

# FermiNews

The Newsletter of the Fermi National Accelerator Laboratory

## CENTRAL HELIUM LIQUEFIER UPGRADE PROJECT COMPLETE

**P**HASE TWO OF an upgrade project to provide the necessary redundancy, improve the reliability and increase the capacity of the cryogenic system was completed this summer.

The cryogenic system is vital to Fermilab accelerator operations. The superconducting magnets in the Tevatron need to be cooled to liquid helium temperatures. For this purpose, a unique refrigeration system was constructed. The heart of the

system is the Central Helium Liquefier. Liquid helium and liquid nitrogen (used as a heat shield for the even colder liquid helium) are sent through a transfer line to 24 satellite refrigerators located in the buildings above the Main Ring. These refrigerators deliver liquid helium to the magnets. The helium gas that is boiled off is collected and returned to CHL for reliquefaction. A specially developed vacuum-jacketed transfer line four miles in length transports the liquid helium. This system allows Fermilab to provide the over 5,000 liters of liquid helium which are needed each hour that the accelerator is operational.

The original CHL system of 1979 vintage included a 4,000 liters/hour helium cold box and two reciprocating compressors. Over the years of operation, general upgrades were made to the system to improve the reliability and increase the capacity of the CHL, including the addition of a third identical helium compressor in 1982, addition of 64,000 liters of liquid helium storage and a liquid helium pump in 1984, and construction of a 4,680 liters/hour Nitrogen Reliquefier with 152,000 liters of liquid nitrogen storage in 1985. These upgrades made the CHL the world's largest stand-alone helium reliquefier and greatly improved the overall reliability of the Tevatron cryogenics.

The recently completed second phase of upgrades added a second cold box with a greater reliquefaction capacity and a fourth compressor to provide the necessary redundancy. These upgrades will decrease the likelihood of downtime due to equipment failure and ensure a continual, reliable flow of liquid helium to the Tevatron's superconducting magnets as we operate at even higher energies. ■



*CHL group stands in front of the 25 feet high Cold Box II. The Cold Box II upgrade to the Central Helium Liquefier increased the capacity of liquid helium delivered to the Tevatron by 35%.*

## FermiNews



Friday, September 15, 1995 • Volume 18, Number 16

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# LIBRARY INTRODUCES WEB INTERFACE TO ONLINE CATALOG

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**T**HE FERMILAB LIBRARY is testing a new Web forms-based interface to the online catalog. The interface search capability only works with browsers that support forms. Netscape does. Mac Mosaic 1.0.3 does not.

"During the field test period, the Library staff would appreciate customer comments on the usefulness of the interface, so that we may pass the information along to the vendor," said SARA TOMPSON, Library Administrator.

The Library has purchased the product and expects it to be in general release by fall of this year. "We took advantage of the opportunity to be a test site, so that our suggestions can be considered by the vendor [Digital Research Associates] before the final release product," said BETH ANDERSON, Systems Librarian.

The new interface offers an easy icon-selection format to activate functions. As a user, you may choose to search the catalog for books, preprints\*, confer-

ence proceedings and other items in the Fermilab Library collection. You may also select an icon that allows you to link to other WWW information resources related to high-energy physics, engineering and astrophysics. In addition, there are links to indexes and search tools such as Yahoo and Lycos to help you navigate the web, and an online help function.

When searching the Fermilab Library catalog with this interface, you may search for publications by key words, title, author, subject, or bibliographic, serial or catalog number. An easy-to-use form will pop up in the window to prompt your search.

This new interface also allows Catalog Librarian ROB ATKINSON to link electronic versions of preprints and other publications to the online catalog. This feature enables you to select a linked publication and view it immediately in full-text on your terminal screen.

The online catalog can be reached from the Fermilab Home Page at

<http://www.fnal.gov> under "Fermilab at Work," "Information Resources," "Library." Or you may go directly to the catalog by opening URL <http://fnlib.fnal.gov>.

"We hope you will try this product and help us it put it through its paces during the test phase," said Sara. Please stop by the Library with your comments or send e-mail to [Beth@FNAL.GOV](mailto:Beth@FNAL.GOV).

If you need assistance using the online catalog, please contact the Library (x3401, WH 3X) or the Publications Office (x3278, WH15SW). Any staff member will be glad to assist you.

If you need assistance configuring network software or hardware to enable you to access the World Wide Web, please contact your network administrator.

\*The Library online catalog now contains records of all Fermilab preprints, technical memos (TMs) and physics notes (FNs). The Techpubs database has been phased out. ■

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## SCITECH RECEIVES IMS OPERATING GRANT

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**S**CITECH, AN INTERACTIVE hands-on science center, founded by Fermilab physicist ERNIE MALAMUD, was awarded an operating grant from the Institute of Museum Services, a federal agency. The award is for \$112,500 (the maximum) to be distributed over two years. SciTech will receive the first quarterly distribution of \$14,062 in October.

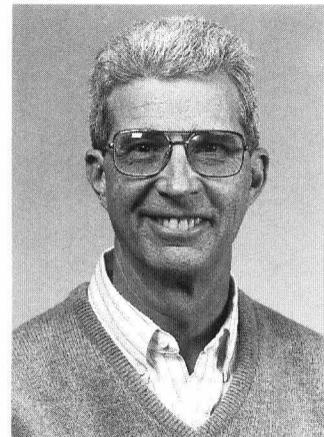
"There are two wonderful aspects to this grant," said Olivia Diaz, director of SciTech. "First of all it can be used for anything except capital improvements. It is for operations, those expenses that are the most difficult to support with grants. However, out of an annual operating budget of over \$700,000, that quarterly payment only makes a small dent. More importantly the award is a pat on the back."

An Institute of Museum Services Operating Grant is a very prestigious award. IMS does not grant awards to institutions because of need; they award excellence. It is highly competitive. There were 1070 applications and 275 awards were made. In Illinois only 12 awards were made. SciTech was the only science and technology center in Illinois to receive the award in this cycle. The other

*continued to page 3*

# RON FAST RECEIVES CRYOGENIC ENGINEERING AWARD

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**T**HE SAMUEL C. COLLINS Award for outstanding contributions to cryogenic technology was presented to RONALD W. FAST at a July 21 luncheon held during the Cryogenic Engineering Conference and International Cryogenic Material Conference in Columbus, Ohio. Ron received the award in recognition of his "superior professional accomplishments in the field of Cryogenic Engineering."

The Collins Award was established in 1965 by the Cryogenic Engineering Conference to recognize outstanding contributions to cryogenic technology. The award is named in the honor of the late Samuel C. Collins, Professor of Mechanical Engineering at Massachusetts Institute of Technology, who is responsible for the invention of the modern helium liquefier. In addition to Dr. Collins, who received the award in 1965, this award has been presented to Dr. Klaus D. Timmerhaus (1967), Dr. Edward F. Hammel (1973), Dr. Howard O. McMahon (1979), Professor Joseph L. Smith (1983), Professor William Gifford and Dr. Bascom Birmingham (1991) and Dr. Roger Boom

(1993). Since its establishment nearly 30 years ago, the Collins Award has been presented only eight times.

The 1995 recipient, Ron Fast, was employed at Fermilab from 1969 until his retirement in 1994. During his 25-year association with the Laboratory, Ron was involved in many cryogenic and superconducting projects. Highlights of projects on which he participated include investigating the feasibility of large scale superconducting analysis magnets; establishing a hydrogen target program for high-energy experiments; converting the Chicago Cyclotron Magnet to superconducting coils; designing and fabricating the CDF superconducting solenoid; investigating techniques to reduce radiation heat transfer; and designing and fabricating the SDC superconducting solenoid prototype magnet.

Throughout his career, Ron was very involved in cryogenic safety issues. He served on the Cryogenic Safety Subcommittee. He was a member of the Bubble Chamber Cryo Safety panel. He also served as chairperson of both

the Saver Cryo Safety panel and the DZero Cryo Safety panel.

Along with his many professional accomplishments, Ron was also commended by his colleagues for his ability to mentor young engineers. "Ron consistently put in the effort to work with the new engineers to cultivate their talents and guide them in their project assignments. They trusted his judgment and valued his input. He allowed them the opportunities to develop their own styles and approaches to the work," said RICH STANEK, head of the Research Division Mechanical Support Department.

Ron has a Ph.D. in physics from the University of Virginia. He received the Collins Award from past recipient and CEC Board member Klaus Timmerhaus. JAY THEILACKER, head of the Accelerator Division Cryogenic Department served on the CEC Award Selection Committee. ■

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## SCITECH

*continued from page 2*

institutions in the same category receiving the award nationally are: Arizona Museum of Science & Technology, Phoenix; The Exploratorium, San Francisco; Orlando Science Center; Regional Science Center, Moorhead (Minn.) State University; Southwest Museum of Science & Technology, Dallas; and the Pacific Science Center, Seattle.

According to the press release from the IMS, "The grant provides national recognition for museums that have the highest approval of their peers. It is a stamp of achievement that sparks vital public-private partnerships. Museums will use these awards to do what they do best: educate, fascinate, inspire, illuminate, inform, enhance and enrich the lives of

hundreds of thousands of visitors each year."

Several Fermilab employees volunteer their time to create exhibits or do demonstrations at SciTech. Fermilab Director JOHN PEOPLES serves on the Board of Directors. ■

# People & Events

## ROY JEFFRIES RETIRES

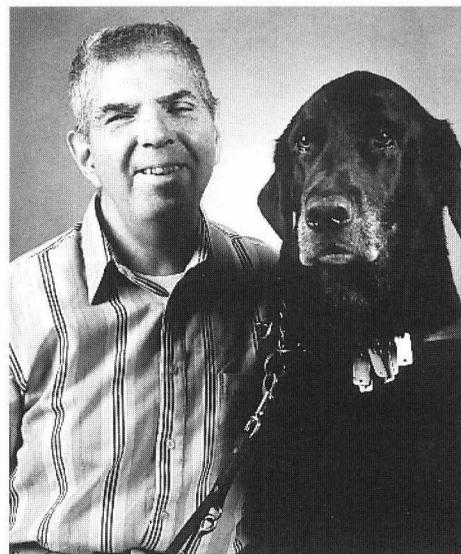
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ROY JEFFRIES, Computing Division Computing Services, will retire November 27, 1995. Roy began working at Fermilab on April 23, 1979. When Roy started at the Lab, it was his responsibility to clean the 10 inch magnetic computer tapes. "That assignment lasted 11 years," said Roy. When that assignment ended, Roy received computer training and learned to generate spreadsheets to keep track of tapes mounted by both operators and robots. He also made follow-up calls for the Computing Division help desk.

In summing up his career at Fermilab, Roy said, "I have met some of the greatest people I have ever had the privilege of knowing. They have been very helpful when necessary, but more important is the friendship and camaraderie I have experienced during the 16 years I have been here."

Roy says he doesn't have any real dramatic plans for his retirement. He plans to continue with his exercise program, possibly do some volunteer work in the local schools, work in his garden and help his wife around the house to free up her time so that they can do more things together.

As for his guide dog Cody, he will be even busier after Roy retires. Since Roy will be walking to most of his retirement activities, Cody still will be on the job.



## GUS REHBEIN RETIRES

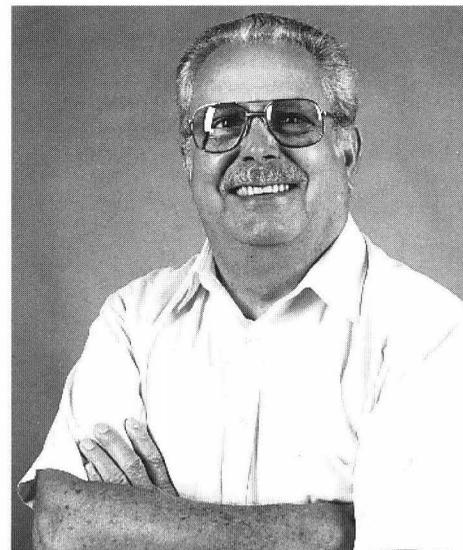
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GUS REHBEIN, whose Fermilab ID number is 176, will be retiring from the Laboratory on September 29, 1995, after 27 years of service. Gus joined the Laboratory on June 1, 1968. He is a member of the Accelerator Division EE Support Department and one of Fermilab's pioneers, who helped build the Laboratory.

"The early days, when we first started, were the most exciting times of my career," said Gus. "We worked long hours and I don't think I would ever want to do it again, but we had a lot of fun."

During his career Gus worked on building RF equipment for the accelerators. "For the most part, people at the Laboratory were tremendous," said Gus. "I enjoyed doing what I did."

After retirement, Gus plans to do a little traveling and fishing and work around the house.

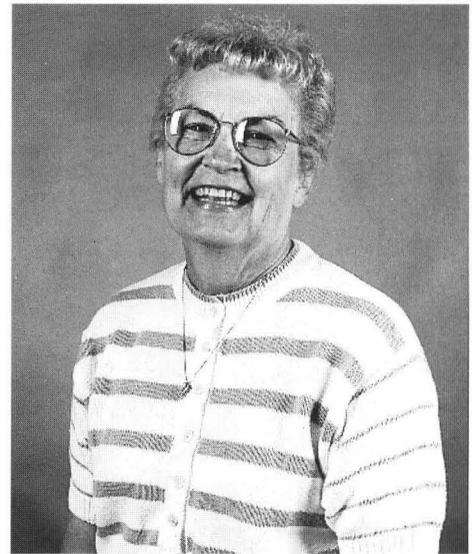


# MAY WEST RETIRES

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MAY WEST, Fermilab assistant librarian, is retiring from the Laboratory on September 28, 1995 after 21 years of service. May began her Fermilab career on October 16, 1974 working in the Library with Roger Thompson. May, Roger, Lillian Hoddeson, Frank Cole and Dick Carrigan started the History Room project and May helped organize the first and second history symposia at Fermilab.

May has seen a lot of change in the Fermilab Library. "The automation project threw me into the computer world," said May. "It has been a fun learning experience. I have enjoyed exchanging ideas with coworkers. I know I will miss people at the Lab, but there are so many things out there to do."



With the freedom retirement affords, May plans to travel, play golf and enjoy her four grandsons. "I will work on our new house, maybe take some classes, and visit family and friends whom we haven't had a chance to see recently."

## DEUTSCH-KLASSEN FANGEN WIEDER AN!

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## PARTY CANCELLED

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To the dismay of '70s fans everywhere, the September Nalrec Party, a 1970s celebration, has been canceled.

Look for fliers and information in *FermiNews* regarding the Nalrec Octoberfest coming next month.

Angela Jostlein will again teach German classes this fall. A wide variety of levels will be offered, depending on interest.

Students will meet for the first time on Tuesday, September 26 at 5 p.m. to organize classes based on the number of interested people and their levels. Therefore, it is important for you to attend if you are interested, or call Angela at 708-355-8279. Classes will meet in the conference room at 20 Neuqua, just outside Lab 7, across from the Gym.

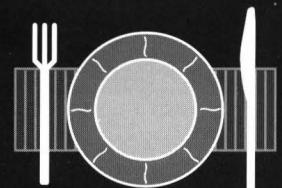
## Harper's Index

Number of subscribers to Call of the Wind, a California paging service that alerts windsurfers to good conditions: 450

Price of renting a duck to compete in the annual Great American Duck Race held in Deming, New Mexico, June, 1995: \$5

### *Chez Léon Menu*

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



Wednesday, September 20 • Two cheese and garlic calzone, mixed greens with balsamic vinaigrette, Victorian orange peel cake

Thursday, September 21 • Two bean and roasted red pepper salad, crab cakes with basil mousseline, lemon and ginger scented broccoli, lace nut cups with fruit

Wednesday, September 27 • Greek lamb and eggplant salad, baklava

Thursday, September 28 Booked

# ARTS SERIES PRESENTS ARIANNA QUARTET

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FERMILAB ARTS SERIES TO HOST ARIANNA QUARTET — FERMILAB'S QUARTET IN RESIDENCE AND WINNERS OF 1994 FISCHOFF, COLEMAN AND CARMEL COMPETITIONS

**T**HE FERMILAB ARTS Series, in conjunction with the Northern Illinois School of Music, is proud to continue with its second season of concerts by its quartet in residence: The Arianna Quartet. The first concert of the season is on Sunday, October, 1995 at 2 p.m. in Ramsey Auditorium. No advance ticket purchase is necessary. Tickets will be available at the door 45 minutes prior to each performance for a price of \$5.

The program will include Mozart's String Quartet in D Major, K. 499; Ralph Shapey's String Quartet No. 8; and Maurice Ravel's String Quartet.

The Arianna Quartet formed in 1992

and spent a year in residence at Kent State University. They are currently studying with the internationally renowned Vermeer Quartet as resident graduate string quartet at Northern Illinois University's School of Music. They recently won top honors at all three of 1994's national competitions on three consecutive weekends: The Fischhoff National Chamber Music Competition; The Coleman Competition in Pasadena; and The Carmel Chamber Music Competition in Carmel, California. Winning the Fischhoff Competition resulted in a \$4,500 grand prize, a sponsored tour of the Midwest and an Orchestra Hall debut on October 30. Earlier this year they were one of six internationally selected ensembles to participate in the first Isaac Stern Chamber Music Master Class at Carnegie Hall where their coaches included Mr. Stern, Arnold Steinhardt, Michael Tree, Timothy Eddy and Ralph Kirschbaum. In addition, the Arianna Quartet spent the summer working with Martha Katz

and Lorand Fenyves at the Banff Academy of Chamber Music. Says Richard Young, violist for the Vermeer Quartet and one of Arianna's coaches, "This is a very difficult profession, but the Arianna is off to a very promising start. One can't do better than they have so far."

The Arianna Quartet performs their premiere resident concert of the season at Ramsey Auditorium on Sunday, October 8 at 2 p.m. General seating tickets are available at the door for \$5.

Tickets are still available for the Folk Showcase, September 23, 1995 in Ramsey Auditorium. Tickets are \$12. The showcase will feature Liz Carroll, Irish fiddle with Larry Nugent, flute and Jim Dewan, guitar and Lui Collins, singer/songwriter with David Massengill, singer/songwriter. ■

## SHAPE UP WITH THE BOD SQUAD

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**D**O YOU WANT to tone up those abs, reduce those hips and slim down your thighs? Then join the muscle-toning class held at the Recreation Facility on Tuesday and Thursday evenings from 5:30 to 6:30 p.m.

Classes include stretching, floor exercises and upper body strengthening. The class is open to men and women and costs \$40 for each eight-week session.

Sessions will be held from October 3 to November 30 (no classes on Oct. 31 and Nov. 23), December 5 to February 8 (no classes on Dec. 21, 26, 28 or Jan. 2) and February 13 to April 4.

Registration and payment must be made at least 24 hours prior to the start of each session in the Recreation Office, WH15W or send your name and check (payable to Bod Squad) to MS 126. You must be a current member of the Recreation Facility.

## MOVIE SCHEDULE ANNOUNCED

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The Fermilab International Film Society presents movies from all over the world. Movies are shown at 8 p.m. Fridays in Ramsey Auditorium. All foreign films have English subtitles. Admission is \$4 for adults. Call x8000 for more information.

September 22: *This is Spinal Tap* A rockumentary about the world's loudest heavy metal band, Spinal Tap. This satire spoofs the whole rock and roll scene, including hilarious behind-the-scenes footage which bring life to the imaginary group. Rob Reiner, director, U.S. 1984, 104 minutes.



## NEWS FROM THE WASTE MINIMIZATION SUBCOMMITTEE

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We are nearing the Fall season, which means back to school, back from vacation and back to recycling.

We want to thank all of you who have been recycling all along and encourage those who have not recycled to join in.

We want to remind everyone to please separate your recyclables properly. We would like to get top dollar for our recyclables and that depends on you.

We are still working with the vendor to get reliable pick-up dates and expand into a few new areas. Please be patient and we will keep you updated on our progress. The vendor has agreed to take all plastics, not just number "6." However, we need to separate "6" from all other plastic. If you have some other plastics, please place them in a garbage bag before placing them in a Styrofoam bin.

The Cafeteria continues to be a problem for collection of Styrofoam and plastic tableware. These items bring very little money in return and no

money for contaminated bins. We would like to see these items recycled instead of ending up in the landfill. This is going to depend on employee cooperation.

If the bins continue to be filled with paper products and garbage, we will have to discontinue recycling in the Cafeteria. Please help us out by being careful about placing only Styrofoam and plastic in these bins. Remind your coworkers as well. If you have any ideas on how to remedy the Cafeteria situation, please give us a call. —*Kay Weber and Kevin Moss*

## AWARENESS IS KEY TO PREVENTION

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**E**LECTRICITY IS AN essential component of modern life, both at home and at work. Perhaps because it has become such a familiar part of our surroundings, it often is not treated with the respect it deserves. Each year approximately 10% of work-related fatalities in the United States are caused by direct or indirect contact with energized electrical circuits. What makes this statistic so tragic is that many of these fatalities could have been avoided.

Accidents involving electricity appear to be caused by three possible factors: unsafe equipment and/or installation, unsafe environmental conditions, and unsafe work practices. In most cases, these conditions can

be easily corrected or rendered safe by first being aware of the hazard and then taking direct action either to eliminate the hazard or provide adequate protection for the person exposed to the hazard.

"Because the first step in eliminating or mitigating electrical hazards requires an awareness of the hazard, it is vital that all incidents of electric shock, no matter how minor they may seem, be reported in a timely fashion," said LARRY THOMPSON, ES&H training coordinator.

The second key to reducing electrical accidents is training. All employees who perform work around electrical circuits of 50 volts or more and who are exposed to potential electric

"Awareness is the vital link in preventing accidents and damage caused by electricity."

—*Larry Thompson*

shock must be properly trained BEFORE they do the work. (This requirement does not apply to people who use equipment that is properly encased, such as computers, copiers or typewriters.)

If you are exposed to potential electrical hazards and have not received training, please contact your supervisor, sponsor, or spokesperson. ■

Guards, Neighbors say:

## “SLOW DOWN, FERMILAB!”

The Fermilab Security Department reports that many drivers fail to slow down as they approach the Laboratory gates, both inbound and outbound, especially at the Batavia Road gate on the east side of the Laboratory. Please SLOW DOWN to the posted speed of 10 miles per hour when approaching the guard house check points.

A Warrenville resident called the Public Affairs Office on August 28 to voice her concerns about drivers exceeding the speed limit on Batavia Road west of Route 59, a residential area that includes two school crossings. As she pointed out, most of the traffic on this road is now Fermilab traffic. She reported that she had shared her concerns with the Warrenville Police Department. Obeying the 35-mph speed limit (20 mph in school zones when lights are flashing) will allow Fermilab drivers to avoid speeding tickets and show respect for neighbors' safety concerns. ■

## FermiNews

*The Newsletter of the  
Fermi National Accelerator Laboratory*



FermiNews is published by the Fermilab Publications Office

MS 107, P.O. Box 500 Batavia, IL 60510 • 708-840-3278 • TECHPUBS@FNAL

Fermilab is operated by Universities Research Association, Inc.

under contract with the U.S. Department of Energy

# CLASSIFIEDS

## ■ VEHICLES

1989 Mitsubishi Precis hatchback, 4 dr., auto, dark blue, new batt./tires, power brakes/steering, stereo/cass., excellent condition, very clean, 53k mi., must see, \$3,000. Call Bernd at x3749.

1988 Jeep Comanche, pioneer package, 4.0 liter, 5 speed, AC, aluminum wheels, sunroof, 102k miles, new brakes/exhaust, \$3,800 o.b.o. Call Jason at 309-862-3472.

1987 Chevy Cavalier station wagon, auto, AC, AM/FM stereo, some rust, 105k miles, \$1,200 o.b.o. Call Margaret at x2625 days or 708-393-7241 eves.

## ■ MISCELLANEOUS

2 tan love seats, good condition, \$50 ea.; Sunbeam gas grill, \$45. Call Gary at 708-466-7155.

Hardtop for Jeep Wrangler, gray, excellent condition, \$1,000; solid oak dining room table w/2 leaves, good

condition, \$150; Schwinn 10 speed bicycle, good condition, best offer. Call x8493.

For sale: radial arm saw, compressor, generator, grinder, diesel engine, Briggs-Stratton engine, tools: drills, router, etc. Call Lillian at x3284 on Thurs., Fri. or 815-498-9402.

For sale: Ameritech Cellular bag phone. Call Terry at x2819 or page 0970.

Furniture items: oak/glass coffee table, end table, 3-section (shelves and cabinets) wall unit, king size oak headboard, oak pedestal/4 chair dining room table, pecan lighted china cabinet, oak dresser/2 mirrors. Call Connie after 5 p.m. at 708-852-3033.

## ■ WANTED

Wanted: stereo turntable. Call Rob at x5222 or 312-395-3944.

The deadline for the  
Fri., October 6, 1995  
issue is Wed., Sep. 27.  
Please send your article  
submissions or ideas to  
the Publications Office.