BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

COEXISTING WITH COMPUTERS IN THE HOME

By Jagdish Dalal

Computers, with their seemingly infinite capacity for storage and recollection, coupled with the ability to communicate with each other, are constituting a force which is going to have enormous impact on our society. They are extremely capable of serving mankind, but they are also capable of destroying our societies. Will the computer age of tomorrow bring the social chaos and disaster portrayed in Orwell's *1984*, or will it help create a world that is a better place in which to live? Are we ordering the universe the way we would like it to be, or are we letting it happen to us? Unfortunately, the answers to these questions won't be known for generations, when it will be too late for us to go back to the horse and buggy and stone ground wheat.

What does this future look like? How will computers be intertwined with our lives, at work and at home? What will computers do to our privacy and identity? These are the major topics I will address here. The scenarios and concepts I will discuss are strictly imaginary, but the only uncertainty is the time frame in which they will come true - not whether they will.

Computers have already touched many facets of our lives. A day does not pass when you haven't dealt indirectly with a computer. Every time you make a phone call, chances are a computerized switch put through your call. A stop at the bank won't be complete without the help of a friendly computer. However, in the not too distant future we will be dealing directly with a computer. This is already happening in select parts of this country and in Europe.

The QUBE system is being operated in the Columbus, Ohio, area and, more recently, has been offered in Houston, Texas. Through the use of cable television circuitry, a customer can have his home TV connected to a computer for a small fee of about $12 per month. This connection turns the TV set into an intelligent terminal for home use. With the use of a hand held keyboard-type device, subscribers can interactively communicate with a centralized computerized data base to obtain information.

In a competitive system called VIEWTRON (currently being offered in Coral Gables, Florida), Grand Union, Sears, and J.C. Penney will be among the firms providing home services during a trial period. Catalogue viewing and order placing is brought right into the purchaser's home. The purchaser will be billed directly to his/her credit card (via computerized billing systems) and the ordered merchandise will be delivered by mail or truck. VIEWTRON will provide on-line home banking, entertainment and travel services, among others. Participating firms for Viewtron include Eastern Airlines, Southeast Banking Corp., Shell Oil Corp., and news services from publications such as the *Congressional Quarterly* and the *New York Times*. Computer programs will be available to assist the viewer in looking up recipes, preparing taxes, balancing checkbooks, and performing financial analysis.

Use of computers in the home won't be limited to providing access to centralized information bank or computer systems. Computers or microprocessor technology will be available in managing common, everyday household chores. Microprocessor-driven security alarm devices can be bought today. It won't be far in the future when a microprocessor will serve as the command nerve center for the house. It can monitor security and fire alarm devices, house energy usage (even electrical load leveling), provide an automatic phone answering device and, coupled with rooftop antennas, serve as a decoder for TV and communication signals. In addition, it can assist homeowners with their budgets, inventories and tax records. Attached to an intelligent terminal, it can provide computer-aided instructions to school children.

If this scenario of a powerful house computer, coupled with satellite and

(Continued on page 3)

Nobel Laureates Feted At BNL

James W. Cronin of the University of Chicago and Val L. Fitch of Princeton University were honored Saturday evening at Berkner Hall with a banquet sponsored by AUI. Cronin and Fitch were awarded the 1980 Nobel Prize in Physics for their 1963 discovery of CP violation. The two physicists, together with their collaborators James H. Christenson and Rene Turlay, observed that about 2 out of every 1000 of the neutral long-lived K mesons decayed into two pions, showing that the combined operation of charge conjugation (C) and parity (P) was not conserved in weak decay processes. This fundamental discovery implied the violation of time reversal invariance and has been used to explain why the universe consists predominantly of matter rather than antimatter.

Mort Rosen

Above, James Cronin (left) talks with James H. Christenson, now at New York University, a member of the research team. Cronin was Christenson's advisor at Princeton.

After-dinner reminiscences were offered by Brookhaven's Maurice Goldhaber and by I.I. Rabi of Columbia University. They recalled earlier days in physics when support was bountiful and experiments could be proposed and carried out in a short time. R. Ronald Rau, Associate Director, presented Fitch, Cronin and Christenson each with an album containing mementos of their experiment including a complete copy of the original proposal — all two pages. Each also received a commemorative plaque from the Accelerator Dept. A duplicate plaque will be mounted at the AGS, adjacent to one already displayed for the MIT/Brookhaven J particle experiment. That experiment resulted in a Nobel Prize awarded in 1976 to Sam Ting of MIT.

Brookhaven's Alternating Gradient Synchrotron now holds the distinction of having produced two Nobel Prize winning experimental discoveries.

Mort Rosen

A distinguished gathering - Nobel Laureates all. Standing (from left) Val L. Fitch, James W. Cronin and Samuel Ting. Seated are C.N. Yang and I.I. Rabi.

Doug Humphrey

Five environmental scientists (in dark suits) from the People's Republic of China speak to Horn-Bond Lin (center), Research Associate in the Environmental Chemistry Division of DEE. The visitors are (from left) Zhang Xi-Fu, Institute of Atmospheric Physics; Yang Wen-Shang, Institute of Environmental Chemistry; Zhou Ming-Yu, Institute of Atmospheric Physics; Su Weihan, Institute of Environmental Chemistry; and Lu Quei-Qing, Academy Committee for Coordinating Environmental Programs.

A Number of Firsts

An ancient Chinese proverb says: "The first is the best." Recently, the first environmental scientists from the People's Republic of China to visit the United States flew from Peking on the first direct commercial flight between China and the U.S. The first stop on their itinerary was Brookhaven Lab, which they had asked to visit because of BNL's reputation in environmental research.

The Chinese spent two days talking to researchers in the Atmospheric Sciences and Environmental Chemistry Divisions of DEE. They also gave a seminar, during which they discussed their own work in China and described the growing concern there about environmental problems. They said the biggest pollution problem comes from burning soft coal for domestic cooking and heating.

Leonard Newman, Head of Environmental Chemistry, DEE, said BNL is negotiating to build, under contract with the Chinese, a sophisticated instrument to measure tracers in the atmosphere. Russell Dietz, Chemical Engineer in the division, will likely go to China to help set up the equipment.

Also according to Newman, final arrangements are being made to have a scientist with financial support from China come to work in BNL's Environmental Chemistry Division for two years.

先睹為快

Lab Director George Vineyard accepts the charter for Oceanography Explorer Post No. 50 from Robert Redican, Suffolk County Exploring Executive, Boy Scouts of America. Also on hand for the presentation were (from left) Walt Tucker, Institutional Representative; Bob Brown, Associate Post Advisor; Bernard Manowitz, Chairman DEE; Susan Peters, Post President; Todd Kerekes, Post Vice-president; Terry Whitledge, Post Advisor; Vincent O'Leary, member of the Executive Committee for the Suffolk County Council, BSA; John Renyhart, Director of Field Services, Suffolk County BSA; Lee Conway, Associate Post Advisor.

—photo by Humphrey

BNL Sponsors Explorer Post In Oceanography

BNL became the official sponsor of Oceanography Explorer Post No. 50 on January 19 when Lab Director George Vineyard accepted the post's charter from officials of the Suffolk County Boy Scout Council.

Explorer posts, which are career-oriented groups, operate under the auspices of the Boy Scouts of America (BSA) for youths 16 years old and above. When a BSA survey indicated that many young people would welcome a post focusing on marine science, Vincent O'Leary, Associate Director BNL, took an interest.

O'Leary has been active in the Boy Scouts for 25 years and is presently on the Council's Executive Committee. He contacted Walt Tucker of DEE, who, in his long scouting career, attained the rank of Silver Beaver, the highest award for an adult in BSA.

Needing a post advisor, O'Leary and Tucker approached Terry Whitledge of Oceanography. As a boy, Whitledge had been active in scouts and feels that, "scouting eased me over that rough hurdle between youth and adulthood more than anything else." Remembering this, he agreed to lead the post. Lee Conway and Bob Brown, also of Oceanography, offered their help and became associate post advisors. Brown, like Tucker, is a Silver Beaver.

With a guiding organization formed, invitations to attend an interest meeting at BNL were sent to many of the surveyed youths. The membership of Post No. 50 grew out of that November meeting and is now near capacity.

The post meets weekly in Bldg. 318 and uses some of Oceanography's facilities. Several field trips are also planned. On Saturday, they will explore the Moriches Inlet break. During a later trip to the New York Aquarium, they will confer with a researcher. Other planned activities include swimming and seamanship, research projects and career discussions.

House Watch

The Brookhaven House, completed in September, is a two-story house which includes various energy conservation and passive solar features. It is well insulated on its facades, roof, around its foundation perimeter, and underneath its basement and crawl space. A sunspace and a Trombe wall are built on its south facade, and the thermally treated living space area of the house is about 2000 square feet.

During December, when temperatures were below normal, the Brookhaven House was operated in a mode, for calibration purposes, in which its central electric heating system was used to supply the necessary auxiliary heat. The house required 2074 kWh (7.08 million Btu) to maintain a 68°F interior temperature, with an average outside temperature of 28.7°F. This is equivalent to about 49 gallons of oil, if the house were heated with an efficient oil furnace, after taking credit for the "free heat" from occupants, appliances and lighting that would be available if the house were occupied by a family of four.

Expressed another way, the house appears to have a heating requirement of only 2 to 3 Btu per square foot of living space per degree day. This compares with a figure of about 17 for average pre-1975 houses, and 7 to 10 for typical new construction. In terms of oil usage for the month of December, this would be the equivalent of 340 gallons for pre-1975 houses, and 200 gallons for typical new construction.

The December data can be extrapolated to **annual** oil usage of about 260 gallons for a heating season of 5,900 degree-days, which is the average for the relatively cold BNL site. Degree-days at Upton are about 25% higher than in the New York City area.

The house interior temperature has not been set back at night in the initial testing. An 8°F night setback would probably reduce heating needs by about 10 percent; this would reduce the indicated **annual** heating oil use further to about 235 gallons.

A report on energy use at the Brookhaven House will be published in the* Bulletin *each month.

DOE Retiree

Joseph F. Frino, Chief of the Administrative Branch of DOE's Brookhaven Area Office, retired January 16, after 31 years of Government service. He served with the U.S. Army for three years and began his civilian Government career in 1952 with the General Services Administration. In 1956 he transferred to the AEC's Brookhaven Area Office as an Auditor. Frino was appointed to the position of Chief of Administration in 1961. He was responsible for all business management functions at the Brookhaven Area Office, including the administration of the Government's contract with AUI-BNL.

Equipment Exhibit

An exhibit of computer equipment, representing several manufacturers, has been arranged by TRACK Associates for Thursday, January 29, from 10 a.m. to 4 p.m. in Room C, Berkner Hall. The equipment on display will fall into two categories: computer graphics and computer peripherals and systems.

CREF Values

September	$44.60	October	$41.18
November	42.56	December	43.19
January	45.37	February	44.59
March	40.33	April	41.82
May	43.70	June	44.81
July	47.84	August	48.04
September	48.75	October	49.13
November	53.19		
		December	**$51.77**

A Branch of Spring

From late January, and throughout February and March, branches of spring-flowering shrubs and trees may be brought indoors and forced into bloom. Norway and red maple, red-bud, quince, Cornelian cherry, dogwood, forsythia, larch, and magnolia are popular. Apple, pear, apricot, and cherry trees are also good sources of branches for forcing.

Choose branches from several plants so an individual plant is not damaged. The younger shoots with large buds will contain the most blooms.

Crush the end of each stem with a hammer to encourage water intake in wood plants. Submerge and soak the branches overnight, then place the stems in pails of water and store in low light at 60 to 65° F. As the buds become plump, more light is needed for the colors to develop. When the buds are well developed and color is showing, the branches are ready to arrange for display.

A Man of Good Taste

James Ho came to BNL from Hong Kong, via California, and along the way he acquired a taste for wine. That this taste has become highly discerning was proved last month when he was chosen runnerup in a wine tasting competition sponsored by the French Government.

Ho learned of the contest through a wine column in The New York Times, and decided to give it a try. The first requirement was to complete a questionnaire included in a wine booklet, correct responses to which led to the semifinals. About 3,000 persons applied, out of which 600 made it to the semifinals at the Pierre Hotel in Manhattan. There, contestants were asked to identify eight different wines. The field then narrowed to 22 men and women, and this elite group included BNL's Ernie Warburton, John Millener and James Ho. Jim said that one of the judges noted that the finalists were a good group because none of them had made more than one mistake.

A week later, the contest continued at the Plaza and the finalists again had to identify nine French wines by region, vintage and grape variety. When it came down to the wire, the judges chose three persons and called for testing on two more wines. From this, Ho emerged as runnerup.

This was his first competition. When asked how he came to be an expert, he laughs and says, "by drinking a lot of wine, I guess." But he not only drinks it, he studies it, and it is an apparently inexhaustible subject. There are enough different wines on the market that you never have to repeat them, he says. And there is always something new.

Jim notes that wine from the same region differs every year, unlike soft drinks, for instance, which never change. In fact, he points out that because of the accelerating interest in wine in the U.S., soft drink companies, distilleries and breweries are heavy investors in wineries.

At his home in Wading River, Ho maintains a cellar of about 400 bottles of wine which he considers "functional." Ho thinks that the French still have the highest degree of elegance and balance in their wines, "but California is catching up very quickly." Of course, on his travels, he samples the region's wine, but rarely buys any because almost everything can be found in New York City. Jim advises beginners to read up on the subject, and be adventurous in their choices. One thing he does is to collect labels and keep notes on each one. If you have a favorite jug wine, try to identify its characteristics, and be aware of why you like it best.

A native of Hong Kong, Ho did his undergraduate work at Columbia University. He came to BNL in 1974 after obtaining his Ph.D. from Stanford. He is a mathematician in Applied Math working primarily on systems optimization.

Doug Humphrey

James Ho casts a critical eye on a glass of wine prior to tasting. This is the proper way to hold the glass to observe the color and complexity of the wine.

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Letters To The Editor

To the Editor:

I would like to extend my appreciation to Kim Mayo for a fine article on Martin Luther King, Jr. (*Bulletin*, January 16, 1981). It's nice to know that we have not given up on that dream, nor on the means by which we will accomplish that dream. The reality of the matter is that 16 years ago, Dr. King made it possible for me to write this response to you today. Dr. King's dream is a reality in my life.

Leon Lawrence, P&GA

Women in Science

Phyllis Vineyard will be the guest speaker at the Women in Science dinner meeting to be held on Monday, February 2, at 5:00 p.m. in Room A, Berkner Hall. Mrs. Vineyard will discuss the following: Women in China, the International Women's Year Conference, and the White House Conference on the Family.

The dinner, including wine, will cost $7 per person. Make reservations with Eena Mai Franz, Bldg. 830, Ext. 7103, before Thursday, January 29.

Kayaking

Now that the pool has reopened, the Mountain Club's kayaking lessons have been rescheduled to start on Sunday, January 25 at 10:00 a.m. Sign up for lessons at that time, or contact Harold Udseth, Ext. 4324, or Dick Watson, Ext. 3788.

Artists' Alert!

The Art Committee announces the 8th BERA Members' Art Exhibit, scheduled to open on Tuesday, March 17 at 5:00 p.m. All BERA members, including employees, immediate family 16 years of age and over, and retired employees, are invited to contribute their work.

Artists may display their most recent work in two categories: pictures or sculpture. Pictures will include water color or oil paintings, drawings and graphics. A form, which must be completed for each work, will appear in a future issue of the *Bulletin*, along with complete details about the exhibit.

NYC Train Trip

The Hospitality Committee is planning a group railroad trip to the city on Wednesday, February 4. Departure will be at 7:55 a.m. from the Patchogue LIRR station. Round-trip fare for adults is $3.25, children under six years ride free.

Reserve a ticket by sending your fare through the U.S. mail to P.O. Box 322, Upton, New York 11973, no later than *Thursday*, January 29. Make checks payable to "Brookhaven National Laboratory." Tickets will be given out on the train. Refunds will be made only if cancellations are received by the *Friday* preceding the scheduled trip.

Arrivals & Departures

Arrivals

Lawrence J. Abbondola ..... Plant Engrg.
Cecil E. Ayres ..... Plant Engrg.
Wilbourne A. Cameron ..... S&EP
Anthony P. DeLibero ..... Instrumentation
Pauline M. Gagnon ..... Plant Engrg.
James A. Gray, III ... Sys. & Adm. Data Proc.
Ole Hansen ..... Physics
Bettie J. Hicks ..... Medical
Christine King ..... Supply & Materiel
William Rutter ..... Energy & Env.

Departures

Samuel F. Carter ..... Nuclear Energy
Juan Castillo ..... Central Shops
Curtis R. Fincher, Jr. ..... Physics
Jose L. Frias ..... Accelerator
Alexander B. Horwitz ..... Chemistry
Dora B. Krimer ..... Biology
Graheme J.B. Williams ..... Chemistry

Cooking Exchange

Kou gokitai nihon ryori ni. Join us at the next Cooking Exchange meeting on Wednesday, January 28 and sample the delicacies of Japanese Cooking. *Butajiru, kanigohan* and *ohagi* are some of the dishes that will be demonstrated.

Cooking Exchange meetings are held at the Recreation Building from 12:30 to 2:30 p.m. and are open to all people affiliated with the Laboratory and their family members. There is a charge of $1 per person and baby-sitting is provided at 25¢ per child.

For further information call Ruth Fernow, 928-8465.

On The Aisle

The BERA Theater Group's winter production of "6 Rooms Riv Vu" is one of the most popular modern comedies favored by audiences. Sandi Lane has garnered a compatible group of perennial BNL actors and has it at peak form to bring forth chuckles and laughs from the audience.

The appeal of the story line — that of a conventional couple who spend an unconventional night together — may be because it could well be a deja vu for some of the viewers.

Joe Skelly's particular style of acting is well suited to the role of Paul Friedman. His underplaying and consistent smoothness contrasts well with Angela Castellano who performs with a nervous and agitated charm. The two humorous character parts are played to the hilt by Joe Indusi and Ruth Basile — both providing a needed acceleration to the pace of the production and diversion to the narrow plot. The urbane Tony Fainberg provides his usual assured performance as the husband of the lesser couple. Sandi Lane, who improves with every role, makes a surprise appearance as the other wife. Betsy Cuthbert and Joseph Boniface add to the sum of the whole — that being an enthusiastic and well prepared cast who gave one of the best first night performances ever.

BNL theatergoers will not be disappointed in "6 Rooms Riv Vu." Showing at Berkner Hall on Friday and Saturday, at 8:30 p.m., January 23-24, tickets are $2 for persons under 18 and over 65, $3 for other adults. For reservations, call Ext. 3940 or 286-9584. Tickets are also available at the door.

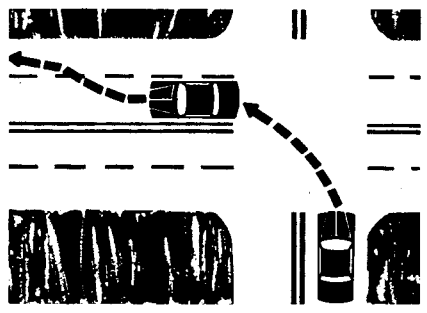
—John Binnington

Cafeteria Menu

Week Ending Jan. 30, 1981

Monday, January 26		
Cream of tomato soup	(cup)	.55
	(bowl)	.65
Salisbury steak & 1 veg.		1.60
Blueberry pancakes & sausage		1.50
Hot Deli — Roasted turkey breast	(on bread)	1.65
	(on roll)	1.75
Tuesday, January 27		
Philadelphia pepper pot soup	(cup)	.55
	(bowl)	.65
Barbequed ribs & baked beans		1.65
Broiled filet of fish & 1 veg.		1.55
Hot Deli — Roast beef	(on bread)	1.65
	(on roll)	1.75
Wednesday, January 28		
Beef noodle soup	(cup)	.55
	(bowl)	.65
Irish stew with noodles		1.60
Roasted pork loin & 1 veg.		1.65
Hot Deli — Reuben		1.60
Thursday, January 29		
Pork & cabbage soup	(cup)	.55
	(bowl)	.65
Roasted chicken w/stuffing & 1 veg.		1.55
Pork & fried rice w/1 veg.		1.55
Hot Deli — Italian meatball hero		1.70
Friday, January 30		
Manhattan clam chowder	(cup)	.60
	(bowl)	.70
Shells w/white clam sauce & garlic bread		1.50
Breaded pork chop w/apple sauce & 1 veg.		1.65
Hot Deli — Fried filet hero		1.65

Rules Of The Road



Every rule has an exception, and the driving rule, "Keep to the Right," is one example. As this diagram from the New York State Driving Manual illustrates, when turning left from a two-way road onto a four-lane highway, a vehicle should enter the passing (left) lane of the four-lane highway. The right lane should not be entered until traffic permits. This is an important rule to remember when leaving the Lab by the main gate and turning left onto William Floyd Parkway.

Emergency Closings

The following radio stations will carry notification of BNL delayed openings and emergency closings.

Station	Area	AM	FM
WBAB	Babylon	1440	102.3
WGLI	Babylon	1290	—
WLIX	East Islip	540	—
WHLI	Hempstead	1100	98.3
WALK	Patchogue	1370	97.5
WBLI	Patchogue	—	106.1
WRIV	Riverhead	1390	—
WRCN	Riverhead	—	103.9
WLNG	Sag Harbor	1600	—

Met Opera Tickets

Some opera tickets are on sale at the BERA Sales Office in Berkner Hall.

Call Pat Manzella, Ext. 3347, or better still, stop in the office for information on dates and performances.

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. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161. Staff members should call Ext. 3484.

BNL 51091 **$10.00**
EEMIS Data Sector Correspondence with Conceptual Database Design. K. Croteau, et al.

BNL 51099 **$5.00**
Vehicle Attributes Constraining Present Electric Car Applicability in the Fleet Market. J.R. Wagner.

BNL 51169 **$7.25**
Program Summaries for 1979 — Environmental Programs. B. Manowitz, Chairman.

BNL 51173 **$6.00**
The Optimal Timing of Investment in Energy Conservation Technology. S.A. Ravid.

BNL 51240
Variable Firing Rate Power Burner for High Efficiency Gas Furnaces. Final Report. H.H. Fuller, et al.

BNL-NCS-51250 **$10.00**
Minutes of the Fourth Annual Meeting of the Panel on Reference Nuclear Data. (Brookhaven National Laboratory, November, 1-2, 1979). Edited by T.W. Burrows, et al.

BNL 51252 **$8.00**
1979 Environmental Monitoring Report. J.R. Naidu, Editor.

BNL 51257 **$7.00**
A Reconstruction of Chronic Dose Equivalents for Rongelap and Utirik Residents — 1954 to 1980. E.T. Lessard, et al.

NUREG/CR-1694
BNL-NUREG-51266
Properties of Radioactive Wastes and Waste Containers. Quarterly Progress Report, April — June 1980. N. Morcos, et al.

BNL 51281 **$7.00**
Data Report — The Fate of Human Enteric Viruses in a Natural Sewage Recycling System. J.M. Vaughn, et al.

BNL51237 **$5.25**
Fast-Mixed Spectrum Reactor Progress Report: Results of the FMSR Benchmark Calculations and an Assessment of the Current Fission Product Libraries. H. Ludewig, et al.

Computers (Cont'd)

antenna-like devices for communication, is stretched a little further, we begin to see the fringes of a whole new world. In this new world, people never have to leave home for any reason, except to get away from it all!

Alvin Toeffler in his recent book *The Third Wave* talks about this alternative pattern of work. He uses the term "Telecommuting," a term coined by a University of Southern California researcher, Jacks Nilles. Toeffler states that, "The skyrocketing cost of gasoline and plummeting cost of mini-computers and communications suggest that, at some point, it will be far cheaper to put electronic work stations in the home rather than transport vast numbers of workers back and forth everyday. Telecommuting may well replace commuting."

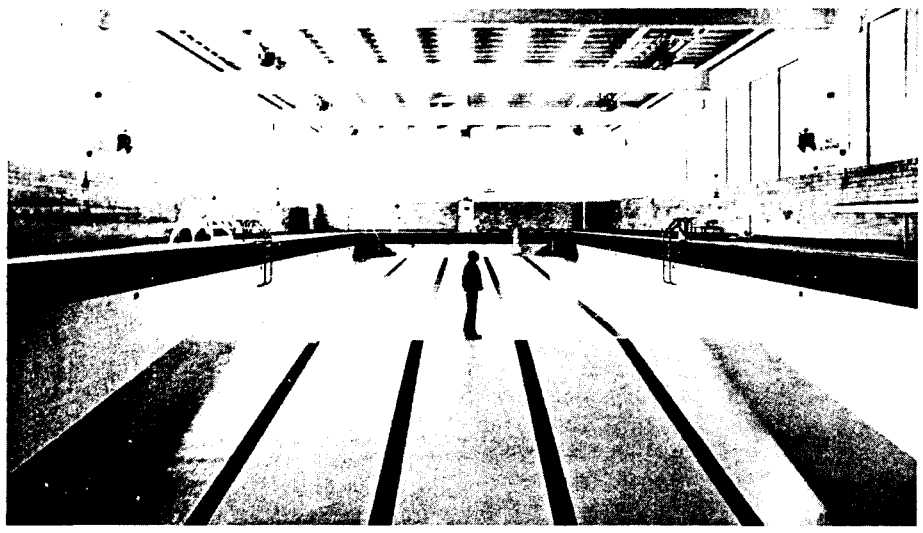
In this scenario, an engineer manages an entire production line from his home; a financial controller manages funds and budgets from her home by communicating with the company's super-computer, as well as with computers of the company's banks, vendors and customers. A graduate student calls up the computer to perform library research for his thesis; a second grade student depends on the computer terminal to learn the basic rules of multiplication. According to Jacks Nilles, "By 1990, an estimated 47 million people will be in information jobs in the United States. Maybe two million to five million of those people will be telecommuting to some degree."

In summary, computers will no longer remain complex, expensive, inaccessible machines, but will become a commonly accepted, useful utility. Just as we accept the availability of electric power when we turn on the switch, we will be taking the use of computers for granted.

Use of computers still assumes that they essentially remain dumb machines. However, with research in the field of "Artificial Intelligence," scientists believe they can produce the hardware/software that will imitate human-like intelligence and emotions. When perfected, this research will lead to "intelligent" computers like "HAL" in the movie "2001." The impact of such an event on our society is mind-boggling at this time.

This is the first of three articles on computers. The second, "In the Office," will appear next week.

Pool Wears New "Coat" for New Year



Doug Humphrey

During the seven-week period the pool was closed, it received its most extensive maintenance in 20 years. Ed Leitgeb, Paint Shop Supervisor, stands in the center of the pool, surveying its new paint job prior to the January 19 reopening. In the background, workers put the finishing touches on what was a monumental task. Preparing and painting the pool from floor to ceiling was accomplished with the combined efforts of the Paint Shop and the Custodial staff. The ceiling alone required 120 gallons of white latex paint, and 30 pounds of bleach was needed to clean the mildew from the side walls of the pool. In addition to its new "coat," the pool also boasts new ceiling heater units installed by the Steam Shop.

Bowling

Green League

Congrats to the Pinball Wizards, winners of the first half after taking 8 from the Old Timers II. T. Prach bowled a 217 and R. Eggert 202/212 for a 607 scratch series. For the losers, L. Musso rolled a 207 and B. Galen 246. The Blue Jays took 11 from the Sparks with N. Parrinello bowling a 215. The Phoubars took 8 from the Trouble Shooters with B. Sells rolling a 212. The Light Source lost 11 to the Freon Loaders with A. Almasy bowling a 204.

Pink League

The first half winners are the Lickety Splits. High series went to Helen Keeley with 485 and high game to Deb Johnson with a 189. Other good games were bowled by Karen Alberico 175, Mary-Grace Meier 170, Fran Briening 170, Millie Connelly 170, Renie Rosati 165,Audrey Blake 165, Marie Grahn 160, Pat Oster 155, Ellie Kristiansen 152, April Donegain 149, and Maryann Larsen 145. Fran Briening converted the 4-7-10, Ann Parrinello the 6-7-10 and April Donegain the 1-2-4-10 (twice).

Red League

The Freon Loaders won 11-0 over the Light Source. Gross wood scores were L. Schairer 650, T. Rudolf 632, F. Powers 608, V. Bilms 601. The 76'ers took 7 from the Sandbaggers. J. Connelly rolled a 214/646, T. Holmquist 640 gross, J. Petro 203/618, K. Riker 200/637, J. Morris 614. The Designers won 7-4 over the Old Timers. J. Ferrante bowled a 209/626 gross. This Isa Team took 7 in a match with the Strangers. E. Sperry IV rolled a 223/664, R. Tayler 225/679, W. Vanzwienen 201/608, R. Barberich grossed 607 and J. Sauls 605.

Purple & White League

The Diamonds are the champs for the first half. John Connelly rolled the high series and high game for the night with games of 205/230/191 for a 626 series. Other good games were bowled by Bill Sells 208, Jim Griffin 204, James Petro 202, Ed Frantz 201, Tom Romano 200, Betty Jellett 190, Grace Kyhl 189, Pat Manzella 184, Polly Fuchs 181, Jeanne Penoyar 181.

Volleyball

Standings as of 1/19/81

A Division		
High Society	11-1	
No Names	11-1	
Mixed Ups	6-6	
Las Bolas	5-7	
Nuts & Bolts	3-9	
Kings Court	0-12	
B Division		
Leftovers	12-0	
Lemufs	7-5	
Semi Tough	6-6	
TNT	4-8	
Oh Nos	4-8	
Puff & Stuff	2-10	

No Names over Kings Court, 15-1, 15-6, 15-2. High Society over Nuts & Bolts, 15-0, 15-6, and 16-14. Mixed Ups over Las Bolas, 15-8, 15-13, 10-15.

Leftovers over TNT, 15-9, 18-16, and 15-12. Lemufs over Semi Tough, 15-7, 15-6, 13-15. Oh No's over Puff & Stuff, 15-11, 16-14, 15-17.

Correction on last weeks report: Semi Tough over TNT, 18-16, 15-7, and 9-15.

Open League Volleyball Tournament Results
January 14, 1981

	W	L	T
Spikers	7	0	0
Moles	6	1	0
Toga	5	2	0
Sch...ers	3	3	1
Raiders	3	3	1
OTHG	1	5	1
Monday Terrors	1	6	0
Brew Masters	0	0	1

Camera Club

A meeting of the Camera Club will be held on Tuesday, February 3, at 7:00 p.m. in the Recreation Hall. The purpose of the meeting is two-fold: to elect new officers and to discuss plans for club activities in this new year. Along these lines, all members and guests are invited to bring a few of their favorite and/or problem slides for group discussion and critique.

Mountain Club

The next Mountain Club gamble will be a bus trip to Atlantic City on Saturday, January 31. Everyone over 18 years of age is welcome. The trip will cost $16.

The bus will leave from Howard Johnson's in Shirley at 8 a.m. and from Howard Johnson's in North Bellport at 8:15 a.m. Return will be at about 10:00 p.m. Bring a thermos of coffee for the trip down, and wine and cheese for the return trip.

If there are any questions, call Don David, Ext. 4821.

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 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 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, 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.

LABORATORY RECRUITMENT: Opportunities for present Laboratory employees and outside applicants.

1551. CLERICAL POSITION — Requires a solid background in performing office duties. Will be responsible for a variety of tasks involving the establishment and maintenance of a broad range of construction files as well as the operation and maintenance of an Ozalid machine. Light typing desirable. Plant Engineering Division.

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

1552. CHEMICAL ENGINEERS (two positions) — Requires at least a BSChE; MSChE strongly preferred and chemical background in process design and analysis. Specific experience in chemical heat pumps/energy storage would be desirable. Department of Energy and Environment.

1553. TOUR GUIDE (temporary/six positions) — Requires excellent verbal communication skills and ability to read and interpret scientific press releases. Should have broad and general interest in science. Duties will include reception desk and group-escort functions. Director's Office.

Autos & Auto Supplies

67 JEEP - International, 4 WD, a/t, needs some work. $900. Stacey, Ext. 3397 or 283-6836.

SNOW TIRES - (2) D78-14, 4 ply polyester cord, excel cond. $40. Frank, Ext. 3898.

68 CHEVELLE - track car, excel cond, 331 Pro motor, Ford top loader trans. motor set back, alum. fire walls, 5.38:1-12 bolt rear E.T. 11.5 sec. $3,500. Fred, Ext. 4407/35 or 499-1214 after 6 p.m.

1973 - 350 engine for sale, $300; 15" GM chrome spokes, $125. George, 475-0037.

RIMS - 14", $5. Ext. 3027.

70 PLYMOUTH - Duster, a/t, p/s, reg. gas $400. John, 929-8381.

73 DUSTER - rebuilt engine & trans, good body, runs well. $1,700. 924-8309 eves.

74 CHEVY - C-10 Pickup, 6 cyl, std, 53,000 mi. $950. Joe, Ext. 3582 or 929-8109.

74 PLYMOUTH - Sattelite, 2 dr, a/t, 6 cyl, new brakes & shocks, high mi. $750. Jerome, 281-5667.

78 YAMAHA - XT-500E, street, trail, extras, 4/stroke, mint cond, good MPG. $1,075. 928-7769.

TIRES - w/rims Firestone deluxe Champion Superbelt L78-15, 3 for $45. 475-1494 after 6.

72 FORD - Sta. wgn, p/s, p/b, excel mech. But some dents. Arnie, Ext. 2606.

TIRE - brand new A78-13 on rim, w/w, glass belted. $20. Firm. 281-0843.

72 HONDA - motorcycle 125SL, shop manual. $165. 286-1975.

77 DODGE - Club cab pickup, V8, a/t, cap, new tires, excel cond. $3,900. Ext. 3592 or 736-3112.

67 VW BODY & CHASSIS - excel, 5 good tires, needs cam. $125. Phil, 924-7445 after 6.

77 RAMCHARGER - F/T, 4 WD, 28,000 mi, 360 eng., many options, all heavy duty, reg. gas, 13 MPG. Sheldon, Ext. 3354.

75 TR6 - excel cond. $4,000. Bonnie, Ext. 2921 or 698-4444 after 6 p.m.

74 PINTO - Wgn, convenient vehicle in running order, needs some work. $300. Offers. Malcolm, Ext. 3758.

72 CHEVY NOVA - 6 cyl, 2 dr, a/t, runs good. $700. Ext. 2456.

69 CHEVY NOVA - 6 cyl, a/t, 4 dr, runs good, make offer. Ext. 3654.

74 YAMAHA - 250cc, cycle just tuned, mech. excel, very clean. $500. or best offer. Ext. 7154.

WHEEL RIMS - (2) like new, fits all 78-15 type tires. $20. E xt. 4758 or 271-2877.

79 CORVETTE - silver w/Oyster leather interior, loaded, immaculate in & out. $9,500. 584-5779.

TIRE - (1) G78-15 w/w belted, new. Walt C. Ext. 3254.

68 VOLVO - 144S, orig. owner, 80,000 mi, a/c, manual transmission, extras, good cond. $1,200. 286-1444.

76 YAMAHA - DT-175 Enduro, road & trail, well maintained. $525. Art, Ext. 4921 or 929-6177.

73 CHEVY - Caparice wgn, good work car, priced for quick sale. $200. Firm. Fred, Ext. 4407 or 499-1214 after 6 p.m.

63 YAMAHA - 250cc, cycle, spare eng., many extra parts. $200. or best offer. Ext. 7154.

68 FAIRLANE - Sta. Wgn. - Tired of your Rolls or Mercedes? Check out this gem for only $450. Ken, Ext. 7317.

Miscellaneous

SNOWPLOW - 7½ Meyers complete w/pump, blade and frame. $350. 928-0397.

COLONIAL - coffee table and 2 end tables, dark pine. $75. Sheryl, Ext. 2498.

TENNIS RACQUET - Prince Classic, 4½L Vantage I strings. $45. Ext. 4846 or 363-6940 after 5 p.m.

BOOTS - women's Frye Tan, size 7, excel cond, $35; skis, Hexcel Primercord 205cm w/marker step-in bindings, excel cond. $100. 744-5161 week day eves.

STEREO - cassette recorder, 615 technics by Panasonic w/dolby system, exel. $125. Raymond, Ext. 2023 or 399-4767 after 5.

BICYCLE - 10 spd, 26", $40; burger-maker; heater. Ext. 3027.

AMPLANE - RCM/R.C. 48" wing complete radio equip, 25 engine ready to fly. Asking $150. Manny, Ext. 2022 or 727-9058.

FREE - rad arm saw blade guard, wrenches; to person (Phys. Dept.) who bought my 9" unit. 744-2955.

FREE - color console TV, needs work. You just pick up. Ext. 3158.

COLECO - air hockey table, excel cond. $45. Phil, 924-7445 after 6 p.m.

AFGHANS - exclusive hand made and hand embroidered, large sizes, also other handmade knitware; mink coat, natural wild mink, size 12-14. Sacrifice $675. 472-0509.

ELECTRIC MOTORS - 1/3 to ½ hp cap, bb 115/230, 1725 to 3450 rpm. $15 to $60. 744-8680.

BIRCH DOORS - prehung, new, 24" and 30", $25 ea; bath cabinet w/mirror, 18" x 14" x 3½", new, Miami Carey CRW 308-18. $10. Ext. 2831.

TIRE CHAINS - fits lawn and garden tractors, never used. Cost $50, sell $30. Ext. 4434.

THE ORGAN HANDBOOK - Koltz, structure design, function of pipe organs, 225 pp. $10.50. Phil Warner, Ext. 7934.

ROLLER SKATES - indoor, white size 9, perfect, $10; rabbit coat, size 9, like new. $25. 281-8557.

ICE SKATES - women's size 7½, hardly used. $10. Ext. 3456.

BRASS FINISH LAMP - $15; caned swag lamp, $10; blue velvet Queen Anne chair, $50. 288-3216.

GUITAR - "Harmony" w/steel strings, case incl. $35. Greg, Ext. 7960.

BABY CARRIAGE - $25. 399-5568.

ICE SKATES - girl's size 4, $3; ladies size 9, $8. 727-1617.

SLACKS - men's brand new polyester winter weight 40 x 30, 2 pair for $15. Tom, 589-5837.

SKI BOOTS - men's Caber size 13, 3 buckles, black, good cond. $25. 588-0677.

ICE SKATES - boy's size 6 and size 8. Ext. 2459.

MUSIC MAN AMP - (2) 12" speakers, 65 watts, master volume, reverb. $395. 728-3874 eves, wkends.

SKI BOOTS - Men's 8½ new Le Trappeur black plastic. $45. Ext. 4727.

SNOWBLOWER - Yardman, 5 hp, 22" blade, self-propelled, 2 stage, elec. start, spotless, used only 6 times. Jones, Ext. 2599 or 473-8188.

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

MANORVILLE - 3 bdrm ranch, 1 acre, country kit, 1½ bath, garage, full bsmt, all appl, assumable mortg. at negotiable rate. $41,000. Pete, Ext. 3868/4574 or 878-1225.

STONY BROOK - B-Section, Devon Ranch: 3 bdrm, l/r, d/r, eik, den, garage, 2 baths, fenced, 3 Billage School, treed, 1/3 acre, assume 8½% mortg. $60,000. 751-3885 after 6 p.m.

BELLPORT VILLAGE - 3 bdrm Hi/ranch, l/r, f/r, den, lg. eik, att. gar, deck, 1½ baths, short walk to Kreamer St. Schools. $42,000. Financing available. 286-8166.

MEDFORD - 1/3 acre, Cape, 4-5 bdrm, 2 baths, den w/fp, l/r with wood stove, lg. eik, formal d/r, 18×36 in ground pool, assume 7½% mortg. $41,900. Jack, Ext. 4254 or 289-6708.

WESTHAMPTON AREA - mobile home 12'×60', 2 bdrms, eik, stove, regrig, washer/dryer, laundry rm, 2 tool sheds, porch, patio, wooded landscaped plot. $10,500. 325-1112 after 5 p.m.

For Rent

MIDDLE ISLAND - 2 bdrm house, immediate occupancy. $325/mo. plus util. Miriam, 924-3528.

N. SHIRLEY - attractive apt. furn., priv. entr., util. incl, excel location, 5 min. from Lab & stores, mature working gentleman, security. $285/mo. pays all. 281-8044.

PORT JEFF/HARBOR HILLS - Jan.-June, 3 bdrm house, 3 baths, fp, deck/patio, 2 zone gas heat, unfurn or part furn. $525/mo. w/o util. 928-7154 or Ext. 3791.

Wanted

DRUM SET - for beginners. Emma, Ext. 2456.

ROOF SHINGLES - any color & any amount. George, Ext. 3536.

DRILL PRESS TABLE - or floor stand, reasonable. HR2-0167.

LARGE HUMIDIFIER - and air purifier for asmatic child. 884-2868 anytime.

AMBITIOUS PERSON - for a business venture, no investment risk, for interview. 732-6678.

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

PORTA CRIB - good cond. Grace, 878-1514.

APARTMENT - 1 bdrm. in Stony Brook area for quiet person. Please call S. Ghoshroy at Ext. 4641 days or 345-2512 eves.

CAR - German or Japanese made, less than 5 yrs. old, normal mileage. Ext. 3112/4912.

MINERAL SPECIMENS - Collections, old mineral books, any language. Plotkin, Ext. 4717.

SHOP MANUAL - for 1968 Ford Mustang, Ext. 4278 ask for Mark.

SHOP MANUAL - for 1973 Plymouth Valiant/Duster. Tom, Ext. 2959.

TODDLER CAR SEAT - 744-4215.

Car Pool

E. PATCHOGUE/BELLPORT AREA - one ad-member needed 8:30 to 5:00 p.m. shift. Bob, Ext. 2388.

BETHPAGE/MASSAPEQUA/PLAINVIEW AREAS - 2 drivers car pool to join. Mike S. Ext. 3658.

MILLER PLACE - Pipestave Hollow Rd. start or join car pool. Robert, Ext. 7112.

BROOKHAVEN - looking for additional driver, 8:30 to 5:00 schedule. Ext. 3786 or 2263 G. Ince or R.M. Brown.

Services

Services are listed as a courtesy to BNL employees. They are neither screened nor recommended by the *Bulletin*.

FIRESIDE CHIMNEY SWEEPS - fireplaces, wood, coal & oil flues. Dustless removal, insured. Lab discount. Bill, 584-6425.

TAXES - prepared by Tax Consultant, your home or mine. Reasonable. John, 732-2472.

BABYSITTING - Want to babysit child, 2-5 yrs. Will give lots of TLC. Dawn, 924-8297.

PIANO TUNING - and repair, reasonable rates & conscientious service. 751-4985.

HELEN'S HATS - $7.00. 878-4979.

PET BEHAVIOR CONSULTANTS - Problem w/a pet? Call for appt. w/a professional. 399-3882.

FIREWOOD SPLIT - seasoned oak 4' x 16' x 18" $110. Delivered. 924-4284 or 924-3919.

CARPETS INSTALLED - repaired, quick dependable service. Free estimates. Jim, 821-0187 after 5 p.m.