

FermiNews

The Newsletter of the Fermi National Accelerator Laboratory

TINY APEX EXPERIMENT TACKLES ONE OF PHYSICS BIGGEST MYSTERIES

Who says bigger is better? Certainly not one particular group of experimenters at Fermilab. Numbering only 14, this collaboration is tackling one of the most complicated mysteries in particle physics—why we live in a world that is composed of more matter than antimatter.

The collaborators, all part of E868, the

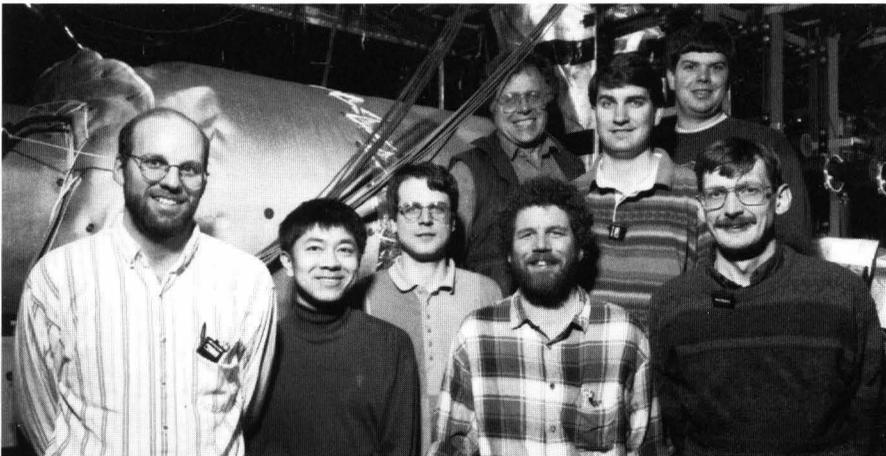
Antiproton Experiment (APEX), are trying to unravel the mystery by searching for antiproton decay using antiprotons stored in the Fermilab Antiproton Accumulator.

A possible explanation for the predominance of matter over antimatter is that antimatter is not stable and decays over a period of time. The mission of this

experiment is to see if antiprotons made at Fermilab decay or not. Although the APEX experiment is modest in size, should the collaboration discover antiproton decay, the implications would be far from modest.

“This would be revolutionary,” said STEVE GEER, spokesperson for APEX. “This would completely change our concept of the CPT Theorem, one of the most fundamental theorems of modern physics.” The CPT Theorem states that properties of particles and antiparticles should be the same—they should have the same masses and they should have the same lifetimes. “We

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Several members of the APEX Experiment: (Bottom row, l-r) Ron Ray, Martin Hu, Mike Martens, Brent Corbin and Steve Geer. (Top row, l-r) Dick Gustafson, Andy Scott and William Wester.

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Users Annual Meeting Scheduled for July

The Fermilab Users Annual Meeting will be held July 13 and 14, 1995. The meeting begins with an afternoon session at 1:30 p.m., Thursday, July 13. The Friday, July 14 session begins at 9 a.m. and runs all day. Both sessions will be held in Ramsey Auditorium. Registration begins at 12:30 p.m. on July 13 and 8:30 a.m. on July 14. For more information, contact the Users Office at x3111 or FNAL::USERSOFFICE.

LABORATORY SERVICES CREATES NEW DEPARTMENT

As part of a recent reorganization in the Laboratory Services Section, the Library and the Publications Office were combined to form a new department called Information Resources. CINDY CREGO will be the new department manager.

"In her new role, Cindy will continue to be responsible for all technical publications issued by Fermilab. She will also oversee the library operations and continue the development of the Laboratory's capabilities in the critical area of electronic exchange of technical documents," said Director JOHN PEOPLES.

"We brought the two groups together in order to better serve the information needs of the Laboratory," said CHUCK MAROFSKE, head of Laboratory Services. "As technology plays a larger role in information exchange, better information resources management is needed to accomplish our mission," said Chuck.

"We look forward to the challenges ahead for the Information Resources Department," said Cindy. "We have a high level of enthusiasm for meeting not only the current information needs of the Labora-

tory, but also anticipating and planning for future needs."

One of the key projects for the new department, as outlined by the director, is the electronic exchange of technical papers. "We have purchased a server and currently have a working group whose charge is to explore methods of electronic exchange and make recommendations," said Cindy. "We hope to have a pilot program running by early fall." The working group is comprised of members of the Information Resources Department and members of the Computing Division. Members of the group are: STEVE WOLBERS and Cindy Crego, co-chairpersons, SARA TOMPSON, BETH ANDERSON, DAVID RITCHIE, TRANG NGUYEN, STEVE HANSON and KURT RUTHMANSDORFER. Also serving is LIZ BUCKLEY-GEER from CDF Computing and Analysis.

"Our colleagues in the Computing Division have been tremendously helpful as we embark on this new project. They have assisted us with making the appropriate hardware, software and networking decisions," said Cindy.

Along with organization changes have come staffing changes. Two new employees have recently joined the group.

Sara Tompson is the new Library Administrator. She comes to Fermilab from the Illinois Hazardous Waste Research and Information Center in Champaign, where she was the Information Services Program Manager. She has been actively involved with the Special Libraries Association. Sara has a M.S. in Library and Information Science from the University of Illinois. She set up World Wide Web documents and access for a community organization in Champaign and looks forward to doing more Web projects at Fermilab.

"Electronic access has changed the way Libraries provide information," said Sara. "In the past, libraries would add resources to their collections, just in case the items were needed. Now, using electronic resources, libraries are able to obtain information just in time—when it is requested by a patron."

Also new to the Information Resources Department is Beth Anderson. Beth is the Systems Librarian. She received her undergraduate degree from University of Kansas and her Masters in Library Science from Emporia State University. She comes to Fermilab from Kansas City, Missouri Public Library where she was coordinator of Computer Support Services for a 21-state shared automation system.

"Libraries are undergoing a fundamental shift as both we and our users have easier access to remote resources. We need to not only address the way technology is affecting how we do things, but also what it is we do—what resources and services we should provide," said Beth.



Staff members of the new Information Resources group, (seated, l-r) Cyndi Rathbun, Rob Atkinson, Jean Kidd, Cindy Crego, Sara Tompson and Beth Anderson. (standing, l-r) May West, Angie Richardson, Lee Robbins and Sue Hanson.

COSSAIRT ELECTED TO NATIONAL COUNCIL ON RADIATION PROTECTION

DON COSSAIRT, head of the Environment, Safety and Health Section, was elected to membership of the National Council on Radiation Protection and Measurements (NCRP) in April. The Council is a non-government, Congressionally-chartered public service organization. Its objective is to collect, analyze, develop and disseminate information and recommendations about protection against radiation and information about radiation measurements, particularly those concerned with radiation protection.

Don, who has been a member of one of the Council's scientific committees for the last seven years, will serve a six-year term on the Council. He was elected at the NCRP annual meeting April 13. The election process is designed to provide the Council with outstanding individuals who possess scientific skills and a willingness to devote their abilities to its efforts.

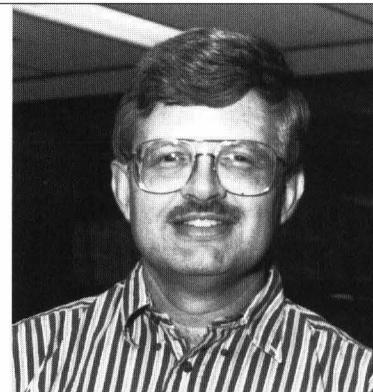
The work of NCRP members largely consists of reviewing various reports as they were originally written, said Don. He noted his major task will be to help extensively revise an existing NCRP report on accelerator radiation protection that was written in 1977, and is, consequently, far out of date.

The NCRP consists of 75 members who are selected on the basis of their scientific expertise. The work of the NCRP has a significant impact on almost all activities in the United States that use or create radiation. The recommendations of the Council are important to radiation users in medical, industrial and government organizations, to the general public and to other groups concerned with radiation matters.

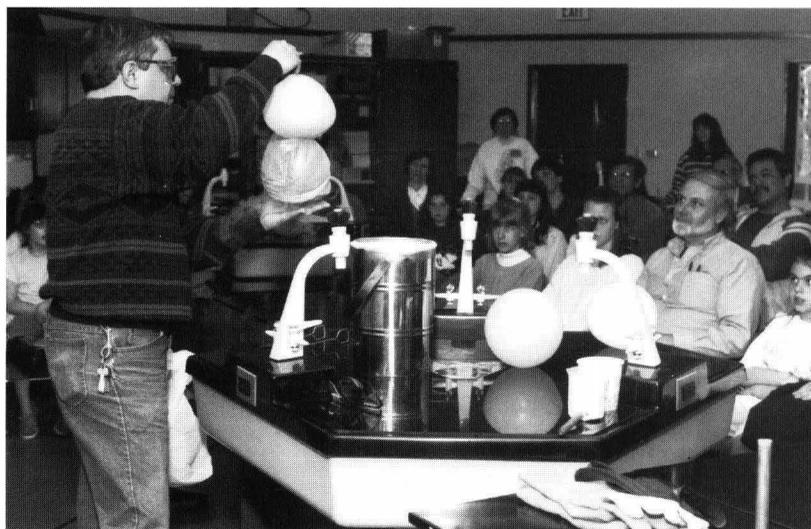
Director JOHN PEOPLES said he was "delighted" to hear of Don's election to membership. "It recognizes the esteem in which you are held by your professional colleagues; we knew of your excellence all along, but it is good to see the rest of the world catch up."

Don credits his achievement to many people at the Lab, especially members of the Directorate. "I regard my success in achieving this level of distinction to be very largely due to the support and mentoring I have received from all of you over the years."

Don was also recently honored by his alma mater, the University of Indianapolis. In April he was chosen by the University's division of Science and



Math for the Outstanding Alumnus Award for 1995. Don graduated magna cum laude from the University of Indianapolis in 1970 with a B.A. in physics and mathematics. He went on to earn his M.S. and Ph.D. from Indiana University. Don came to work at Fermilab in 1978 and has served as head of ES&H since 1989.



Daughters Enjoy Their Day at Fermilab

Employees and their daughters enjoy a cryogenics magic show at the Lederman Science Center April 27, the National Take Your Daughter to Work Day. Approximately 60 parents and daughters attended the show. As well as the show, daughters also toured the facility, trying their hand at the interactive science displays, and shared in their parents' day at work.

DOE SELECTS FERMILAB FOR ES&H PILOT PROJECT

Officials at the Department of Energy have selected Fermilab to undertake a pilot project to improve the Department's management of environment, safety and health at national laboratories. The project is part of the Department's ongoing effort to improve business practices in its management of the national laboratories. The goal of the pilot project is to replace the current system of Department orders, which has received criticism for its unnecessarily burdensome requirements, with a simpler system of regulations that are both "necessary and sufficient" to ensure health and safety and to protect the Laboratory environment.

On May 8, a team of ES&H and operations experts from Fermilab, the Batavia Area Office of DOE and the DOE Chicago Operations Office met to begin the task of determining what constitute "necessary and sufficient" standards of environment, safety and health for Fermilab to follow. Representatives of Brookhaven National Laboratory, the Stanford Lin-

ear Accelerator Center, the Continuous Electron Beam Accelerator Facility and Argonne National Laboratory joined the team to help in the choice of standards and learn about the process for use in their own labs. The team expects to complete the work by June 22.

Fermilab Assistant Director LARRY COULSON, leader of the pilot project, explains that the agreed-on standards will ensure compliance with all applicable state, federal and local laws. "The internal standards that Fermilab uses to protect the public, the environment and employees will not change," he said. "However, the Department and the Laboratory expect that simplifying and streamlining the management and reporting of these functions to reflect good business practices will reduce excessive administrative requirements and paperwork." As a result, the Laboratory expects to be able to redeploy resources from administrative chores to make real improvements in the ES&H program.

After the team has agreed on a set of standards, and after Universities Research Association, Inc., the Energy Research Division of DOE and the Batavia Area Office of DOE have approved them, the standards will be incorporated into the management and operating contract between URA and DOE, where they will form the basis for ES&H oversight by DOE. Incorporation of the standards into the contract is the criterion of the project's success. If the project succeeds, DOE plans to extend its application throughout the national laboratory system.

ANDREW MRAVCA, BAO manager, pointed out that many DOE requirements for ES&H derive from experiences at nuclear laboratories. "The pilot project gives Fermilab a good opportunity to streamline ES&H requirements to fit the much lower hazards of an accelerator laboratory," he said.

Employees should address questions or comments on the pilot project to Larry Coulson at x 5242.

SOCCER SEASON ENDS WITH TIGERS THIRD WIN

In a highly competitive 20-game season with six participating teams, the Tigers triumphed again with a record of 18 wins and only one tie and one loss. This is the third consecutive championship for the Tigers (winter '93/'94, summer '94 and winter '94/'95) and their third indoor title since they also won the '92/'93 indoor season.

The second place team was Prerna with a 15-4-1 record followed by Chakra, Dynamo, Fermions and CDF.

All teams will compete again in the upcoming outdoor season. We will be using the new soccer field behind Lab 7 for the first time. Some teams still need more players. Anyone interested is welcome to join and should contact SANDOR FEHERS at FEHERS@FNALV.—
Jurgen Engelfried



The Tigers: (Back row, l to r) Dale White, Edgar de Oliveira, Sergey Gurzhiev, Sergey Korjenevski, Jurgen Engelfried (captain) and Masoud Vakili. (Front row, l to r) Raul Hernandez, Roberto "Bombo" Mussa, mascot Polina, Jose Luis Gonzales and Mercedes R. Nylund. (Not pictured) M. Reyes and S. Vandenbrink.



NEWS FROM THE WASTE MINIMIZATION SUBCOMMITTEE

CLOSE THE LOOP—BUY RECYCLED

PRODUCTS

The three Rs of recycling—reduce, reuse and recycle—are only part of the total waste minimization effort. We should also make an effort to purchase recycled items whenever possible. Purchasing recycled items is one way to create markets making recycling possible, essentially closing the recycling loop. Look in your office supply catalog under “Recycled” and you may be surprised to find the number of recycled items available, and at competitive prices too. Everything from adding machine rolls to Xerox paper can be purchased as recycled. Next time you purchase post-it notes, file folders, hanging folders, calendars, envelopes, memo pads, rulers, etc. give recycled items

consideration. Kudos to Duplicating (WH Ground Floor), for making scratch pads from waste paper—stop by and pick up a few. Recognition also to Technical Support Section for purchasing 1,072 steel skids as part of the Main Injector Project. These skids can be used repeatedly and then recycled as scrap metal. We would like to acknowledge other waste minimization success stories; let us know what you are doing.

EARTH DAY

The Waste Minimization Subcommittee hosted a Fermilab waste minimization table in the Wilson Hall Cafeteria on April 21, 1995, in honor of Earth Day. Our purpose was to increase awareness of the waste minimization activities at Fermilab. Numerous handouts were available including how to start your own recycling area; informa-

tion on the Fermilab’s chemical exchange program; a recycling quiz (to raise awareness); recycled scratch pads; and reduce, reuse and recycle stickers. If you would like to receive any of this information, please contact a member of the Waste Minimization Subcommittee. Thanks to all those who stopped by to talk with us.

TONER CARTRIDGES—OOPS

In a past *FermiNews* article we gave out some bum information on recycling toner cartridges. Our mistake! The correct method is to place the used cartridge back into the original box with the original packing and papers.

If you have any question, comments, suggestions, or ideas please forward them to the WMS at MS119.

APEX

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know that the proton lives a very long period of time,” noted Steve, “ 10^{32} years or greater than that. So if antiproton decays were observed, it would be with a lifetime very much less than the proton lifetime. This would explain why we live in a matter-dominated universe.” If discovered, these findings would have the same impact as when scientists first discovered parity violation or CP violation, Steve noted.

The APEX experiment began its search for antiproton decay last February. Scientists from Fermilab, the University of Michigan, the University of Nebraska, UCLA and Penn State currently make up the collaboration. The design of the APEX experiment, now installed in the AP50 region of the Antiproton Accumu-

lator, was based on experience from test experiment T861. That experiment, conducted in 1992, was designed just to probe the possibility of doing the current APEX experiment. Steve noted, however, that the test experiment was so successful it produced publishable results in its own right.

The current APEX setup consists of a large vacuum tank placed in a straight section of the Antiproton Ring, with a thin window at the downstream end of the tank, and a series of detectors downstream of the window. Should antiprotons circulating in the Antiproton Ring decay in the region of the vacuum tank, their decay products will pass through the tank window and be recorded in the detector. With typically 10^{12} antiprotons circulating in the Accumulator, the ex-

periment should see a few antiproton decays if antiprotons live less than about 100,000 to 1 million years.

APEX is scheduled to run through the summer, take a break to analyze data and then hopes to return for accelerator run II. “We expect to come back after we have analyzed our data with a proposal for a third-stage experiment,” said Steve. “This will be the ‘ultimate’ experiment. It will gain us possibly one or two orders of magnitude in sensitivity, and ultimately it will enable us to probe antiproton lifetimes up to about one percent of the age of the universe. With both our detector and the Antiproton Accumulator operating well, we are keeping our fingers crossed that nature has a big CPT violating surprise in store for Fermilab.” ■

People & Events

FERMILAB ARTS SERIES PRESENTS

Danilo Perez, with Special Guest David Sanchez, Saturday, June 3, 1995
“I am immensely impressed with Danilo Perez. He is already recognized as one of the finest young pianists performing today, and he will assuredly be one of the great jazz artists of his generation...” — *Dizzy Gillespie*, March 1992.

Arts Midwest recently cited the top ten list of reasons why the Chicago Jazz

Festival was still the best. The number one reason was the ability to recognize new talent, specifically Danilo Perez and David Sanchez, who were received with wild enthusiasm at the festival last September. Fermilab is proud to kick off our summer series with the Danilo Perez Group with special guest David Sanchez, saxophone, on Saturday, June 3, at 8 p.m. in Ramsey Auditorium. Series tickets are available until the day of this



Danilo Perez

concert for \$48, and include San Francisco Taiko Dojo and Milt Jackson.

At 27, Panamanian-born Danilo Perez has developed one of the freshest and most distinctive blends of the jazz and Afro-Latin idioms. His role as a band leader draws from his experiences playing and recording with Dizzy Gillespie, as well as musicians such as Slide Hampton, Lionel Hampton, Freddie Hubbard, Arturo Sandoval, Paquito D’Rivera, Jack DeJohnette, Branford Marsalis and Red Rodney.

His latest album *The Journey* is an epic in jazz. It has met with overwhelming critical and popular acclaim. Perez’ frequent partner and former bandmate in Dizzy’s United Nations Orchestra, David Sanchez, appears as a special guest. Admission is \$15.

Peter Schickele: An Evening of Songs, with Baritone David Düsing, Saturday, May 20, 1995

Composer, musician, author, satirist Peter Schickele is internationally recognized as one of the most versatile artists in the field of music. Although his earliest songs date from his pre-teen years, Schickele’s serious involvement with song writing began in the late 1950s, inspired by the work of Franz Schubert and the Everly Brothers. His appearance at Fermilab is cabaret-like, an intimate setting for an evening of songs and stories.

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Arbor Day Draws Nearly 200

David Anderson (RD) and Roy Jeffries (CD) plant a tree during the Fermilab Arbor Day celebration May 1, 1995. Over 175 employees, their families and children from the Children’s Center planted trees during the festivities. Participants planted a combination of 137 trees and shrubs, including black walnut, burr oak and shagbark hickory trees and hazelnut and nannyberry shrubs. The “botanists” for a day were also treated to lunch courtesy of Nalrec.

MOVIE SCHEDULE

The Fermilab International Film Society presents movies from all over the world. Movies are shown at 8 p.m. Fridays in Ramsey Auditorium. Admission is \$4 for adults.

■ May 19 *Like Water For Chocolate*
A striking and sensuous film set in the early part of the 20th century. A young woman's life is shaped first by her stern mother and, more importantly, by the overwhelming power of cooking. Alfonso Arau, director, Mexico, 1992, 113 min.

■ June 9 *The Joy Luck Club*
Based on Amy Tan's book, the film examines four mother-daughter relationships, contrasting the daughters' American lifestyles to their mothers' lives in China. Wayne Wang, director, U.S., 1993, 134 min.

FOR YOUR HEALTH

The Wellness Works Committee will be holding their annual Fermilab Health Fair June 14 from 10 a.m. to 2 p.m. in the Wilson Hall Atrium. Employees can take part in free back screenings, eye tests and diabetes screenings, plus gather health and medical information. There will also be free giveaways and medical books on sale.

Harper's Index

Number of portraits of Zsa Zsa Gabor on display in her homes: 15

Number of registered dogs in Los Angeles named Aaron Spelling: 1

POOL MEMBERSHIPS ON SALE

Fermilab swimming pool memberships are now on sale in the Recreation Office, WH15W.

Pool membership is open to Fermilab employees, visiting researchers and their immediate families. Season rates are: single, \$25; couple, \$40; family of four, \$60; each additional family member (spouse, dependent child residing in the same household), \$5. Children age 2 and under do not require a pool tag.

Daily and guest fees are \$3 per day. Guests must be accompanied by a Fermilab employee. The pool will open May 27 at 9 a.m.

Pool hours are: weekdays: 12 p.m.-8 p.m., family swimming; 11:30 a.m.-12

p.m., adult lap swimming; weekends: 9 a.m.-8 p.m., family swimming; holidays: 9 a.m.-8 p.m., family swimming. The pool is closed from 8 p.m. until 11:30 a.m.

CHILDREN'S SWIM LESSONS

Fermilab offers children's swim lessons on Mondays, Wednesdays and Fridays. Beginners' classes are from 11 a.m. until 11:45 a.m. and intermediate classes from 10 a.m. until 10:45 a.m. Children in the beginners' class must be at least 42" tall or five years old. Class is first-come, first-serve. Session dates are: Session I, June 12-July 14; Session II, July 17-August 18.

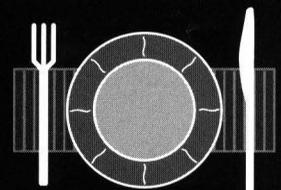
Cost for lessons is \$20 per child/per session. Applications are available in the Recreation Office, WH15W

Congratulations

To Bethia Straus and PAUL QUINTAS (DZero) on the birth of their son David Jonathan. David was born April 21, 1995 at 9:30 p.m. at Evanston Hospital. He weighed seven pounds, four ounces and was 20 inches long. David is welcomed home by his three-year-old brother Joseph.

Chez Léon Menu

Lunch (Wed) \$8.00 • Dinner (Thurs) \$20.00
Reservations: x4512



Wednesday, May 24 • Danish open sandwiches, cucumber and dill salad, lemon mousse

Thursday, May 25 • Pasta primavera, broiled lobster tail w/Espanole sauce, vegetables of the season, pear and hazelnut praline soufflé

Wednesday, May 31 • Selection of stuffed vegetables, banana bourbon cake w/bourbon cream

Thursday, June 1 • Fresh spring rainbow soup, tournedos of beef w/green peppercorns and horseradish sauce, vegetables of the season, rhubarb cake

ARTS SERIES

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His music is at once comedic, poignant and personal. Schickele's works, now in excess of 100, have been commissioned by such ensembles as the St. Louis Symphony, the Chamber Music Society of Lincoln Center, the Minnesota Orchestra and the Dale Warland Singers. You may be familiar with his musical score for the film version of Maurice Sendak's classic "Where the Wild Things Are" and his popular APR syndicated radio show *Schickele Mix*.

Schickele has entertained audiences for years through his portrayal of Professor P.D.Q. Bach. P.D.Q. Bach has taken an indefinite sabbatical, however, to allow Schickele to pursue compositional endeavors. He will be joined by his collaborator, multi-instrumentalist and singer David Düsing. Tickets are \$17.

For information, call xARTS weekdays between 9 a.m. and 4 p.m.

NALREC NEWS

The Nalrec Steak Fry will be held tonight, May 19, starting at 5:15 p.m. at Kuhn Barn. Steak dinners are \$4. The band "Just Friends" will play. Don't miss it—it's bound to be a good time!

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CLASSIFIEDS

VEHICLES

1987 Toyota Corolla, 4 dr., very good condition, AM/FM/cassette, AC, auto, new battery, tires & exhaust, 107k miles, \$2,200 o.b.o. Call 708-898-6806.

1986 Pontiac Grand Am, auto, 2 dr., 64k miles, \$3,200. Call Pat at x8644.

1986 Olds Firenza, 4 cyl, auto, air, AM/FM stereo, pwr brk & steer, extra low orig. mi.: 56k, \$2,200 o.b.o. Call Lloyd at x2990.

1982 Kawasaki CSR750 motorcycle, 2 cylinder engine, 11k miles, runs & looks great, no rust, windshield & 2 helmets incld., \$700. Call Jeff at x4406 or 708-556-3721.

MISCELLANEOUS

Computer, 286 IBM w/special bios, 100M IDE HD, mouse, Here, Mem ext, perfect for terminal & word processing; Yorx music center; rocking chair; barstool; drawing table; 2 rugs; telephone; radio clock; blanket; iron; toaster; dishes. Call Istvan at x8195 or 708-416-8192.

Sears Craftsman lawn tractor, 12 HP, electric start, 38" mower deck, 5 sp. transaxle, 4 yrs. old, good condition, ideal for large yard, \$600. Call Liz at x8650 or 708-469-0532.

Reel-to-reel tape deck, TEAC X-7RMKII, 2 speed, auto-reverse, like new, \$200. Call Tom at x3441.

REAL ESTATE

1984 14' x 66' mobile home, 2 bedroom, 1 bath, central heat & air, stove, refrig., microwave, washer/dryer incld., new carpet & linoleum, exterior masonite sided w/shingled roof, 2x6 exterior walls, detached shed w/deep freeze, 25 miles SW of Lab, south of Lake Holiday, Sandwich side. Call Steve at x3363 or 708-552-8969 or 815-498-2964 after 5:30 p.m.

3 br ranch w/full basement, 1.5 car garage, hardwood floors, all appliances, window treatments, ceiling fans incld., walk to train, schools (Dist. 203) & downtown Naperville, great location, big corner lot w/trees, quite neighborhood, 808 Wilson, Naperville, \$139,900. Call 708-778-7579.

The deadline for the
Fri., June 16, 1995 issue
is Wed., June 7.

Please send your article
submissions or ideas to
the Publications Office.

