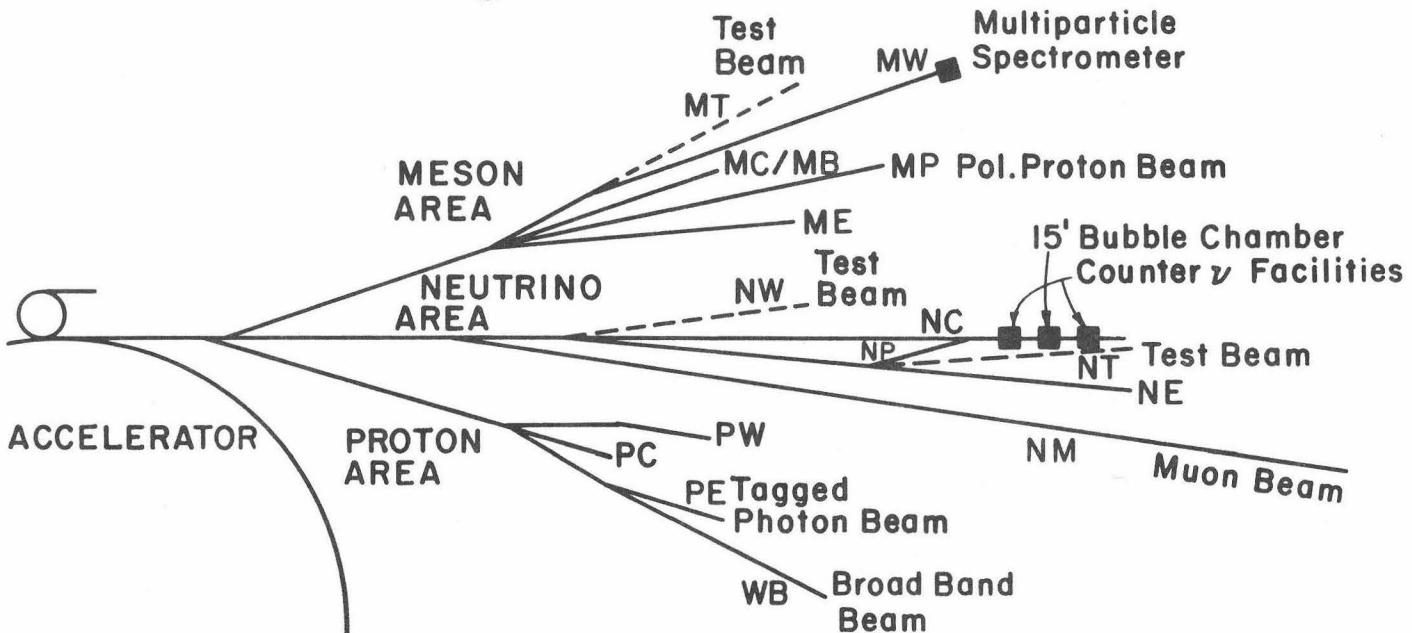


FERMI NATIONAL ACCELERATOR LABORATORY

1985 Fixed-Target Run Proclaimed Successful



by Robin Craven

Fermilab ended its 1985 accelerator running period for fixed-target physics on August 29, 1985, 4-1/2 days ahead of schedule in order to begin the successful tests of the Proton-Antiproton Collider complex.

The 1985 fixed-target running period began last January 15 and, after a slow start, settled into a consistent run by mid-March at 800- GeV beam energy. Of 14 experiments this season, 75% proclaimed success! In most cases, a "successful" run means the minimum needed intensity and energy with lots of beam time yielding many events. In some cases, like E-691 (Charm Photoproduction with the Tagged Photon Spectrometer), they were able to obtain 100-million events and have already seen evidence of charm production. In addition, since E-691 collected so much data, during the last 2-1/2 weeks they ran a second mini-experiment which measured the A-dependence of J/ ψ photoproduction.

A member of E-665, (Muon Scattering with Hadron Detection), described their test run as being "wildly successful" (admittedly relative to very modest goals).

E-665 was originally not put on the schedule because of the uncertainty of completing the Tevatron muon beamline. However, the beamline was commissioned at the beginning of August and during the next four weeks was able to meet all design specifications. By the end of their running period E-665 had installed and tested much of their equipment with the help of Fermilab experts. With this test run behind them, the E-665 experimenters are expecting and looking forward to a successful data run in 1986.

Another nonscheduled experiment was E-687, (Photoproduction of Charm and B). In order to run E-687, the Laboratory first needed to complete the construction of the new wide-band photon beamline which included building a target and installing the primary and secondary beamline components. Not only did the Laboratory succeed in producing another functional beamline, but E-687 installed a good fraction of their experiment and began some preliminary testing. E-687 will also return in the next fixed-target run.

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E-744, (Neutrino Physics at the Tevatron), also fulfilled their goals using 5×10^{17} protons on target this running period. They used a 600-ton detector to collect 1.7 million neutrino events, the largest sample of neutrino events for any run at Fermilab. Since they are looking for very rare events, this large sample provides a higher probability that they will find them.

Another first at Fermilab occurred at E-733, (The Study of High Energy Neutrino Interactions with the Tevatron Quadrupole Triplet Beam). E-733 used the first fine-grained neutrino detector to be exposed to the high-energy neutrinos available only at the Tevatron. They logged over 50,000 analyzable events, a considerable number, and are hopeful to study rare neutrino reactions in greater detail than have previously been seen at lower energies.

Also looking at neutrino interactions was E-632, (An Exposure of the 15' Bubble Chamber with a Neon-Hydrogen Mixture to a Wideband Neutrino Beam from the Tevatron). In their search for charm decay and study of same-sign di-lepton events, E-632 recorded 155,000 normal bubble chamber pictures using $< 2.5 \times 10^{17}$ protons on target. Although they were unable to obtain many holographic pictures, they do have a considerable amount of data to analyze. They are considering a request to the Laboratory to continue this work in the next running period.

E-745, (Neutrino Experiment Using One-Meter High Resolution Bubble Chamber), also had a good run. Using a new holographic camera that produces 3-D images, they obtained 60,000 pictures. In addition, they were able to get 200,000 normal bubble chamber pictures and have confirmed the identification of a charmed event.

E-731, (A Precision Measurement of the CP Violation Parameter ϵ'/ϵ in the Neutral Kaon System), began taking data in June and collected about 15,000 $K^0_L \rightarrow \pi^0 \pi^0$, (five times the number of neutral kaon decays than the previous generation experiment [E-617]). When they return during the next fixed-target run, they plan to collect ~100,000 $K^0_L \rightarrow \pi^0 \pi^0$ decays.

E-743, (Charm Production in pp Collisions with LEBC-FMPS at 1 TeV), began and

ended their run this season by bringing the LEBC (Little European Bubble Chamber) and its associated equipment from CERN and placing it in the Meson West (Test) beam-line. Their goal was to use the Tevatron's 800-GeV beam to look for charm production, already seen at CERN using 270 GeV. They successfully took 1.25 million pictures to this end.

With their last run, E-605, (Study of Leptons and Hadrons Near the Kinematic Limits), met all of their goals. They had previously studied the production of hadrons, electrons, and muons; in this run they concentrated on dimuon production in the upsilon region and above.

Experiments E-653, (Study of Charm and Beauty Using Hadronic Production in a Hybrid Emulsion Spectrometer), and E711, (A Study of the Angular and Energy Dependence of Constituent Scattering through Measurements of the Reaction $p + N \rightarrow h_1 + h_2 + X$), were the only experiments to share a beam-line. Before the summer, E-653 had predominant use of the Neutrino East (NE) beam-line, switching to 2-to-3 week alternating intervals with E-711 in mid-June. E-711 was able to install their entire apparatus which included a new magnet, four new chambers, and a calorimeter, and had three good weeks of data taking. E-653 reports their run also went smoothly, taking over 5.4 million triggers and exposing 32 liters of emulsion. Both E-653 and E-711 plan to return using the same beam-sharing mode next run. A sidelight on the NE operation was the use of a bent crystal as a beam element to explore the simultaneous operation of a high-intensity and low-intensity experiment in the same beam line.

E-705, (A Study of Charmonium and Direct Photon Production by 300-GeV/c Antiproton, Proton, π^+ and π^- Beams), reached a data-taking phase by the end of the running period, even though they had the misfortune to have their H_2 target fail. The explosion and subsequent fire caused significant damage to the experiment. Chambers were rebuilt and cables replaced. The H_2 target was replaced with a Be target for test running. E-705 is currently planning to have a new H_2 target installed for their major data-taking run next running period.

E-621, (A Measurement of the CP Violation Parameter n_{+-}), also ran into some
cont'd on pg. 5

Director's Special Colloquia Continue

The Director's Special Colloquia on Topics in High-Energy Physics, which address areas of unusual interest in theoretical and experimental high-energy physics for the non-specialist physicist, continue through January of 1986. Topics, speakers, and dates are listed below.

"A Supercomputer for Lattice Gauge Theory: Results and Prospects," by Norman Christ (Columbia University) on November 14, 1985, at 4:00 p.m.

"Supersymmetry, Gravity, and Unification," by Bruno Zumino (Physics Department, University of California at Berkeley) on December 6, 1985, at 4:00 p.m.

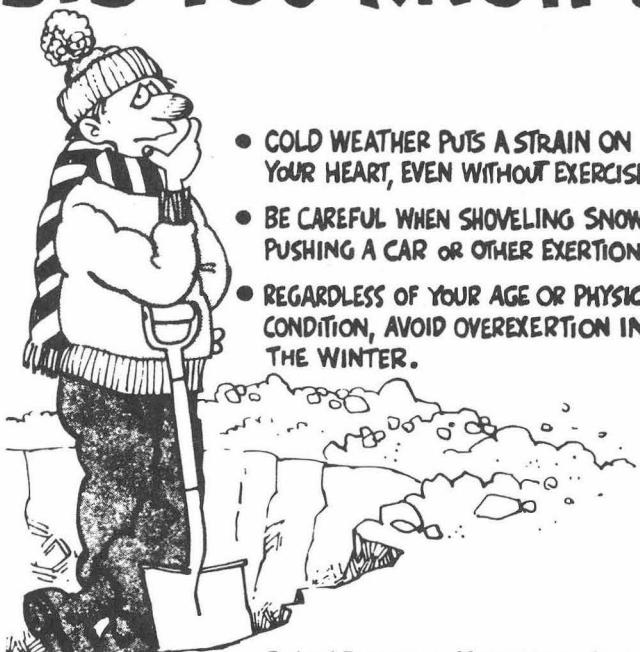
"The Ongoing Search for Dark Matter Candidates," by Frank Wilczek (Institute for Theoretical Physics, Santa Barbara, California) on December 10, 1985, at 3:00 p.m.

"Superstring Theory," by Edward Witten (Princeton University) on January 23, 1986, at 3:00 p.m.

All of these colloquia will be presented in Ramsey Auditorium.

The Aurora Blood Bank will hold a blood drive on Tuesday, December 17, 1985, from 9 a.m. to 2 p.m. in the 1 West conference room.

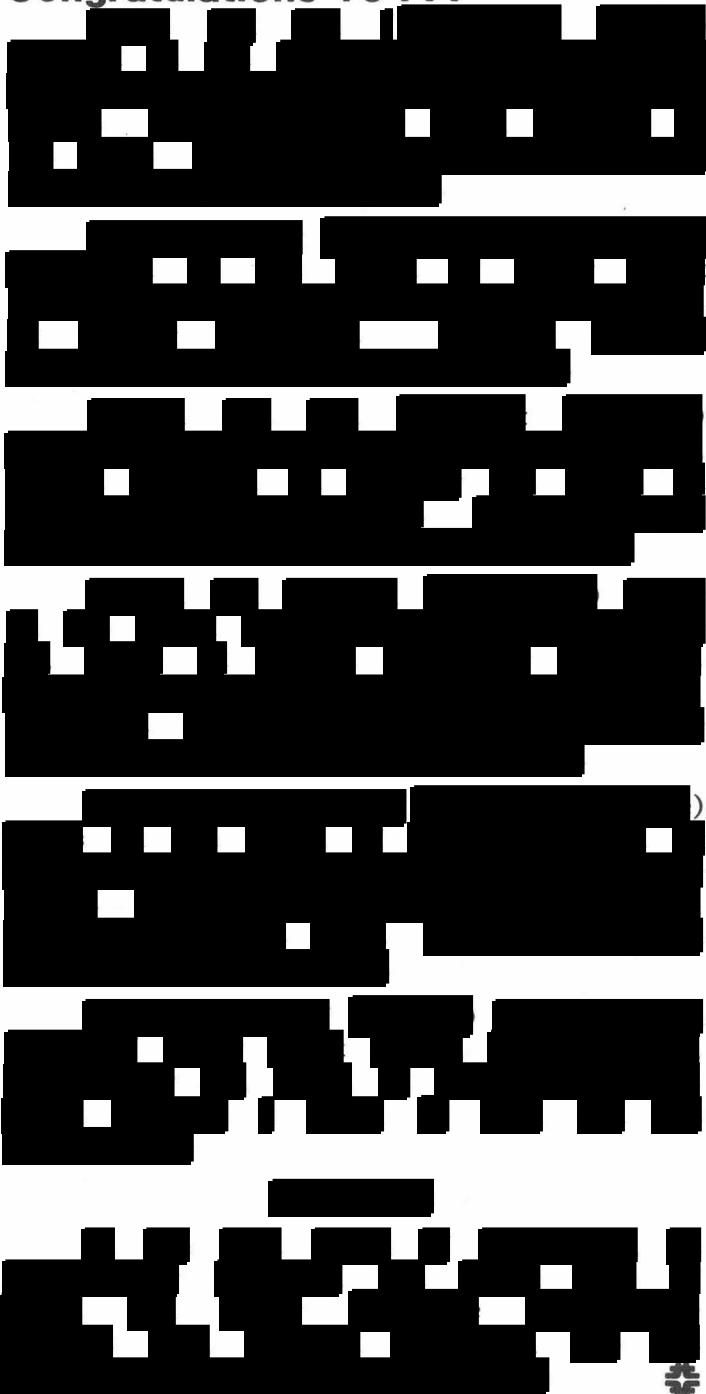
DID YOU KNOW ?



- COLD WEATHER PUTS A STRAIN ON YOUR HEART, EVEN WITHOUT EXERCISE.
- BE CAREFUL WHEN SHOVELING SNOW, PUSHING A CAR OR OTHER EXERTION.
- REGARDLESS OF YOUR AGE OR PHYSICAL CONDITION, AVOID OVEREXERTION IN THE WINTER.

Federal Emergency Management Agency

Congratulations To . . .



Next Fermilab Film Society Offering

On Friday, November 22, 1985, at 8 p.m. the Fermilab International Film Society will present **The Aviator's Wife** in Ramsey Auditorium.

In "a graceful, exhilarating mixture of irony, mystery, and romance," a lover's jealousy leads him to amateur detective work and a dazzling 15-year-old girl Friday.

Tickets are \$2 for adults, 50¢ for children and are available at the door.

John Barry Rescues Hapless Hunters from Frozen Fate

John Barry, Fermilab's Accommodations Manager, went up to Wisconsin to do some duck hunting a few weeks ago, and wound up catching his limit in human beings.

John, now a certified Hero of the North Woods, and Joe Volenec, a DuPage County deputy sheriff, were in their duck blind on Lake Allequash on Saturday, October 5, when they heard cries for help from two other hunters who, unmindful of Newton's Third Law, were shooting at ducks from a canoe. The two in the canoe were soon the two in the water.

Barry and Volenec hopped into their own canoe and paddled approximately 500 yds. to the two unfortunates, who turned out to be from Madison, Wisconsin, and should have known better.

Barry and Volenec pulled one victim into the canoe, and deposited the other one on top of a muskrat house for safekeeping. Two more hunters showed up with a boat and motor, and the two now-canoeless hunters were motored off to safety. According to the account in The Lakeland Times, the two victims were almost in shock from the cold water. One had lost total control of his legs and arms.

Another day, another duck. On Sunday, John and Joe were paddling across the lake about 6:40 p.m., when they saw a duck boat about 200 yds. in front of them. The boat was sinking, as were the two men in the boat. These two, from Boulder Junction, Wisconsin, also should have known better.

John and Joe gathered up some free-floating life-preservers, gave them to the two men in the water, and told them to hang on to the bow and stern of the canoe while John and Joe paddled for shore. John and Joe, using a flashlight and a police whistle for S.O.S. signals, managed to attract the attention of a hunter on shore who ran three-quarters of a mile to the boat landing and commandeered a passing motorboat. As it turned out, the hunter on the shore was a good Samaritan for a good reason: he was one of the two hunters John and Joe had rescued the day before. (Deja vu!)

A story this good needs a moral, and John provided it. "The first message here is that cold water can kill you via hypothermia and shock.

"The second message is, know your equipment. The canoe which rolled over and sank was a name brand that is advertised as 'unsinkable.' People intending to go hunting, fishing, camping, any activity that exposes one to nature's dangers, should test their equipment to see if it really works as advertised I've gone so far as to test my flotation gear by trying it out in a swimming pool while I'm fully clothed, because if I go in the water up north, I won't be dressed for swimming." 

Beauregard's Law: When you're up to your nose, keep your mouth shut.

Employee Tours Offered by Public Info

How long since you've seen the Main-Ring tunnel? The BO detector?

The Public Information Office is now accepting registrations for **employee tours** of several Fermilab locations during the current shutdown period. Each tour will be limited to the first 16 registrants and all employees must obtain supervisor approval prior to registration.

Tour groups will assemble in the Atrium lobby of Wilson Hall at 12:15 p.m., and each tour will require 45 minutes. Tour transportation will be provided when necessary and each tour will terminate at 1:00 p.m. at Wilson Hall.

Registration for any of the following tours should be made at the Public Information Office, Wilson Hall 1-West, ext. 3351:

November 26 -- Cockcroft-Walton/Linac areas and Main Control room.

December 10 -- Antiproton Source tunnel and control room.

January 7 -- Meson area, Bubble Chamber, Muon Lab.

January 21 -- Collider Detector at Fermilab; DO Detector area.

February 4 -- Magnet Facility and Central Helium Liquifier.

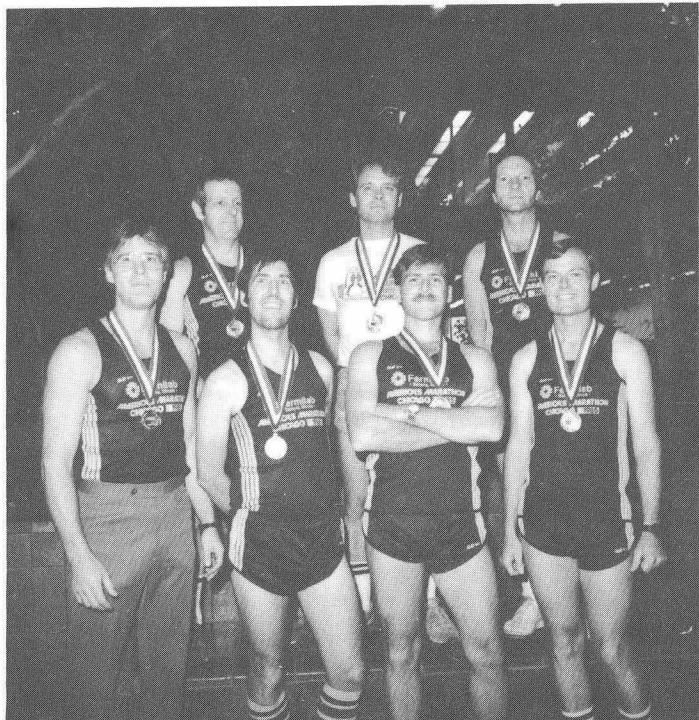
February 19 -- Neutron Therapy Facility.

Employees are encouraged to submit suggestions for other tour locations to the Public Information Office.

—Richard Dease

Fermilab Contingent Runs in America's Marathon/Chicago

Seven Fermilab employees entered and finished the 26.2-mile America's Marathon/Chicago on October 20 of this year. In order of elapsed time, they were: Mark (RD/Computer Dept.) Schmitz 3:39:34; Roger (Research Div.) Dixon 3:54:37; Jim (Director's Office) Jensen 4:13:58; Rich (Antiproton Source) Meadowcroft 4:19:40; Chip (RD/Computer Dept.) Kaliher 4:27:54; Lloyd (AD/Controls) Klein 4:29:18; and Dick (RD/Computer Dept.) Adamo 4:31:18.



America's Marathon runners from left are (back row) Dick Adamo, Chip Kaliher, and Lloyd Klein. Front row are Jim Jensen, Rich Meadowcroft, Mark Schmitz, and Roger Dixon.

When asked if he would ever try to run in another marathon, Roger Dixon replied, "Do rabbits bark? I have to! There is still at least one woman at the Lab with a better marathon time than me. Once I can beat her, none of you are safe!"

Dick Adamo summed up his feelings by saying, "I like to run. I was having so much fun that the pain was there but it was of little significance. We finished--it was the greatest feeling to pass the finish line, 26.2 miles. Fantastic! Is this crazy or what??"

Lloyd Klein added, "I remember being thankful to be able to run even with cramps and pains as I passed a wheelchair competitor at about the 15-mile mark."

Rich Meadowcroft said, "Every time I think back on the run, a flood of memories and emotions come into my mind, best summed up by saying 'very satisfying'."

When asked if anything went differently than he expected, Chip Kaliher replied, "I expected to beat my girlfriend, but she came in 1/2-hour before I did!"

Jim Jensen said he experienced, "...regret before the race, hunger during the race, and after the race I was thankful that I didn't collapse, throw-up, or run through the women's finishing chute."

Mark Schmitz added, "Next year I'll know what to expect and be better prepared. Crossing that finish line is an addicting experience."

Those not entering the race due to injuries were Rich Rebstock, who was out due to a stress fracture in the right leg; Merle Haldeman, due to a herniated disc; and Pat LaVallie, with an ankle injury. All are on the mend and hope to be running again soon.

--Dick Adamo

... "fixed target" cont'd from pg. 2
bad luck. They were hit by lightning one evening, damaging electronics and cables, and causing them a week's delay while these were replaced. They also ran into problems with a groundhog named Abdula, who enjoyed eating his or her way through additional cables. These obstacles notwithstanding, they felt their run went very smoothly, obtaining a large portion of their needed number of events.

This running period marks the second fixed-target run using the newly commissioned Tevatron which now boasts higher reliability and higher beam intensity. Since no run goes perfectly, there were some who felt frustrated and disappointed and a few who won't get another chance. But, for most, the 1985 fixed-target program will be remembered as one of Fermilab's most successful.



* Editor: R. Fenner; Assoc. editor: S. Winchester
Photography: Fermilab Photo Unit

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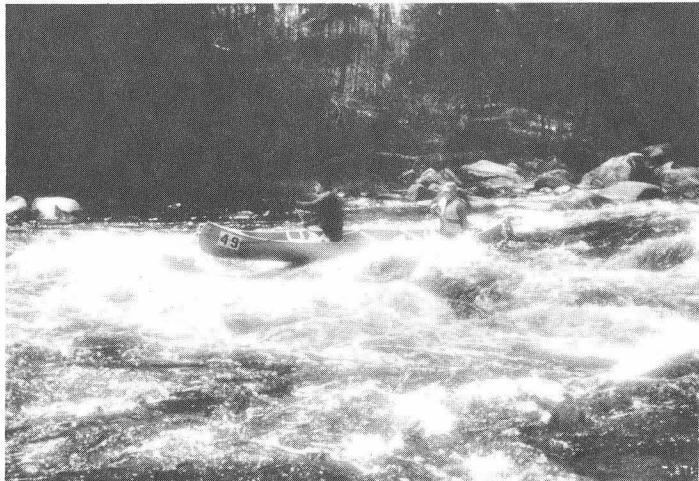
FermiNews is taking some time off for the holidays.

This will be the only edition of FermiNews for November.

Likewise, only one regular edition of FermiNews will appear in December and, yes, Virginia, there will be ads in that one as well. December's deadline for submission of articles and classified ads is 12/10. The December edition of FermiNews will appear on 12/19.

Happy Thanksgiving, and keep those cards and letters coming.

Max and Pals Up the Creek



Danny Snee and Max Palmer in the third pitch of Slough Gundy (Grade II+) on the south fork of the Flambeau River.

(Photo by Jerry Makara)

On October 10-13, 1985, Max Palmer and twenty friends from Fermilab went on still another of Max's "last canoe trips" on the historical Bois Brule River in scenic Wisconsin.

This was Max's thirtieth canoe trip with Fermilab employees, and put Max over the 1000-miles-in-a-canoe mark. Max plans to retire in January of 1986, and says this was, once again, his "last trip."

The twenty people who accompanied Max enjoyed such traditional pleasures as campfire singalongs, liars' dice, Saturday night at the Little Kro Bar Dance Hall, and Jim Walton's "mild" chili.

The group takes two canoe trips a year, and this year the trip was organized by John Grimson and Pat McDonald.

—John O'Meara

NALREC Sets Turkey Party

NALREC is hosting a Thanksgiving Party on Friday, November 15, 1985, at 5:15 p.m. in the Village Barn. Food will be served, and there will be LIVE MUSIC by "Katz".

Fifty winners will be bringing home a turkey, so see your local NALREC representative for your turkey tickets. Winners need not be present. For more information call Mike, ext. 4763, or Jim, ext. 4606. *

Car-Pooling Seminar Set

Employees are invited to attend a presentation on car-pooling and van-pooling on Friday, November 15, 1985, in the WH2SE Comitium.

From 11:30 a.m. to 1 p.m., a representative from the Chicago Area Transportation Study will be continuously conducting the 20-minute program. Feel free to bring your lunch and learn about the benefits of ride-sharing.

Candidates for Universities Research Association (URA) Scholarships are reminded that the scholarships are awarded on the basis of ACT (American College Testing) scores.

URA awards a number of scholarships to full-time employees' children who are currently high school seniors, and who will begin a four-year college degree program next fall. The maximum amount of the scholarship is \$3000 for tuition and fees, and is renewable for four years if the student progresses in good academic standing.

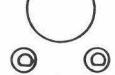
Applications will be available after the first of the year from Personnel and are due March 1, 1986.

Next On

VIDEO NEWS

- Review of TeV I & Collider Dedication
- Neutron Therapy Facility establishes MINT
- Collider Commissioned
- CDF Wire Chamber progress

9



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FOR SALE:

AUTOS:

1984 ESCORT WAGON. 4-dr., 5 spd., H/O, AM/FM cass-stereo, red, 45,000 highway miles, 26 MPG, sharp; \$4,450. Call Don, 892-0491.

1977 FORD GRANADA. 2-dr., 61,000 mi., newly rebuilt engine; asking \$1000. Call Barbara E., ext. 3200 or 232-2184.

1976 TOYOTA CORONA. 4-dr., 5 spd., A/C, runs good; \$500. Call Owen, ext. 3535 or 879-9268.

REAL ESTATE

ATTACHED RANCH STYLE HOME IN WARRENVILLE. 1500 sq. ft. of space, 2-3 bdrms, 2 bthrms, 1 car garage, owner financing possible, may consider rent or rent w/option to buy; \$56,900. Call Henry Schram, ext. 3377, or 393-1711.

HISTORIC BRICK HOME IN SANDWICH. 10 rooms, 1-1/2 bth., large yard, 15 miles to tollway; \$85,000. Call Mark, (815) 786-7211.

2 BEDROOM APARTMENT FOR RENT. Air conditioned, carpeted, tastefully decorated w/stove & refrigerator furnished, balcony patio w/pleasant view, rent includes heat and pool privileges, location - Woodridge Club, 3 blocks south of 75th Street, 1 mile west of Lemont Road, no pets allowed; \$475/mo. Call Dick Auskalinis, ext. 4167.

1 BEDROOM DELUXE APARTMENT. Leaving drapes, freshly painted, avail. in Dec., Four Lakes Village. Call J. Stevens, ext. 3323.

MISC:

FREE MALE CAT FOR A GOOD HOME! Totally black, very sweet, adores petting and a garden, call ext. 4241.

1980 FORCE 5 SAILBOAT. Boat cover, mastbag, sail bag, 1980 Highlander trailer, storage compartments; \$1500 or offer. Call Bill, ext. 4381 or 369-1867.

For the following items call Larry, ext. 4645: Pirelli tires, P6 185/60 HR-13, used only 1,000 miles, two for \$75; Zenith 13" color portable TV, seldom used, \$45.

For the following items call Jim Hawtree, ext. 4287: Four Voice-of-the-Theatre P.A. cabinets, two have drivers (large bass-reflex cabinets for 15" drivers) \$185; Kenwood KX-1030 stereo tape deck, Dolby, normal or high bias, \$90.

RIM FOR PICK-UP TRUCK. 3/4 ton, 8 stud; \$5. Call Henry Schram, ext. 3377.

For the following items call Bill, ext. 4381 or 369-1867: Teak entertainment center, \$250/offer; exhaust hood w/light, almond color, General Electric, like new, \$40/offer; wooden plant stand w/grow lights, \$50.

U.D.S. 212A TELEPHONE/COMPUTER MODEM. 1200 baud, direct-connect, RS232C/CCITT interface, 115-v.a.c. - 6 watt, includes all necessary connectors and manual; \$225. Call Randy, ext. 2210 or 879-9571.

continued on reverse

For the following items call Rick, ext. 3278: Olympus OM-1, black finish, w/80-210 Tamron f/3.8 Macro zoom, \$120; Olympus autowinder, \$40.

For the following items call Gary, ext. 3286 or 960-2186: Two aquariums w/stand, \$75/best offer; 200,000-BTU gas heater, best offer; fireplace screen w/tools, \$20.

ICE SKATES: Men's Bauer hockey ice skates, sizes 8 & 11, excellent cond.; \$15/pair. Call Ralph Niemann, ext. 4896.

OPEN HEARTH PINE DINING ROOM TABLE. 4 chairs plus 2 captain chairs, not even one year old--must sell; \$700/best offer. Call Cindy, ext. 3452 mornings.

For the following items, call Mitch, ext. 4352: Pirelli CN36, 185/70 HR13, \$25; Michelin X, 165-13 wsw, \$20. Were spare tires, excellent cond., 7+32 tread depth.

For the following items, call Sharon Koteles, ext. 3598: Case 8 hp. lawn tractor w/mower, snow plow, and snow blower, also has chains and lights, like new, \$1800; 2 Firestone Town & Country snow tires, size H78 x 15 w/rims, \$75; Miscellaneous assortment of heavy mechanic tools for use on trucks, \$150; kitchen dining table w/formica top and extra leaf, also includes 4 chairs, \$30.

For the following items call Edie, ext. 3621 days, 393-3357 evenings/weekends: Large English parakeets, blues, greens, & Pieds, \$20/ea.; some cages available, \$10/ea.; flight cage, \$40.

BLACK PLASTIC BARRELS. Very clean, sealed bottom and top (plug), 50 gal., 3/8" thick, cut in half make excellent planters/hot beds; free delivery; \$20. Call Dan, ext. 3963.

SEARS UPRIGHT FREEZER. 16 cu. ft., white; \$200. Call Mary Jane, ext. 4623 or ext. 4624.

METAL CABINET. 38x29x16, converts to desk, w/2 standard file drawers and storage compartment; \$50. Call Phil Sperandeo, ext. 3654, or 820-0165.

STORM WINDOWS. 27-3/4x46-3/4, 3/ea., 3 track; 23-5/8x38-1/4 2/ea., 3 track; 24-1/8x39 1/ea., 2 track; 26-1/4x46-1/2, 1/ea., 2 track. Call Nelly ext. 3090.

FEDDERS WINDOW AIR CONDITIONER. 110v.-20"wide x 13"high, 7500 cooling capacity, good cond. Call Joe Miller, ext. 4155.

For the following items call Roy Thatcher, ext. 3144 or 665-8246 evenings: blue & white Perego carriage/stroller/car bed, folds up to fit in most car trunks, excellent cond., \$60; green "Turtle" plastic sandbox w/cover, \$10; baby corral, \$10.

For the following items call Ed Dijak, 690-1145: Wheel covers for Ford Van, will fit 15" or 16.5" wheels; Weber Grill, 22" dia., black, \$10.

WOMAN'S SHEEPSKIN COAT. From Overland Sheepskin Co., size 6, worn once, was \$500, asking \$400. Call Nona, ext. 4142, between 12:30-1:30 p.m.

WANTED:

Ride needed to Fermilab from West side of Aurora, hours open, \$\$, call after 6 p.m. 896-8919.

Men's ski boots, size 9-1/2, call Jim Hawtree, ext. 4287.