BROOKHAVEN BULLETIN

Vol. 42 - No. 35 September 9, 1988

BROOKHAVEN NATIONAL LABORATORY

Meetings Are the Issue . . .

A Natural Point to Think About Rare K Decays, CP Violation

At what William Marciano called "a natural point to stop and think about what we might be doing in the future," over 110 physicists met at BNL August 25-27, for the Workshop on Rare K Decays and CP Violation.

Marciano, a theorist in BNL's Physics Department, was chairman of the Workshop organizing committee. As he explained, "The intention was to bring together experimenters and theorists, to discuss the present status of rare K decay and CP violation experiments — how far present experiments can be pushed and what one should aim for in the future."

At BNL, four teams are doing rare kaon (K) decay experiments at the Alternating Gradient Synchrotron (AGS). With the analysis of the data collected during last year's run either completed or nearly so, and the start of the next run some months away, this was, indeed, "a natural stopping point" for BNL experimenters. The timing also drew physicists from Japan's KEK laboratory, where two rare K decay experiments are being done at an accelerator of somewhat lower energy than the AGS.

In rare K decay experiments, physicists are interested in seeing whether particles called kaons (K) decay in ways that are either unpredicted or predicted to occur very rarely. If they see predicted rare K decays, they will learn more about standard theory; if they detect unpredicted decays, the standard theory will be violated and new theory would be required.

One such violation — CP violation — has so far been seen only through the decays of kaon systems. Researchers at Fermi National Accelerator Laboratory (Fermilab) and from the European laboratory CERN shared their recent results from CP violation experiments at the Workshop.

One of the "most interesting results," according to Marciano, was last year's measurement at CERN of a new manifestation of CP violation, termed "direct" because the evidence for it came directly from a comparison of different decay modes of the neutral kaon. In contrast, other measurements of CP violations, such as the very first one, discovered at the AGS in 1963, are inferred from the condition of the particles in the decay, and thus are "indirect."

Other Workshop discussions centered on the future of the kaon physics program at BNL, which Marciano said "is at the forefront of this research today. But most of these experiments could be pushed quite a bit further, with more luminosity. This will be helped by the Booster, which will increase the AGS's intensity by a factor of four."

Beyond the Booster, now under construction at the AGS, the attendees discussed ideas for other AGS enhancements, such as a stretcher and perhaps even a post-booster.

There are also a variety of proposals for facilities that, said Marciano, "could push present experiments by two orders of magnitude." Likely locations for such facilities are the Canadian laboratory TRIUMF and the Advanced Hadron Facility at Los Alamos National Laboratory. Representatives of both labs also participated in the conference.

Roger Stoutenburgh

Organizers of the Workshop on Rare K Decays and CP Violation gathered at rare K decay experiment 787, at the AGS: (from left) Laurence Littenberg, Laurence Trueman, Howard Gordon, William Morse and William Marciano, all of BNL. Also on the committee were Sara Dawson, BNL; Daniel Marlow, Princeton; and William Molzon, University of California, Irvine.

Potential SSC Magnet-Makers Visit Lab

As one of the three collaborators in the magnet design of the proposed Superconducting Super Collider (SSC), Brookhaven was the first of three Department of Energy (DOE) laboratories to host representatives of U.S. and foreign companies interested in building the SSC's superconducting magnets.

On Wednesday, August 31, about 150 manufacturers' representatives came to BNL to get a firsthand look at prototype SSC magnets and their production. For the first phase of its SSC-magnet technology transfer program, DOE had invited experienced magnet-makers and other qualified companies, including Westinghouse, General Dynamics, General Motors, Babcox & Wilcox and Asea Brown Boveri, to tour the Lab's superconducting magnet facilities in Bldgs. 902 and 924.

Roger Stoutenburgh

At the Superconducting Super Collider (SSC) exhibit at Berkner Hall are those who met with the prospective industrial SSC magnet-makers: (from left) Erich Willen, BNL; Robert Diebold, DOE; Ned Goldwasser, SSC Central Design Group (CDG); BNL Director Nicholas Samios; Thomas Kirk, CDG; Roger Coombes, CDG; BNL Deputy Directory Martin Blume; Ralph Niemann, Fermi National Accelerator Laboratory; Robert Hughes, President, Associated Universities, Inc.; Maury Tigner, CDG; John Peoples, CDG; BNL Associate Director Parke Rohrer; and Kenneth Mirk, CDG.

In the near future, other corporate representatives will tour the facilities at Fermi National Accelerator Laboratory and Lawrence Berkeley Laboratory, the other two labs collaborating with BNL in the SSC magnet design. While on tour, corporate representatives learn of the processes, tooling, specifications, quality control and testing involved in SSC magnet fabrication.

The SSC will use about 9,600 superconducting magnets to bend and focus protons as they are accelerated to an energy of 20 trillion electron volts. SSC superconducting magnets will require only one percent of the electricity that would be needed to power conventional electromagnets. As well, they will create magnetic fields several times stronger than those of conventional magnets, thus confining the protons to a smaller orbit and reduc-

(Continued on page 2)

Roger Stoutenburgh

The local organizing committee of the GLUE88 workshop and their assistants: (from left) Sharon Smith, Kenneth Foley, Suh Urk Chung, Michael Pennington, Ronald Longacre, Hans Willutzki and Elizabeth Mogavero, all of the Physics Department.

GLUE88 Binds Physicists in Talks On Glueballs, Hybrids, Exotic Hadrons

One-hundred-thirty scientists from 14 countries attended the four-day GLUE88 workshop at BNL last week, to debate the reported sightings of glueballs, hybrids and exotic hadrons — and to discuss what more can be done at BNL and around the world to confirm or dispute what has been seen.

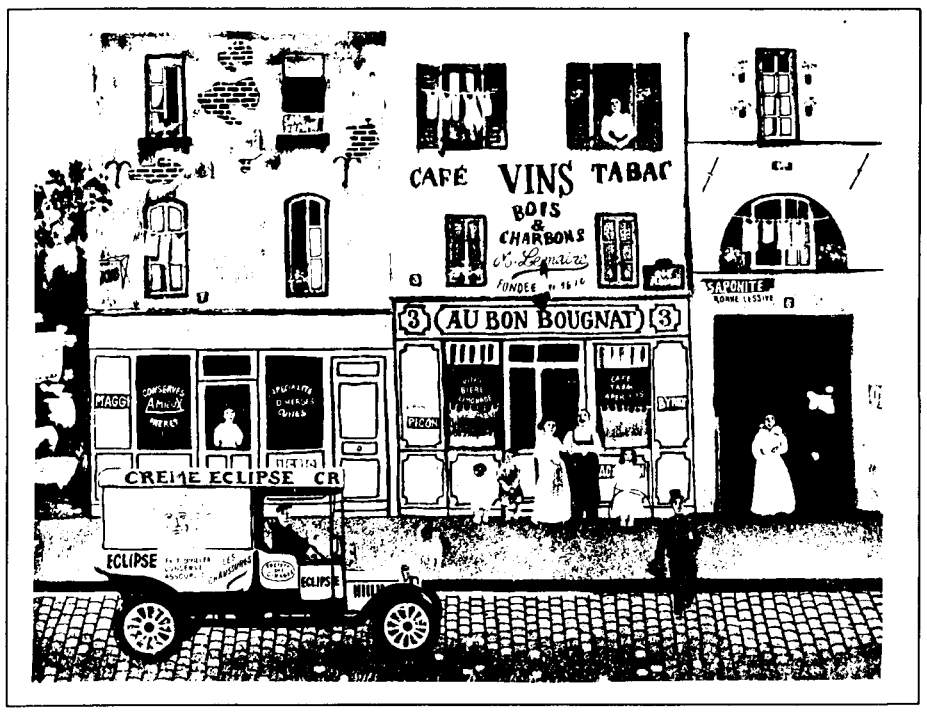
Hypothetical carriers of the strong force between quarks, gluons glue quarks together into hadrons. Hadrons made up of three quarks are called baryons, and this family includes such particles as protons, neutrons and hyperons. Those hadrons composed of a quark and antiquark pair are called mesons, including pions, kaons and the J/Psi.

According to quantum chromodynamics (QCD), the theory of strong interactions, gluons can stick to each other — and this hypothetical particle of two or more gluons without any quarks is called a glueball. While QCD foresees the existence of both glueballs and unusual quark-gluon combinations called hybrids and exotics, it cannot yet predict where to find them — as more experiments must first be done.

"BNL has a leading role in this field, as the energy of the Alternating Gradient Synchrotron (AGS) is ideally suited for the study of light quark spectroscopy," explains BNL Physicist Suh Urk Chung, Physics De-

(Continued on page 2)

Art Expo and Auction Coming Up



This artwork is by Michael Delacroix, one of the established artists whose work will be auctioned off by Marlin Art — at the upcoming Art Expo and Auction. This entertaining and informative event will be held on Saturday, September 17, in Berkner Hall. It is open to the public and sponsored by Brookhaven Women in Science (BWIS).

For a tax-deductible $5 admission per person, you can preview the art to be sold at 7:30 p.m., while helping yourself to wine and cheese, soft drinks, coffee, tea and cookies. The auction gets under way at 8:30 p.m., and a door prize will be awarded at the end.

Bidding will start as low as $40, and checks are preferred for payment, though most credit cards will be accepted. The commission BWIS receives on the sales will go to its Renate W. Chasman Scholarship for Women fund.

Magnet-Makers (cont'd)

ing the size of the collider's circumference.

About 8,000 of these will be 50-foot-long dipole magnets, which will bend protons around the 53-mile-in-circumference collider.

The magnets will reach a magnetic field of 6.6 teslas, produced by a current of 6,500 amperes in niobium-titanium superconducting coils, chilled to a temperature of 4.3 kelvins above absolute zero.

"Because about $1 billion of the over $4 billion projected budget for the SSC is expected to be spent on buying magnets, industry has expressed a keen interest in participating in this exciting, high technology venture," says Erich Willen, head of the Magnet Division of BNL's Accelerator Development Department, in which the SSC magnet work takes place.

"We are looking forward to industrial participation in the construction of the national accelerator, as well as in the construction of BNL's proposed Relativistic Heavy Ion Collider, RHIC."

DOE's magnet-technology transfer program will include designing the tooling needed for superconducting dipole production and producing industrial prototypes of SSC dipoles. At the end of the third and final phase, by 1992, corporate magnet-makers are expected to be mass-producing magnets.

Because the focusing magnets, called quadrupoles, are similar to the dipoles, DOE may contract manufacturers participating in the second and third phases of this program to fabricate the 1,600 quadrupoles as well.

SSC Exhibit In Berkner Hall

An exhibit explaining the proposed Superconducting Super Collider (SSC) — how it will be built, how it will work and how physicists expect to use it — may be viewed in the Berkner Hall lobby, through Wednesday, September 14. The exhibit is on loan from the SSC Central Design Group at Lawrence Berkeley Laboratory.

In Memoriam

Helen Cherubini, who was Administrative Assistant to George Vineyard during most of his tenure as Laboratory Director (1973-1981), died on Sunday, September 4, after a long illness. She was 65 years old.

Her introduction to BNL came in October 1957, when she signed on for three months as a temporary clerk. She returned in September 1959, as a secretary in the Director's Office, where she worked for the next 22 years.

Cherubini's association with Vineyard began in 1967, when he was named Deputy Director. She also worked closely with Warren Winsche, who was Deputy Director from 1979-83.

After her retirement in June 1981, Cherubini worked in the Lab's clerical pool from 1982-84.

She resided in Aquebogue, and she is survived by her three brothers and their families: Arthur and Jewel Cook of Melrose, Massachusetts; Richard and Priscilla Cook of Waltham, Massachusetts; and Robert J. Cook of Battle Creek, Michigan.

Service Awards

Roy Skarka, Photography & Graphic Arts, was inadvertently omitted from last week's list of employees who received awards for 25 year of service in August.

Arrivals & Departures

Arrivals

Henry Chou ..... Physics
Sharad K. Saraf ..... Medical
Edward M. Stein ..... Accel. Dev.
Kathryn E. Strozak ..... Biology
Louis P. Syndstrup ..... AGS
Thomas Y.F. Tsang ..... Physics
Christopher Zarcone ..... AGS
Enci Zhong ..... DAS
Yimei Zhu ..... DAS

Departures

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

Robert K. Adair ..... Dir. Off.
Corinne A. Coughanowr ..... DAS
John E. Cyr ..... Chemistry
Robert L. Dorn ..... MIS
Mingwu Fan ..... NSLS
Carl J. Klamut ..... DAS
Walter E. Mars ..... Accel. Dev.
David N. Pasquin ..... Plant Eng.
Seymour R. Protter ..... Reactor
Henry Smith ..... NSLS
Josephine Wikan ..... Con. & Proc.
Gregory Yarwood ..... DAS

Hole in the Sky — and Why

Chlorofluorocarbons — used to cool refrigerators and air conditioners, to make plastic foam insulation and food containers, and to propel aerosols — were first developed in 1930. Odorless, nonflammable, noncorrosive and nontoxic, they were a chemist's dream. Unfortunately, they have also turned out to be an environmentalist's nightmare: They have eaten a hole in the sky.

A three-millimeter-thick ozone layer girds the Earth about 15 miles above its surface, protecting it from the sun. The total ozone abundance has decreased markedly over Antarctica during the spring seasons of the past ten years, as demonstrated by the British Antarctic Survey measurements at Halley Bay, Antarctica.

This loss and more will be discussed in the lecture "Ozone Depletion at the Ends of the Earth," by chemist Susan Solomon, of the Aeronomy Laboratory of the National Oceanographic & Atmospheric Administration (NOAA), Boulder, Colorado. Solomon will speak on Friday, September 16, at 3:30 p.m. in the Hamilton Seminar Room of the Chemistry Bldg., 555, as the guest of Brookhaven Women in Science. The Lab community is invited to attend.

Susan Solomon

In 1986-87, Solomon served as head project scientist of the National Ozone Expedition at McMurdo Station, Antarctica and gathered evidence of ozone-depleting chemical reactions going on in the stratosphere, the region of upper atmosphere that includes the ozone layer.

Recent research has demonstrated that the depletion of Antarctic ozone is largely caused by photochemical depletion due to chlorofluorocarbon chemistry. Solomon will describe the mechanism believed to lead to the extreme sensitivity of Antarctic ozone to chlorine abundances, and she will summarize the evidence supporting this idea.

To address the growing concern that the ozone depletion process may extend to latitudes outside of Antarctica — notably in the Arctic and even at lower latitudes, Solomon will review the evidence for Arctic ozone depletion and explore the observations and theoretical considerations relevant to global ozone depletion.

Solomon received her Ph.D. in chemistry from the University of California, Berkeley, in 1981, then joined NOAA as a research chemist. There, her research interests span a braod range of observational and theoretical aspects of the Earth's atomospheric chemistry.

In 1985, Solomon was given the J.B. MacElwane award by the American Geophysical Union, in recognition of her significant contributions to the geophysical sciences as a young scientist of outstanding ability.

Solomon has been a member of several advisory committees for the National Academy of Sciences and the National Aeronautics and Space Administration. She has testified on the ozone problem before both U.S. Senate and House subcommittees on the environments.

A reception will precede the lecture, at 3 p.m. After the lecture, the speaker will be the guest of honor at a dinner at a local restaurant. For reservations, at $23 per person, call Joyce Tichler, Ext. 3801.

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

GLUE88 (cont'd)

partment, who chaired the Workshop's local organizing committee.

As a result of his experiment E771, ongoing at the AGS, Chung thinks he has seen a glueball, one called iota, which was originally observed in the J/Psi decay. E771 has collected the largest set of statistics of any glueball experiment in the world.

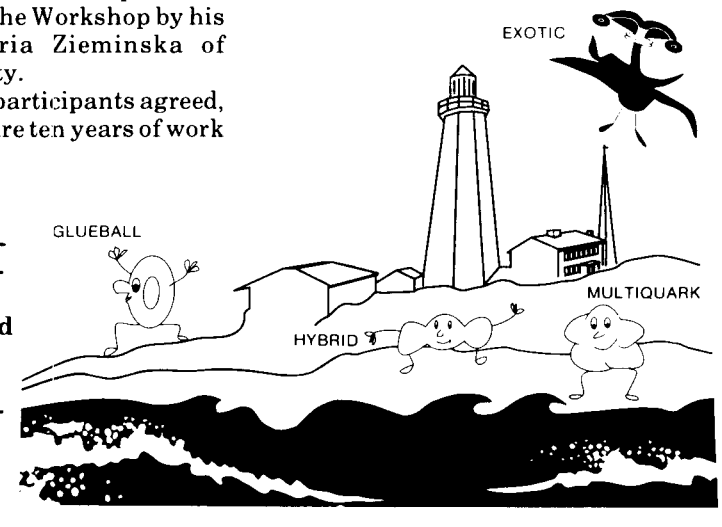
BNL Senior Physicists Seymour Lindenbaum and Kenneth Foley, both Physics Department, believe that they have seen three glueballs, by observing their decay into phi-phi particles, in their continuing AGS experiment E747.

"What the Workshop concluded is that it is still not universally agreed that these are glueballs," says Chung. The latest analysis of his experiment was presented at the Workshop by his collaborator Daria Zieminska of Indiana University.

The conference participants agreed, however, "There are ten years of work — if not more — in this field," continues Chung. "Important experiments at the Stanford Linear Accelerator Center, CERN in Europe, KEK in Japan, and Serpukhov in the Soviet Union, as well as at BNL, are taking data, being built or planned."

In addition to glueballs, these experiments will be searching for mixed states between gluons and hadrons, which are termed hybrids. And, they will be looking to confirm the sighting of the first exotic hadron, an unusal meson made of four quarks that was reported at the Workshop.

"It was an unusually lively workshop with lots of interactions among colleagues — which we hope will lead to further studies at BNL and elsewhere," concludes Chung.



A glueball, hybrid, exotic hadron and multiquark, as spotted on a Long Island beach and sketched by Ronald Longacre for the poster advertising the GLUE88 Workshop.

Tutorial Planned On Vector Facility

The IBM 3090 computer in the Applied Mathematics Department (AMD) has a facility that enables it to process vectors faster than ordinary numbers. As a follow-up to this week's talk by IBM, AMD will sponsor a tutorial on the vector facility and vectorization on Wednesday and Thursday, September 14-15.

The tutorial will be given by two members of the Cornell National Supercomputer Facility (CNSF), in the AMD seminar room. There is a $15 registration fee, but prior registration is not required, and non-BNL attendees are welcome. Refreshments will be served at the start of the session. Attendance at the earlier IBM talk is not a prerequisite for the tutorial, and only a working familiarity with FORTRAN will be assumed.

On September 14, the morning session will run from 9 a.m. to 12:30 p.m. The afternoon session will run from 2 to 3:30 p.m., with a question-and-answer and discussion period from 3:30 to 4:30. On September 15, the tutorial will run from 9 a.m. to noon.

The talks will follow roughly the material covered in the *Introduction To Vectorization*, by H. Doerr and F. Verdier of the CNSF. This booklet is available from the AMD manual library.

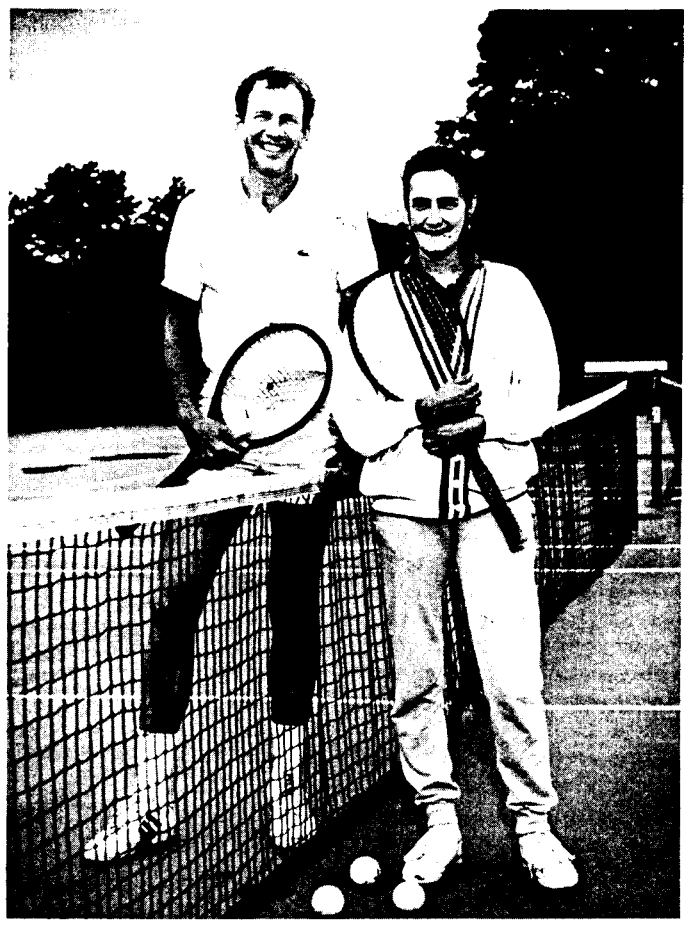
If you have any questions, contact Arthur Harris, Ext. 4115.

Volleyball

The first Volleyball League captains' meeting will be held on Wednesday, September 21, at noon, in the Hamilton Seminar Room, Bldg. 555, Chemistry. Officers will be elected at that time. If you plan to enter a team, a representative must attend the meeting to submit a preliminary roster. Roster sheets will be sent to last year's captains. To form a new team or join an existing team, contact Kathi Barkigia, Ext. 7661, or Barry Karlin, Ext. 5624.

Tennis Champs

BNL tennis champs '88 included (from left) Steve Shapiro and Gail Williams who teamed up to win the mixed doubles, and Kazuyoshi Yamada, who paired with Shapiro to take top honors in men's doubles. Williams also shared the women's doubles title.



Photos by Roger Stoutenburgh

Tom Koetzle, who took the men's singles championship, and Veronique Szabo, who was women's singles winner and shared the women's doubles title.

Archery Club

The BERA Archery Club is reorganizing and planning to revitalize the inactive Archery Range. All continuing members and any new members are welcome to become involved. For information or to share an idea, call new chairperson, Louis Cannizzo, Ext. 4220, or Ken Robins, Ext. 2674.

Microcomputer Club

The BNL Microcomputer Club will present a demonstration of hardware maintenance techniques for the personal computer, on Thursday, September 15, at noon, in the main conference room of Bldg. 475. Richard Vargas, a charter member of the club, will discuss such things as preventive maintenance, minor repairs and installation of peripherals.

All are invited to attend. For more information, contact Frank Salzano, Ext. 4458.

Aerobic Dance & Stretch Classes to Start

It's September — time to think about getting back to classes, with the Aerobic Dance Club (ADC). Instructor Pat Campbell will lead the classes on the ADC's fall program:

- **Stretch** — Classes involve a choreographed program of exercises that concentrate on stretching and strengthening various muscle groups.
- **Aerobic Dance** — Classes emphasize cardiovascular improvement through vigorous, choreographed exercise.

Classes in aerobic dance will be held on Tuesdays and Thursday, while stretch classes will be held on Mondays. All classes run from 5:15 to 6:15 p.m. Participants may take any or all of these classes. Mats are recommended for floor exercises.

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

- **Stretch** — Monday, September 19.
- **Aerobic Dance** — Tuesday, September 20, and Thursday, September 22.

For more information, call Bill Leonhardt, Ext. 2378; Elinor Norton, Ext. 3455; or Janet Sillas, Ext. 2345.

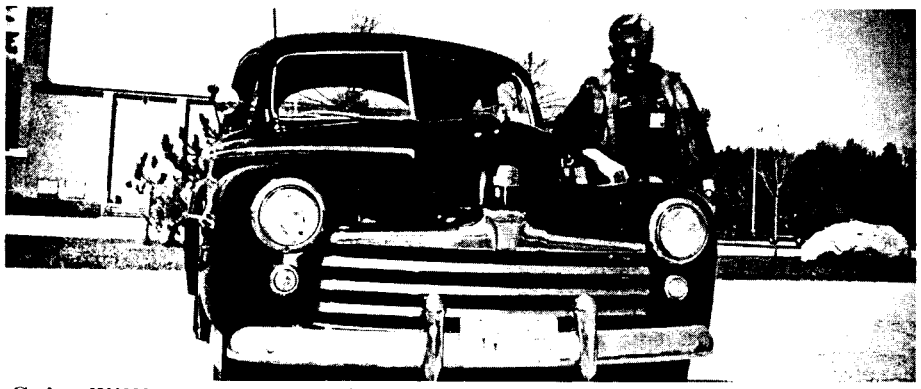
NY Islanders Preseason Tickets

Tickets for the following NY Islanders preseason home games are now being sold at the BERA Sales Office in Berkner Hall:

Saturday, September 17	Philadelphia
Tuesday, September 20	Montreal
Saturday, September 24	Boston
Tuesday, September 27	Rangers

Watch the Bulletin for an announcement of the opening sale date for regular season tickets.

Antique & Classic Car Show Wednesday



Peter Horton

Coles Williams leans on his 1948 Ford coupe, one of the vintage automobiles you might see if you visit the parking lot across from Berkner Hall this coming Wednesday, at lunchtime. That's when the members of the BERA Antique & Classic Motoring Club will again put their cars on display. If you miss them next week, you can catch them — weather permitting — on the second Wednesday of every month.

BROOKHAVEN BULLETIN

Published weekly
by the Public Affairs Office
for the employees of
BROOKHAVEN NATIONAL LABORATORY

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

35 Brookhaven Ave., Upton, N.Y. 11973
(516)282-2345

Local Users Group

A presentation on laser printers will be made by representatives of TALARIS System Inc. and R&M Associates at the next meeting of the Upton Local Users Group (LUG), on Wednesday, September 14, at 11 a.m., in the Physics Department Seminar Room, Bldg. 510A. Please note that this is not the usual location for LUG meetings.

All computer users are welcome to attend. For more information, call LUG Chairperson Zohreh Parsa, Ext. 4748.

With Thanks — From the Heart

Tomorrow, Bob Heimerle celebrates his first month anniversary with a new heart — and he's feeling terrific.

"I've had a few setbacks, but the doctors feel that my recovery has been better than average," Heimerle, 37, said last week when he called the Bulletin from the Salt Lake City apartment where he is recuperating from his August 10 heart transplant.

"If I don't have any further setbacks," he continued, "I'll be in otherwise perfect health, and I should be able to come back to work with no restrictions, around Christmas. I'm looking forward to it because I do like work."

Heimerle's work in the Accelerator Development Department was interrupted after he became the victim, last March, of a virus that diseased and destroyed his formerly healthy heart muscle. He was released from the Latter Day Saints Hospital on August 26, but remains in Utah as an outpatient while his new heart is monitored for infection and rejection.

Considering all the people back at BNL who have sent him their cards, prayers and best wishes and who contributed so generously to the fund established to help him and his wife Marion, who works in the Alternating Gradient Synchrotron Department, Heimerle said, "I wanted to say something from the heart.

"I've been really moved by the response to the little tragedy I've had here," he continued. "The Lab always was like a family place to work, but I was really taken by surprise by everybody's positive and concerned response. It's a very homey type of warm feeling I got from it. It helped, and it will continue to help my recovery."

Another thing that helped were the donations, which, Heimerle said, "took a load off of us. I have to stay here for at least three months while they tune my anti-rejection drugs, and this money helps pay for housing, transportation and other costs. It's a pretty expensive ordeal."

Most of Heimerle's medical expenses, however, are covered through the BNL insurance plan. Heimerle was amazed and grateful as he recounted, "On Long Island, my cardiologist recognized that I was going down fast. She wanted to get me out to Utah quickly. The insurance paid in full — about $20,000 — for a Medivac airplane to get me out there with the doctor and two nurses on board."

Without major financial concerns, Heimerle said, "The biggest strain right now is that we have to be separated," referring to the fact that Marion Heimerle, having used up her vacation time, returned last week to BNL. Heimerle's mother remains with him, and the couple talk on the phone daily.♥

Stockroom Closings

All Supply & Materiel Divsion (S&MD) stockrooms will be closed for inventory on Thursday and Friday, September 15 and 16. To give S&MD sufficient time to prepare for the inventory, all necessary stock withdrawals should be made prior to 5 p.m. on Wednesday, September 14. Emergency requirements should be processed through John Scharpeger, Ext. 2974.

team safety

Week eight of the Team Safety program* is almost over, and the first winners are near the finish line. Last week was again perfect for all the home teams, and the first group of three teams could be champs on Monday, September 12. Lunch and festivities will follow as soon as the winning teams decide the menu. It may not be "Lifestyles of the Rich and Famous," but the Commissioner has promised a good outing.

The Plant Engineering Division, which could field the first three winners, also has three more teams in the race for a September 26 pennant. Central Shops also has two teams in line for a pennant on the 26th. The Supply & Materiel Division still has all its teams undefeated and will have two pennant winners on the 26th, if all goes well.

The Commissioner is still waiting for negotiations to be completed with new League members, and it is hoped that the expansion club will be aboard in a week or so.

Keep playing safely!

**Twenty-five teams are participating in the Lab's Team Safety program. As five teams have incurred lost-time injuries, 20 are now in the running to be the first to be rewarded for their safe practices with a pizza or deli luncheon. Time goals, ranging from 8 to 12 weeks, have been established for the teams based on their previous lost-time frequency.*

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position, with consideration given to candidates in the following order of priority: (1) present employees within the department and/or appropriate bargaining unit, with preference to those within the immediate work group; (2) present employees within the Laboratory as a whole; and (3) outside applicants. In keeping with the Affirmative Action plan, selection decisions are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all non-scientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment.

Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Employment Manager, Ext. 2882.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

2939. MANAGER, STAFF SERVICES DIVISION - Requires a BS or equivalent, a graduate degree is highly desirable, and extensive management experience in a service or support organization. Excellent oral and written communication skills and a demonstrated ability to manage a staff of administrative and support personnel also is required. Will be responsible for the overall management and direction of the following functions at the Laboratory: housing, travel, motor vehicle operations, records holding, food services, and mail and wire services. Also requires strong interpersonal skills and knowledge of BNL practices and procedures. Please submit resume to Robert D'Angio, Personnel Division, Building 185.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2940. SCIENTIFIC ASSOCIATE - Requires BS in chemistry, a related field or the appropriate work experience. Responsibilities include administration of the analysis laboratory of the Tracer Technology Center and sample tracking using database software dBASE III+. Must have familiarity with BASIC programming language for data reduction and spreadsheet software for data analysis. GC experience preferred. Department of Applied Science.

2941. HEAVY EQUIPMENT MECHANIC OPERATOR - Requires demonstrated ability to maintain, repair and operate all material handling, earth moving, road and ground maintenance and related equipment. Candidate must have a valid Class 1 license. Plant Engineering Division.

2942. TECHNICAL POSITION - Requires AAS in electronic technology or computer science and 2-3 years' experience, preferably accelerator related, as well as ability to assist with application program software, data manipulation and control system fault-finding. Responsibilities include Radiation Effects Facility and Neutral Beam Test Facility operation, set-up of beam transport lines using computer codes and access, security and radiation control of the facility. Will install and maintain beam line facility components and systems, and assist with construction and implementation of new components and systems. Will develop operational computer-control software. Involves some shift work. Department of Nuclear Energy.

2943. TECHNICAL POSITION - Requires AAS in electronic technology or computer science and 2-3 years' experience, preferably accelerator related, as well as previous prototype electronic construction experience involving power supplies and operational amplifiers. Responsibilities include Radiation Effects Facility and Neutral Beam Test Facility operation, set-up of beam transport lines using computer codes and access, security and radiation control of the facility. Will install and maintain beam line facility components and systems, and assist with construction and implementation of new components and systems. Will develop operational computer-control software. Involves some shift work. Department of Nuclear Energy.

2944. TECHNICAL POSITION - Requires AAS in mechanical technology or chemistry. Will assist in the construction of equipment for and execution of materials compatability tests. Additional responsibilities include optical imaging and Raman temperature probe development. Previous vacuum/pressure technologies experience necessary. Optical and/or high temperature experience desirable. Previous experience in a fast-paced environment, as well as ability to obtain Q clearance required. Department of Nuclear Energy.

Motor Vehicles & Supplies

88 NISSAN SENTRA - 4-spd., tinted windows, alarm, Clarion Benzi stereo, mint cond., $8,000. 821-0401 eves.

86 HONDA ACCORD DX - 5-spd., a/c, p/s, am/fm cass., 42k mi., excel. cond., $7,800 or best offer. Ext. 4345 or 473-9124 eves.

86 HYUNDAI EXCEL GLS - 17k mi., a/t, a/c, am/fm cass., 5-dr., leaving, $5,000. Ext. 3089 or 2312.

86 MUSTANG GT - 5.0 liter, T-top, 23k mi., fully loaded, $9,995. 732-2045, Tues. only.

86 HONDA SCOOTER - less than 550 mi., like new, rear basket, auto start, $550. 585-6518, 8:30 a.m.-4:30 p.m., M-F.

85 MONTE CARLO SS - 45k mi., loaded, p/w, p/d, p/s, p/b, a/c, am/fm cass., 305 automatic alarm, $9,500. 736-7603.

85 HONDA ACCORD - 4-dr., a/c, cruise, am/fm cass., 5-spd., lt. blue, 37k mi., garaged, mint cond., $7,500. 736-0651.

85 CHEVY S-10 EXTENDED CAB TRUCK - ¾ ton, 21k mi., blue/gray, Tahoe pkge., much more, excel. cond., $7,000. Larry, Ext. 4364 or 286-1709.

85 SUZUKI QUADRUNNER LT80 - 100 mi., perfect cond. 878-6074 eves.

84 NISSAN KING CAB - 4wd, 5-spd., am/fm cass., sunroof, $6,400. 878-9352.

84 SUZUKI RM250 DIRT BIKE - many extras, excel. cond., asking $1,300. 878-6074 eves.

82 PLYMOUTH RELIANT STATION WAGON - p/s, p/b, a/t, am/fm cass., excel. cond., $2,350. Yosepha, Ext. 3403 or 3129 eves.

81 FORD ESCORT STATION WAGON - p/s, a/t, p/b, a/c, 69k mi., good tires, $495. 821-0758 after 5 p.m.

81 SKYLARK - 4-dr., V-6. Ext. 5286.

81 FORD MUSTANG - 4-spd., 4-cyl., gauges, good cond., $2,100. 744-9812 after 5 p.m.

80 CHEVETTE - hatchback, 4-dr., 4-cyl., a/t, am/fm, good tires, good running cond., orig. owner. Ext. 2055.

80 VW RABBIT - 4-dr., diesel, 4-spd., rebuilt engine, new tires, battery, $500. Tang, Ext. 3869 or 5186.

80 MONZA - 4-cyl., 2-dr., a/t, fair cond., runs, asking $350 as is. Jeff, 286-1348.

80 SUZUKI RS-175 MOTORCYCLE - limited edition, good cond., asking $275. Phil, 286-1348.

79 COUGAR XR7 - fully loaded, must sell, new car arrived, make offer. Tony, 698-9274.

79 PINTO - hatchback, p/s, p/b, am/fm cass., a/c, new tires, runs well, $500. 821-0758.

78 DATSUN 280Z - fuel injected, new clutch, paint, exhaust, am/fm, very clean, $3,500. Ext. 4615.

78 FORD E100 VAN - long bed, strong engine, $1,100. Ext. 2054 or 283-6409.

77 FORD VAN - factory rebuilt engine, fully customized, many new parts, must see to believe, asking $2,500. Vito, Ext. 4547.

77 VW BEETLE - silver, sunroof, am/fm cass., rebuilt engine, low mi., asking $600. 929-6313.

76 TOYOTA COROLLA - $300. 744-5069.

76 FORD MUSTANG - needs some engine work, many extras, mint cond. 281-5385.

76 VOLVO - 6-cyl., 4-dr., all power, sunroof, needs brakes, muffler, valve adjustment, must sell, $800 neg. 696-0838, 12 a.m.-4 p.m.

74 BUICK ENGINE - 350 cid, V-8, w/auto tranny, 46k mi., can demonstrate, $250. Ext. 3464.

74 FORD F-250 - 4x4, a/t, cap, 7" lift, new engine, trans., brakes, asking $4,500. 744-3968.

74 HONDA CB 360 - rebuilt engine, new tires, crash bar, elec. start, very clean, $550. Pete, Ext. 4100.

74 MGB GT - 72k mi., orig. mi., very good cond., $3,100 or best offer. John, 286-9334.

74 FORD PICKUP - crew cab, cap, good work truck, best offer. 924-7262.

71 VW BUG - good for parts, $125. 744-7863.

71 FORD TORINO - 2-dr., a/t, p/s, p/b, 76k mi. Pete, Ext. 2498.

70 FIREBIRD - 6-cyl., p/s, a/t, good on gas, runs well. Tom, 589-4836.

68 FORD MUSTANG - does not run, body in good shape, $500. 744-6967.

66 VW BUG - does not run, good for restoration or parts, 1300 motor. 744-7863.

CAR STEREOS - am/fm cass., Alpine, $75; Panasonic, $50; assorted tires for sale, 12", 14", 15". 585-6518, 8:30 a.m.-4:30 p.m., M-F.

TRUCK CAP - for ¾ ton tuck, $75. 732-6838.

ENGINE CRANE - heavy duty, 9' high, ⅜" cable, hand crank, steel roller wheels, $200. 732-6838.

TUNE-UP METERS - w/stand, snap-on, complete. 744-3968.

USED TIRES - Cooper P20SR7S-14, all-season steel radials, near new, on '74 Buick wheels, $75. Joe, Ext. 3464 or 281-7683.

Boats & Marine Supplies

25' MORGAN SAILBOAT - 1968, new sails & motor, boat in water, $8,000. 821-0686 eves.

24' SEARAY - 1976, Sundancer stove, refrig., head, VHF, depth finder, camperback, $9,500. 654-2617 eves.

21' GLASTRON - 140 omc, cuddy, sleeps 4, galley, ship/shore head, loaded, trailer, extras, perfect cond., $8,500. 423-3241.

19' BAYLINER - 1980, 140 h.p., I/O, good cond., w/trailer, $3,200 or best offer. 671-1736 or 288-5839 wknds.

16' TRAVELER - fiberglass runabout w/1980 40 h.p. electric-start Mercury o.b., new teleflex stering, lights. 589-4363 after 6 p.m.

8' SANDPIPER DINGHY - unsinkable, w/4 h.p. Evinrude twin cyl., $375. 732-6838.

TRANSFER PUMP - 12 volt, explosion-proof, gas/chemicals, 130 gal. holding tank, 35' hose, brand new, $425. 732-6838.

BROWNING BOWRIDER - 1976, w/1985 Cox trailer, very good cond., $3,500. George, 744-9732.

OUTBOARD MOTOR - J.C. Higgins, 7½ h.p., $100 or trade for 3 h.p. i.b. John, Ext. 7671 or 765-1299.

ELECTRIC START - 40 h.p. Evinrude, excel. cond., $400; brass prop., 15x11x1¼, excel. cond., $30. Ext. 3457 or 924-6761.

COBIA HULL - 1972, seaworthy, great cond., no engine, trailer included, $300 neg. 698-7428.

Miscellaneous

DRESSER - w/mirror, hardwood, pecan finish, good cond., $125. Scott, Ext. 3369 or 758-7114.

BED - full-size w/frame; Cuisinart food processor. 929-6898 after 6 p.m.

MATTRESS - & base, queen-size, good cond., $100. Klaus, Ext. 5089.

MATTRESS & BOXSPRING - queen-size, good cond. Ext. 4985 or 331-8459 after 5 p.m.

GRANDFATHER CLOCK - moving moon dial, triple chime movement, $400. Joe, beeper 925 or 728-1859.

HOUSE CONTENTS - various items, come & see. Ext. 2965 or 744-0960.

WASHER & DRYER - Whirlpool, portable, well maintained, runs well, $300. Janene, 722-4842 after 6:30 p.m.

WASHER & DRYER - Whirlpool, compact size, 110 V, stackable, good cond., $375. Mel, Ext. 4100.

WASHER & DRYER - Speed Queen, contemporary size, 2-yrs., $300; girl's bike, 12", $15. Ext. 3089 or 2312.

COFFEE POT - Farberware Fast Brewing, 4-cup, brand-new, paid $45, asking $25. Carol, Ext. 3325 or 472-3332.

COFFEE MAKER - Toshiba, grinds, brews, never used; blender, 14-spd., $15; soda fountain drinkmaster, $10. 585-6518, 8:30 a.m.-4:30 p.m., M-F.

MICROWAVE - G.E., 1.4 cu. ft., 4-yrs. old, like new, $100; G.E. 30" countertop range & range hood, both $100. 474-0786.

CEILING FIXTURE - fluorescent, 48", Sears, 2x40 watt, maple carved wood frame, diffuser, excel. for kit., l/r, den, $50. Frank, Ext. 4584 or 277-0464.

LAWN TRACTOR — 11 h.p., 36" cut, 42" snow plow & access., $800; 22" s.p. mower, $75. Ext. 3457 or 924-6761.

LAWN MOWER - 3 h.p. Tech. engine, 19" cut, $50. Dan, Ext. 4987 or 698-7322.

LAWN MOWER - electric, very good cond., $15. 929-6313 eves.

MOTOR - 5 h.p., electric, 3-phase, $150; 4-spd. for Ford truck, $300. 744-3968.

TOPSOIL - fine screened, $18 per yd. delivered, also peat moss, sand, gravel, blend. 924-9427.

GENERATOR - 4kW Niagara portable, ac, in carton, $450. Ext. 5154 or 744-2373.

BICYCLE - boy's 10-spd., 24" wheels, like new, $50. Alan, Ext. 2928 or 821-1339.

BICYCLE - boy's, BMX, $45; curb cruiser scooter, $45. 286-0422 after 6 p.m.

TRICYCLE - adult, rear basket, $100. 585-6518. 8:30 a.m.-4:30 p.m., M-F.

EXERCISE BIKE - good cond., $40; drawer desk, $15. Yosepha, Ext. 3403 or 3129 eves.

PIANO - Hardman & Peck minipiano, small spinet, ideal for small room. Ext. 3437 or 281-5721.

PIANO - console, $750; Emerson color TV, 16", $70; Panasonic stereo, $50. Ext. 3089 or 2312.

ORGAN - Baldwin model 81A, 2-keyboard, 13-bass, $250; chairs, coffee table, credenza, etc. 475-2848.

VIOLINS - ¼ size, Suzuki, $110; ½ size, beautiful tone, old, $160; flute, Yamaha, $125. Jim, Ext. 7895 or 589-1875.

CAMERA COLLECTION - antique, 1850 to 1950, large thru small cases. Cheryl, Ext. 2272 or 732-7634.

PUPPY - Brittany Spaniel, female, 15-weeks, AKC, shots & more, best offer. Ext. 7519 days.

DOG KENNEL - large, airline approved, $20. 744-7863.

AM/FM RECEIVER - J.C. Penny, 8-track, dual cass. player/recorder, turntable w/cover, speakers, cabinet, $225. 732-6838.

PC MONITOR - monochrome, RCA connector, excel. cond., orig. $140, sell $60. John, Ext. 3292 or 286-1348.

ATARI XE COMPUTER - w/joysticks, Basic, 4 games, $85. Matt, 928-8465.

TV - electronic components, tubes, parts, resistors, capacitors, etc. Duke, Ext. 2957 or 289-3586.

DIAMOND ENGAGEMENT RING - .46 carat, $900; Norwegian Blue Fox jacket, 28" long, barely worn, size 7/8, paid $650, asking $400 neg. Ext. 2276.

Yard Sales

BROOKHAVEN - 11 Marydale Lane, Sat., Sept. 10, 9 a.m.-4 p.m., rain date, Sun., Sept. 11. 286-1290.

E. PATCHOGUE - 18 Maure Ave., Sat., Sept. 10, 9 a.m.-4 p.m., one day only. Ext. 4498 or 286-8611.

BROOKHAVEN - Old South Haven Presbyterian Church, Beaver Dam Rd., Sept. 10, 9 a.m.-3 p.m. Ext. 3084.

Free

COCKER SPANIEL - golden, 1-2 yr., caring home needed for Duchess, fenced yard a plus. 924-0496.

CATS - mother & 4 kittens, spots & stripes, cute. Chyng, Ext. 4395.

SOFA & LOVESEAT - good cond., you pick up, Center Moriches. 878-4880.

Car Pools

BAYPORT/BLUE POINT - need one driver. Phil, Ext. 3500 or 363-2070.

STONY BROOK - van needs riders, reasonable rates, leave driving to us. Ext. 2476 or 4125.

Real Estate

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

For Rent

BELLPORT - 4 bdrm., 3½ baths, Jacuzzi, walking distance of schools, bay & village, avail. unfurnished Oct. 1. 363-8936 eves.

E. PATCHOGUE - S. of S. Country Rd., 1st floor, 2 bdrm., l/r, eik, priv. ent., no pets, avail. Oct. 2, $500/mo. + util. Walt, Ext. 2907 or 698-0576.

EASTPORT - new, country home, 2½ baths, master suite, wrap-around porch, on 1 acre, good waterview, $1,100 +. 325-0928.

PORT JEFFERSON - Harbor Hills, 3 bdrm., 2½ baths, l/r, d/r, eik, fam. room, encl. patio, furnished, starting Oct., $1,000/mo. + util. Ext. 4932 or 928-8993.

HILTON HEAD, S.C. - 2 bdrm. condo, sleeps six, pool, tennis, golf, beach, Sept. special 350/wk. 585-9149.

For Sale

MIDDLE ISLAND - Artist Lake condo, 1 bdrm., l/r, kit., bath, a/c, new w/w, dishwasher, clubhouse, sauna, pool, gas heat, 5 min. to Lab, $82,500. Ext. 3144 or 234-2240, eves. 698-5046.

NESCONSET - SD1, 3 bdrm. high ranch, 1½ baths, priv. ¼ acre lot, oak floors, brick patio, Florida rm., l/r, d/r, den, 1-car gar., ext. driveway, $180,000. Ext. 5139 or 979-6569.

FLANDERS - mobile park, 12'x65', 3 expandos to 18'x65', coal stove, all appl., w/w, many extras, $47,500. 369-2689.

SHOREHAM - 4 bdrm. Colonial, 2½ bath, SWR schools, enclosed porch, 2-car gar., low taxes, energy efficient, close to beach, $178,000. 744-0960.

SHOREHAM - 3 bdrm. ranch, carpeted, pool, eik, wood/coal stove, priv. fenced backyd., 2½-car gar., low taxes, SWR schools, clean, move-in cond., $135,000. 744-9677.

WADING RIVER - 3 bdrm. ranch, excel. cond., 2 baths, l/r, d/r, eik, 3-car gar., bsmt., screened rm., 1 acre, fenced, SWR schools, $175,000 neg. 929-3251.

WADING RIVER - 3 bdrm. high ranch, custom built, 1 acre, SWR schools. 929-6313 eves.

WADING RIVER - large Cape on ½ acre + rustic wooded lot, 3-4 bdrm., 2 baths, d/r, l/r, den, fam. rm., w/fp, finished bsmt., 2-car gar., SWR schools, principals only. 929-6748.

ROCKLEDGE, FL - beautiful, 2 bdrm., 2 baths, 2-car garage, fam. rm., porch, w/w carpet, shades, some drapes, appliances, $64,500. 407-631-2840.

Wanted

HOUSEMATE - female preferred, to share furnished Sound Beach house, 1 min. walk to beach, $267/mo. + ⅓ util. Carol, Ext. 7253 or 744-9481.

DEHUMIDIFER - John, Ext. 7671.

HEAVY DUTY TRAILER - for 21' boat, 2,800-lb. capacity. Ext. 4301.

POWER NAILER - for wood floors, to buy. Ray, Ext. 2012 or 325-0928.

DEHUMIDIFIER - in good working condition. Jim, Ext. 7775.

BABY ITEMS - car seat & portable high chair, in good cond. Ext. 7192.

GIRL'S BICYCLE - in good cond., for age 6, preferably w/training wheels. Maria, 282-3192.

OUTBOARD MOTOR - 15 h.p. Evinrude or Johnson, short shaft. Joe, beeper 925 or 728-1859.

HOUSESITTER - Sept. 15 to Oct. 3. Ext. 4373.

PERSIAN CAT SIRE - mate for female Persian cat. 286-3679.

TRAINS - Lionel, American Flyer, accessories, any cond., brings good price. Carole, Ext. 7100 or 924-4097 eves.

CEMENT MIXER - Wet Saw/Bobcat, to buy or rent. Tony, 698-9274.

OLD LAWN MOWERS - complete. Dan, Ext. 4987 or 698-7322.

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