752
Grouping of Light Water Reactors for Evaluation of Decay Heat Removal Capability. R. Karol, A. Fresco, K.R. Perkins

BNL-51761
Medical Status of Marshallese Accidentally Exposed to 1954 Bravo Fallout Radiation: January 1980 through December 1982. W.H. Adams, J.A. Harper, R.S. Rittmaster, P.M. Heotis, W.A. Scott

BNL-51763
The Sulfuric Acid Chemical Heat Pump Program. March 1982 through November 1982. Rocket Research Co.

BNL-51764
Beam Model for Non-Planar Orbits in Synchrotrons. M. Month

Last Look At Danish House

If you missed the employee tour of the Danish House, or if you would like to inspect it again now that it is furnished, come to the public tours on Saturday, June 1, and Sunday, June 2, between the hours of 10 a.m. and 3 p.m. Report to Berkner Hall (NOT the Danish House), where you will get your free tickets for the tour and a fact sheet about the house. There you can see a 20-minute video tape on the factory production and site erection of the house, and you can view "Quest," a 15-minute slide show about BNL. A bus will take you to the Danish House, where you can walk through the building and gather information about the products used to build and furnish it. Danish representatives will be there and at Berkner Hall to answer your questions. The tour will also include a stop at the Exhibit Center.

Service Awards

The following employees received service awards during the month of May:

Thirty Years

Edwin T. Bailey ..... Physics
Dorothy G. Metz ..... Staff Services

Twenty-Five Years

Anthony R. DiPierro ..... Pl. Eng.
John J. Loper ..... Applied Science
Arthur G. Worthington, Jr ... Pl. Eng.

Twenty Years

Robert A. Brown ..... Medical
Conrad M. Dabrowski ..... AGS
Conrad F. Koehler, Jr ..... Chemistry
Richard W. Murgatroyd ..... NSLS
Patricia E. Oster ..... AGS
John C. Sanders ..... Physics
Bruce A. Style ..... Photo & Gr. Arts
William S. Webster ..... Staff Services

Ten Years

Michael A. Iarocci ..... NSLS
Mary Anne McGrath ..... Nuc. Energy
Ji Wu Yang ..... Nuc. Energy

Inside Info

Since 1982, Martin Starke has been both a student at SUNY at Stony Brook and a technical collaborator at the National Synchrotron Light Source. As he pursued his Bachelor's degree in Engineering Science, Starke was also a working member of Stony Brook's Synchrotron Topography Group, involved in the development of an x-ray ring beam line with which to look for microstructural defects and mechanisms in materials. At graduation ceremonies recently, Starke was given an Award of Honor for his work at the NSLS. This award is given to an undergraduate, by the College of Engineering and Applied Sciences, for distinction in doing independent research.

Computing (Continued)

involved in managing, backing up, keeping track of and storing files is shared with a lot of people. And so is software. If a master copy is maintained in some central place, everybody uses it and there's consistency. So the concept of central facilities applies not so much to the central location of equipment as to its central management and support."

— Anita Cohen

Coming Up

Eugene Cronkite, Sr. Scientist, Medical Department, will give the last Brookhaven Lecture of this season. He will speak on "Regulation of Production of the Hungry Granulocyte — Friend and Foe," at 4:30 p.m. on Wednesday, June 12, in Berkner Hall.

Arrivals & Departures

Arrivals

Irving Brown ..... HEF
Sheila M. Doscinski ..... Dir. Ofc.
Edmund F. Wojcicki, Jr. ..... S&ES

Departures

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

Catherine T. Henderson ... App. Math
Frank J. Kampas ..... DNE

All film badges will be changed tomorrow. Please place your badge in its assigned rack space before leaving work today.

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Hospitality News

Betsy Kinney, a member of the Hospitality Committee, has graciously offered to host the next morning get-together, which will be held at her home on Tuesday, June 4, at 10 a.m. The group will tour Mrs. Kinney's lovely house and Alpine rock garden.

Wives of Laboratory employees and guests are welcome. Babysitting services will not be provided; therefore, mothers will be responsible for their children.

We will assemble at the Brookhaven Center at 9:30 a.m. where transportation will be provided to Mrs. Kinney's home.

Cafeteria Menu

Week Ending June 7

Monday, June 3

Beef barley soup	(cup)	.65
	(bowl)	.85
Turkey broccoli primavera on rice		2.15
Western omelet & hash browns		2.10
Hot Deli: Turkey breast	(bread)	2.10
	(roll)	2.30

Tuesday, June 4

Canadian cheese chowder	(cup)	.65
	(bowl)	.85
BBQ spare ribs & 1 veg.		2.15
Top round of beef & 1 veg.		2.25
Hot Deli: Sausage Reuben		2.05

Wednesday, June 5

Garden vegetable soup	(cup)	.65
	(bowl)	.85
Beef stroganoff on egg noodles		2.25
Southern fried chicken & 1 veg.		2.10
Hot Deli: Monte Cristo		2.15

Thursday, June 6

Minestrone soup	(cup)	.65
	(bowl)	.85
Baked Italian lasagna & 1 veg. w/garlic bread		2.20
Breaded pork chop & 1 veg. w/applesauce		2.20
Hot Deli: Philadelphia steak w/peppers & onions	(bread)	2.10
	(roll)	2.30

Friday, June 7

Fish chowder	(cup)	.65
	(bowl)	.85
Broiled fillet of fish w/1 veg.		2.10
Special: Top your own Tacos		2.25
Hot Deli: BBQ fresh ham	(bread)	2.05
	(roll)	2.25

Swim Club

The BNL Swim Club has been registered with United States Masters Swimming, which will entitle members to represent the Lab at Masters swim meets and to participate on BNL Swim Club relay teams. The Swim Club will be notified of meets held on weekends all year throughout the metropolitan area and will inform interested members. Upcoming summer meets include: Nassau County Parks Dept, East Meadow; Manhattan Island Marathon, New York; N.Y. State Parks Dept. Long Course, Bronx; N.Y. City Long Course, Astoria; and Empire State Games, Buffalo. Members who want to compete must join U.S. Masters Swimming ($8/year) through the BNL Swim Club. For more information, contact Marsha Belford, Ext. 3327, or Mark Catan, Ext. 5060.

Bowling

Pink League

The winners are the Lickety Splits, M-G Meier, L. Chinn, D. Monteleone, B. Jones.

Red/Green League

The Sandbaggers are the winners. Congrats to C. Bohnenblusch, E. Meier, B. Jones, K. Riker, K. Asselta, D. Klein.

Softball

Games Week of May 13

League I
Six Pax 12 — Cool'n Gang 4
Phoubars 10 — Scram 4
Blue Jays 19 — Moles 1

League II
Lights Out 11 — Magnuts 10
Faze II 15 — Random Errors 6
Titans 10 — Dirty Sox 9
AMD 17 — Medical 4

League III
Survivors 15 — TNT 5
Farm Team 21 — No Names 10

League IV
Mole-Esters 10 — Turkeys 6
Septembers 14 — Who Cares 9
Kidz-R-Us 15 — Farmbusters 12

League V
Mudville Sluggers 11 — Foul-Ups 7
Space Kadets 13 — Underalls 12
No Feedback 9 — Simply Awesome 4

Games Week of May 20

League I
rained out

League II
AMD 18 — Lights Out 10
other scores not reported

League III
no scores reported

League IV
Septembers 9 — Kidz-R-Us 6
Who Cares 15 — Turkeys 5
Mole-Esters 21 — Farmbusters 6

League V
Space Kadets 12 — No Feedback 8
Mudville Sluggers 15 —
Simply Awesome 4
Foul-ups (won) — Underalls (forfeit)

BERA News

The Sporting Scene in '48

It's that time of year, when BNL bowlers stow their equipment away for the summer, while BNL golfers and softball players have just dusted the cobwebs off theirs. In fact, this point in time marks the end of the 38th season for bowling at the Lab, the beginning of the 39th season for softball, and the start of the 38th season for such sports-minded groups as the Golf League and the Archery Club.

Over one-third of the employees at BNL participate in at least one BERA sport. With such a large number enjoying these pastimes, it seems appropriate to salute the early participants in BNL sports by running some of the photos which appeared in the Lab's first employee publication, *Isotopics*, in 1948.

The opening game of the men's 1948 softball season pitted the Building and Grounds (B&G) team against the Nuclear Reactor team. Here, B&G's Charles Watterson connects with a ball catcher Saul Harris was prepared to grab. No record exists as to whether Watterson's connection led to a hit, but the opener was won by B&G, 4-2.

The Upton Archers lining up here for target shooting are (from left) Edna Knispel, Jennie Vivenzio, Frances Cammaroto, Rose Ann Grattan, Geraldine Bishop, George Davison, Stephen Palmero, Raymond Cammaroto and Allen Morpeth.

The May-June 1948 issue of *Isotopics* said these BNL women are "members of girl's soft ball teams at practice." The batter is Alice Gillman; catcher, Rose Ann Grattan; and those in the background are (kneeling, from left) Barbara Carrol, Marjorie Morse, Julia Jacobs, (standing, from left) Joan Simecek, Beatrice Wageli, Jennie Vivenzio, Viola Bowie and Florence Batvinis.

Port Jeff? Shirley? No, these BNL bowlers are bowling at BNL. On November 3, 1947, sixteen lanes, located in Building 476, were opened to Lab employees. But don't look for them now. Bldg. 476 has been incorporated into Bldg. 902, which is now devoted to High Energy Faciliites. These dapper "keglers," as *Isotopics* liked to refer to them, are (from left) Edward Nicholson, E.L. Van Horn, Malcolm Herbert, Allen McMahon and Robert Steele.

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.

OPEN RECRUITMENT - Opportuities for Laboratory employees and outside applicants.

2257. SR. STATIONARY ENGINEER - Requires demonstrated experience in the maintenance repair and operation of high pressure boilers firing #6 fuel oil. Current stationary or marine engineer license is highly desirable. Plant Engineering Division.

2258. SR. STATIONARY ENGINEER - (temporary 6/3/85 to 9/27/85) Plant Engineering Division.

2259. PROJECT ENGINEER - Requires BS/MS in electrical engineering or equivalent and experience in ECL or TTL digital design. Experience in bus standards (CAMAC, FASTbus, Q-bus) preferred. Responsibilities include the design/construction of a real-time data acquisition system, fast digital interface circuitry, dual-port memories and microprocessor-controlled systems. K+ decay experiment. Physics Department.

2260. TRAINING SPECIALIST - Requires BS in a relevant discipline or extensive highly pertinent technical experience to perform training and other related duties for the BNL Police Group. Candidate should have knowledge of military tactics, police procedures and DOE requirements. Must be a qualified, or qualifiable, weapons instructor. The ability to obtain a "Q" clearance is mandatory. Safety and Emergency Services Division.

Autos & Auto Supplies

81 CAMARO - V6, black, clutch, spoiler, mags, louvers, Pioneer cassette, speakers, extras, excel. Jim, 751-4822.

74 CHRYSLER NEWPORT - 4 dr., high mi., $300 or best offer. 727-5912.

81 OLDS 88 - 4 dr., diesel, garaged, a/c, p/s, orig. owner, $3,500. Jim, Ext. 3372.

84 NOMAD CAMPER - 24 ft., never used on road, bunk beds in rear, brand new cond., $8,800. 928-8547.

72 COACHMAN - 24 ft., tandem wheel, sleeps 6, bunk house, refrig., stove/oven, hot water, ducted heat, center bath, $3,950. 744-3284 eves.

82 VW SCIROCCO - 5 spd., new tires, 42k mi., am/fm stereo, cruise control, fog lights, asking $6,500. Vincent, Ext. 4706.

79 FORD PINTO - runs & looks great, 4 spd., red, $1,200. Ext. 4605 or 281-5456 eves.

79 YAMAHA - XS-400, 5k mi., new condensers, points & battery, tandem seat, sissy bar & rack, 2 helmets, full cover, $650. Don, Ext. 3511.

74 MALIBU CLASSIC - V8, 2 dr., runs well, $650 firm. 399-1349 after 3 p.m.

77 PINTO - hatchback, very good cond., high mi., runs great, $750 firm. 751-7140.

71 NOVA - blue, 4 dr., good running cond., may need minor repair, $300 or best offer. Vera, Ext. 5064.

80 HONDA CIVIC - 1500 DX, 5 spd., excel. cond., $2,850. Jerry, 281-8957.

83 CADILLAC - coupe, V8, full power, low mi., $13,250; 76 Chevrolet Blazer, 4x4, Cheyenne pkg., 74k mi., body like new, new tires & wheels, roof rack, $5,000. 929-4840.

TIRES - (2) G78-14, reg., $40; (2) L78-15, snow, $80; (1) L78-15, reg., $30; (1) J78-15, reg., $20; (2) G78-14, snow, $40. Tony, Ext. 7772.

76 FORD TORINO - p/s, p/b, a/c, $1,400. Al, 231-4613 after 5 p.m.

84 DODGE RAM CHARGER - 8,900 mi., p/s, p/b, a/t, cruise, a/c, tilt, power d/l, p/w, excel. cond., $12,500. 281-4124 after 5 p.m.

GOODYEAR TIRES - Ariva, (5) 5"x15", on rims for Dodge or Ford, $250. 589-0308.

71 KARMEN GHIA - runs well, $400. 286-0570 after 4 p.m.

75 AMC GREMLIN - 6 cyl., 3 spd., low mi., excel. running cond., good body, $800 neg. Jon, 928-6654.

83 MITSUBISHI CORDIA - red, sunroof, stereo, rustproof, 23k mi., excel. cond., $5,900. Ext. 2197 or 567-8301.

72 MOBILE TRAILER - 19', tandem wheels, sleeps 6, good cond., avail. Sept., $2,100. Ext. 2964.

73 MGB - looks great, mech. perfect, many extras, $2,500. Alan, Ext. 2928 or 821-0761 eves.

74 HORNET - a/t, many new parts, runs, body rust, $300. Zhu, Ext. 2675.

78 AUDI FOX - excel. cond., 4 spd., new tires & batt., am/fm cassette, sunroof, $2,200. Ext. 7518.

74 VW KARMEN GHIA - rebuilt eng., body rusted, best offer. Ext. 3896 or 475-0396 after 6 p.m.

85 YAMAHA - Tri Z, 250cc, trike, mint cond., used twice, for adults only, $1,800. Ext. 5231 or 475-1469 eves.

77 RABBIT - gas, excel. cond., 4 new radials, sunroof, fm stereo, $1,600. Dennis, Ext. 7527 or 728-8644.

68 ROVER - mech. excel., new paint, tires, needs exhaust header, $500. Mario, Ext. 7148 or 363-2522.

75 FORD GRANADA - some body rot, 100k mi., runs great, $500. Ext. 4207 or 286-0466.

82 SUBARU GL - sunroof, a/c, a/t, custom stereo, velour int., 43k mi., mint cond., $5,400. Frank, Ext. 4273 or 751-9266.

74 OLDS CUTLASS SUPREME - p/s, p/b, a/c, am/fm 8 track, excel. running cond., $800, neg. Ext. 7717 or 587-7662 eves.

83 JEEP - CJ7 Limited, p/s, p/b, a/t, a/c, stereo, 24k mi., $10,500. 286-0088.

76 HONDA CVCC - rebuilt eng., new brakes, batt., tires, good cond., $1,050. 286-3509.

72 OLDS DELTA 88 - 350 eng., p/s, p/b, runs well, 2 dr., radio, $650. 941-4328.

73 MERCURY COUGAR - XR7, 2 dr., full power, am/fm cassette, no rust, no dents, new paint & striping, new tires & mags, $2,100. Barry, Ext. 5624.

72 BUICK SKYLARK - orig. owner, V8, motor excel. cond., some body rust, high mi., $450. 751-2867.

85 MERCEDES 500 SEL - loaded, low mi., metallic brown, all leather int. 941-4999.

83 DATSUN 200 SX - mint cond., 5 spd., full power, 28k mi., $7,300. Ext. 7716 or 728-0334 eves.

80 PLYMOUTH VOLARE - 4 dr. sedan, mint cond., p/s, p/b, $2,500. 878-6685 eves.

75 MUSTANG - am/fm stereo, 302 V8, a/t, excel. cond., $1,300. Jon, 744-7242.

82 THUNDERBIRD - custom-made, low mi., gray velour int., moon roof, spoke wheels, loaded. 878-0487 eves.

77 CHEVY IMPALA - 4 dr., V8, a/t, p/b, p/s, radio, excel. cond., $1,950. Bruce, 924-4097.

81 DATSUN 200 SX - 5 spd., am/fm, 79k orig. mi., good mech. cond. Ext. 2253.

74 CHEVY - station wagon, p/s, p/b, a/c, a/t, $750. 281-5710.

63 VW BEETLE - good motor, front end squashed, driveable, good for parts, $99. Frank, 399-4480.

80 OLDS OMEGA - excel. cond., 2 dr., standard, p/s, p/b, 4 cyl., gas saver, 1 owner. Marie, Ext. 3673.

UNIROYAL TIRES - w/w steel radials, F-78-15, orig. 21k, like new, $20 ea. Ext. 2497 or 286-2203 after 6 p.m.

PICK-UP CAP - Winnebago, 2 bunk inserts, sliding side & front windows, 36" high, very good, $450. Ext. 2462 or 269-9510 after 7 p.m.

80 OLDS - 350, diesel eng., good running cond., $350. Al, Ext. 4313.

79 JEEP CJ7 - 8 cyl., a/t, p/s, p/b, excel. cond. inside & out, many access., $6,200. 286-3865.

83 MUSTANG GT - mint cond., 15k mi., sunroof, sport seat, TRX-suspension, $8,000. 282-3175.

81 HONDA - CM400E, great cond., low mi., $900. Tracy, Ext. 4421 or 475-8603 eves.

75 OLDS VISTA CRUISER - wagon, good running, V8 eng., just inspected, $1,200. 289-0012.

HONDA MOTORCYCLE - CB-550K, low mi., excel. cond., extras, $850. 467-8563 eves.

78 HONDA CIVIC - good mpg, am/fm, new exhaust, $1,300. Sherie, Ext. 4478 or 924-6937.

80 SUZUKI - GS550E, 2,090 mi., $1,000; 1976 Honda, CB360T, blue 4,800 mi., $500, all good. Ed, Ext. 4249.

70 FORD - runs well, $300 or best offer. John, 878-0939 after 6 p.m.

SNOW TIRES - (2), E-78-14, with rim, $25 ea. Ext. 3370.

75 CELICA - very good cond., Alpine radio, $1,200. Kent, Ext. 5215 or 751-7708.

SERVICE MANUAL - for 1980 Horizon, Omni, all models, $5. Ext. 2944.

Boats & Marine Supplies

F/G SLOOP - Barcelona-built, sleeps 4, dinette, head & galley, draws 4', 3 sails, dinghy, many extras, in water, Oyster Bay. Ext. 4605 or 938-8353.

22' CATALINA - 1982, sloop, swing keel, pop-top, galley, porta-potti, 9.9 Chrysler, mint cond., in water, $9,400. 589-5490.

18' HOBIE CAT - dual trapeze, trailer, complete, ready to sail, excel. cond., $3,500. Bob, Ext. 2897 or 473-3693 after 6 p.m.

16-1/2' WELLCRAFT BOWRIDER - full canvas, 1982 115 HP Johnson, s/s prop., excel. cond. Don, Ext. 2050 or 289-7813.

17' CLAM BOAT - excel. cond., new paint, $250; 1979 50 HP Mercury, outboard, excel. cond., $750. Mario, Ext. 7148 or 363-2522 after 6 p.m.

21' GALAXY - 1983, cuddy cabin, 125 HP Volvo, 30 hrs., porta-potti, am/fm cassette, compass, d/f, full swim platform, full canvas, extras, like new, $7,900. Ext. 3589 or 281-3635.

17' WELLCRAFT - fiberglass, 75 HP, trailer, $1,200. Mike, Ext. 4293 or 567-9362.

SUNFISH - green, with trailer, good cond., $675. Jay, 286-3679.

15' FIBERGLASS - 4 seats, new trailer, clean. Ed, 878-9514.

26' PACEMAKER - 1968, SP, 381 cu. Chrysler, f/w cooled, sleeps 4, standup head, stove, 110V/12 ref., VHF, d/f recorder, excel. cond. Don, Ext. 5329 or 378-2215 eves.

26' PEARSON - 1972, 5 sails, 15 HP Evinrude, d/f, sleeps 4, many extras. Ext. 3921 or 689-9214.

19' FIBERGLASS CRUISERS INC. - 90 HP Chrysler, trailer, many extras, excel. cond. 325-0447 after 6 p.m.

16' SAILBOAT - Paceship, fiberglass, cuddy cabin, centerboard, 4 HP Evinrude, good cond., $1,500. Marty, Ext. 4290/4857 or 286-5897 after 5:30 p.m.

DOCK SPACE - Center Moriches, private, protected. 878-8177.

Miscellaneous

CASSETTE RECORDER - Panasonic, built-in microphone & handle, good cond., $30 firm; Tappan wall oven, s/s, enamel inter., good cond., $40 firm, you pick up. Oster, Ext. 3876.

DRUMS - Rogers & Slingerland, blue sparkle, many drums & access., $1,200 takes all. 363-6417 after 6 p.m.

BIKE - Ross, 3 spd., black, 27", fair cond., $25; 10 spd. Santrolez bicycle, 27", good cond., $40; children's toy chest, excel. cond., $10, neg. 751-4822.

TRUMPET - student model, w/case, $75; canopy bed, $75. Ext. 3372.

WETSUITS - spring suit, Farmer John, and vest, medium & large, all for $75. Mark, Ext. 4031.

MOTOCROSS EQUIPMENT - helmets, chest protect., kidney belts, pants, excel. cond. O'Kula, Ext. 4669 or 722-4821.

STEREO CASSETTE DECK - Sansui, full logic control & 4-band tuner, $150. Rajiv, Ext. 5161 or 924-1460 eves.

EASEL - Ultima, adjustable, $10; Telextender pentax, screw mount, 2x, $8; bar books. Susan, Ext. 4267.

GOWN - prom or bridesmaid, w/cape, peach, size 7, also have matching hat. 878-2239.

GENERATOR - 110 volts, 1750 watts, good cond., $175. 567-9025 after 6 p.m.

SINGER POWER MACHINE - 96-10 head, best offer. 286-4650.

GUITAR - Gibson, model ES150DEW, elec., semi-hollow body, pre 1960, $425. Joe, Ext. 4661.

PLATFORM BED - with excel. queen-size mattress, 1 yr. old, $200; colonial furniture, couch, loveseat, rocker, club chair, orange/brown, 3 tables, 1 yr. old, $450. Nancy, Ext. 7996.

DINETTE TABLE - w/6 chairs, Early American, excel. cond., $350. 928-6778 after 6 p.m.

TRAMPOLINE - 12'x6-1/2' mat, 14'x9' frame, good cond., $300. 744-2816.

TWIN BED - complete bedding, mattress cover, sheets, blanket, coverlet, dust ruffle, $125. Bob, Ext. 4656 or 928-1806 eves.

LILY OF VALLEY PLANTS - 50 for $2.50; evergreen fir trees, you dig, $ ea.; hand-push lawnmower, $10; lawnspreader, $8. 878-6637.

OFFICE DESK - steel, 4 drawers & typing table, $25. 744-9677.

USED CLAY POTS - 2", 50 for $10, larger quantities discounted. Mark, Ext. 3812.

CAMERA - Pentax, 35mm, program plus, new, Vivitar flash, access. incl., $195. Mike. 331-5042.

TABLE SAW - 10", Craftsman, brand-new, unassembled, in box, $350 firm. John, Ext. 4095.

STROLLER - 1984 Cosmos, dark blue, excel. cond., basket & booty, orig. cost $150, sell for $100. John, Ext. 3292 or 475-4370.

SEWING MACHINES - heavy duty; misc. items. Mario, Ext. 7148 or 363-2522.

BED FRAME - new, $10. Tony, Ext. 7772.

ELECTRIC RANGE - Westinghouse, 30", coppertone, self-clean, model KF332M, good cond., $150. 289-8212.

LAWN MOWER - needs tune-up, $25; car top carrier, enclosed, $50. Ext. 4395.

GUITAR - Gibson SG, walnut, w/case, orig. engraved, "whammy" bridge, excel. cond., $250. 751-1149 eves.

FOLDING STROLLER - $25; baby rocking horse, $15, Chitra, 924-0691.

HAY - for mulch, $2 bale. Ext. 3841 or 286-9450.

PUPPIES - Collies, champion-sired, whelped 4/25, sable/white males, health checked. 924-3756.

WEDDING GOWN - lace bouffant, 4-tiers front, 6 back, size 10, w/pearls & sequins, $50. Ext. 2733.

TREES - locally grown, evergreens, maples, dogwood, you dig, reasonable. 924-6582.

FREEZER - GE, upright, 20 cu. ft., white, very good, $150. Ext. 2462.

DINETTE SET - white, formica top, leaf, 4 chairs, brown leather, 1 mo. old, $200. Ext. 5382.

BABY STROLLER - plastic play tray, reclines, 3 position, foot rest, wire basket, new, $35. 286-3865.

SOFA BED - 80" wide, Lawson-type, $125; 3 pair draperies, 84" long, beige/damask, $30; 12" b/w tv, $25. 475-4394.

ROTO BROIL - has baking tray and popcorn basket, grill top, $20; sewing machine, Necchi desk model, 3 drawers plus buttonhole maker, $100. 878-8458.

PHOTOGRAPHY ENCYCLOPEDIAS - from NY Institute of Photography, 20 vols., $40. 325-9590.

BOOKCASES - 68x31x11-1/2, 5-shelf, walnut finish, $40; 48x25x8-1/8, 4-shelf, walnut finish, $20. Inan, Ext. 3370.

REFRIGERATOR/FREEZER - Gibson, excel. cond. 325-0447 after 6 p.m.

ARC WELDER - Lincoln, 225 amp a.c., 125 amp d.c., requires 100 amp 220volt input line, $325. Bob, Ext. 2957 or 878-4556.

TRASH COMPACTOR - Kenmore, changeable panels, free standing or under counter, $195. Ext. 7652 or 758-9197.

GUITAR - Fender F-75, acoustic, mint cond., $250 or best offer; camera, Mamiya C33, twin lens, reflex 2-1/4x2-1/4, w/80mm lens, best offer. Tracy, Ext. 4421 or 475-8603 eves.

MEDICINE CABINET - vanity mirror, 24-1/2"x33". 286-3847.

Free

HI FI - Harmon Kardon, 120 watt, old tube with inst. manual. Ralph, Ext. 3649.

OLD ADDING MACHINE - Burroughs, needs work. Ruppert, Ext. 3254.

PUPPIES - Benji-like, large, 1 fawn/gray female, 1 blonde male, 1 black male. Miriam, 473-5060 eves.

OAK TIMBER - 30" dia., felled tree, must be cut. Kathy, Ext. 3420 or Jim, 281-2849.

STORM DOOR - white alum., 3'x6'8", glass & screen. 744-3792.

DOG - Basset/Beagle cross, 7 mos., female, lovable, housebroken, good with children. 289-8212.

Yard Sales

CENTER MORICHES - 121 Union Ave., June 1, raindate June 2.

MILLER PLACE - Henearly Dr., 25A (Hess) off Miller Place/Yaphank Rd., June 1-2, 10 homes. Ann, Ext. 2114.

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

NORTH SHIRLEY - 3 bdrm. ranch, pool, all appl., near Exit 68 L.I.E., tool shed, fenced, immac. cond., immed. occupancy, $725 mo. 878-8967 after 6 p.m.

SO. SETAUKET - 4 bdrm. colonial, Three-Village S.D., $950/mo. plus util. Ext. 4094 or 751-6575 after 6 p.m.

CORAM - 1 bdrm. modern apt., pool, tennis & clubhouse, $520 mo. incl. heat, summer sublet or take over lease. Ext. 3856 or 331-5733.

PATCHOGUE - 1 bdrm. apt., dishwasher, w/d, carpet, unfurnished, on water, $575 mo., 2 mos. security. 289-8988 after 5 p.m.

MYRTLE BEACH, SC - ocean front condo., 2 bdrms., 2 full baths, sleeps 6, balcony view of ocean from 15th floor, pools, sauna, exercise room on premises, $550 wk. 584-7258.

ROCKY POINT - 2 bdrm. cottage, 1 or 2 adults, all appl., 1-1/2 baths, w/w, patio, landscaped, 10 min. to Lab, walk to beach and stores, no pets, $675 plus util, 1 mo. security. 744-3792.

CENTER MORICHES - waterfront, 2 bdrm. apt., w/w, a/c, cable, yard, full kitchen, $650 mo., neg. 878-8177.

HITHER HILLS - section of Montauk, upper level of house, 3 bdrms., 2 baths, ocean view, 2 blocks from ocean beach. Charles Miller, (914) 354-4239.

ROCKY POINT - large 2 bdrms., basement, garden. 744-8901 after 6 p.m.

For Sale

WADING RIVER - building plot, private dead-end road, 71' wide by 110' deep, $12,500. Ext. 4672.

RIDGE - Townhouse, 3 bdrms., 1-1/2 baths, wood/coal stove, central a/c, all appl., $78,900. Ext. 3541 or 924-4070.

MEDFORD - 3 bdrm. house, 1 bath, l/r, d/r, gar., eik, new carpet, newly painted, vinyl siding, all appl., 1/3 acre, $93,000. 289-1783 after 6 p.m.

YAPHANK - 2 bdrm. condo., 1-1/2 baths, 2 mi. to Lab, new int., mint cond., pools, tennis, club house, quiet community, $82,000. Henry, Ext. 4547 or 924-6688.

PORT JEFFERSON VILLAGE - cul-de-sac, lovely ranch on 1/4 acre of park-like grounds, new 30'x20' deck, d/r w/french doors, oak floors, low taxes, Three Village SD. 744-2274 or 744-3729.

ADIRONDACKS - 6 acres, 20 min. from Lake George, waterfront, 600', terms avail., swimming, boating, etc. Pat, Ext. 3376.

Wanted

DEHUMIDIFIER - working, good cond. 363-2070 eves.

CEMENT MIXER - 2-1/2 cu. ft., Sears type, motor driven. 286-8886 eves.

HOUSE - 3 or more bdrms., to rent, Rocky Point S.D. Rich, 744-8910 after 5:30 p.m.

HOUSE TO SIT - experienced, reliable, caring, free, any period June 1 - Sept. 15. J. Allentuck, Ext. 2412.

TRAINS - Lionel, American Flyer, accessories, any cond. brings good price. Carole, Ext. 3362 or 924-4097 eves.

WORKING WOMEN - Sayville/Bohemia, business & professional women's organization, starting May. Olga, 567-8577.

HOUSE - Bellport area, first 2 weeks in August, immaculate Chicago couple. 286-1097.

BLOOD DONORS - who have given more than 1 gallon. Bulletin Office, Ext. 3327.

BLOOD RECIPIENTS - if you/your family have received blood. Bulletin Office, Ext. 3327.

BICYCLE - 10 spd., racing model, reasonable price, must be in good cond.; barbell weights, steel plates, reasonable price, will consider sets. John, Ext. 3292 or Chris, 286-1348.

POP-UP TENT TRAILER - to rent, 5 weeks during summer; outdoor screen house without floor, at least 10'. Kristin or John, 744-6287 eves.

COMPUTER SOFTWARE - for Apple IIC. Gamo, Ext. 2823 or 282-3187 after 5 p.m.

BABYSITTER - responsible female, experienced, for occasional eves. Shirley area, references preferred. Kathy, Ext. 2926 after 5 p.m.

HOUSEMATE - to share large house, 4 bdrms., 3 baths, 20 min. from Lab, washer/dryer, sundeck, $233 mo. plus 1/3 util. Ext. 5038 or 928-8579 eves.

MECHANIC - someone to put rebuilt heads on 305 V8 Chevy. Don, Ext. 2249.

ROOM TO RENT - by female medical student, Mineola/Floral Park area. Betty, 246-9298.

BABY TWIN STROLLER - Ext. 7716, 1-5 p.m. or 728-0334 eves.

DRESS FORM - wish to make own clothing. Ext. 3665 or 744-4611 after 7 p.m.

WEIGHT LIFTING EQUIPMENT - iron plates, bench, etc. 751-2117.

USED OUTBOARDS - outdrives, 1970 & up, for cash, running or not. Jim or Bill, 567-3417 or 281-6498.

VACUUM CLEANER - used. J. Medina, Ext. 7636.

ROOM TO RENT - Ext. 2058.

McINTOSH TUNER - all vacuum tube, preamp or similar quality. 928-0281 eves.

HOUSEMATE - 2 bdrm. house, 1/2 block from water, 15 min. to Lab, partially furnished, washer/dryer hookup, $220 plus 1/2 util. Ext. 2671 or 821-2585.

In Appreciation

To friends at BNL: Thank you sincerely for your thoughtful kindness to us on the death of Edward H. Zellner on May 3.

— from his wife, Mary, and son, Frank

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