FERMINEWS

Fermi National Accelerator Laboratory

Operated by Universities Research Association Inc.
Under Contract with the United States Department of Energy

Vol. 3, No. 15 April 10, 1980

S U C C E S S ! !

It happened at 5:29 p.m., Friday, March 28.

"At that time, we completed tuning a beam of pions through the beam line with the magnet fully operational," said Peter Mazur.

He was describing the first beam ever sent through the first low-current superconducting magnet in the high intensity beam line. The Proton Department team gradually turned the superconducting magnet up and turned down the other (conventional) magnets so that the burden of bending the beam was taken over by the superconducting magnet--a prototype four-foot dipole, explained Mazur.

That meant, of course, that the cryogenic system, controls and the magnet itself were working harmoniously together. For four years the people in the Proton Department had been working toward this moment. "Now, what we want to do is develop reliability," said Mazur.

Immediately after the successful beginning, the people who were there celebrated the occasion with the traditional champagne toast.

PROTON SUPERCONDUCTING HIGH INTENSITY BEAM LINE COMES TOGETHER IN ADMIRABLE FASHION

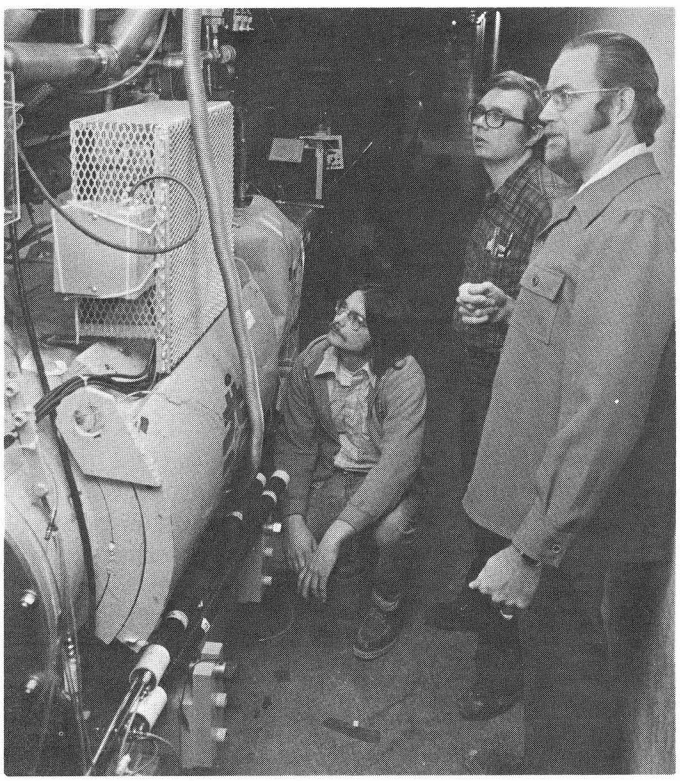
The Proton Area superconducting high intensity line is taking shape, and members of the Proton Department are elated.

Physicist Peter Mazur enthusiastically explained why: "We have put the system together. We no longer have separate projects." He was referring to the three major projects that make up the superconducting high intensity beam line.

The first superconducting magnet--a prototype low-current dipole developed by the Proton Department in the Village--has been installed in the beam line. It is four feet long, has a six-inch bore (twice that of magnets being used for the superconducting main ring) and is capable of achieving a field of 42 kilogauss with only 210 amperes. This remarkable low-current magnet is ideally suited for beam lines, explained Mazur.

Because this prototype magnet draws low current, the refrigeration load on it (and the other magnets that eventually will come) is much less than for magnets that require higher currents, said Mazur. Most refrigeration is lost through the leads that carry current to and from the magnets.

(Continued on Page 2)



The prototype superconducting dipole magnet in place in the Proton Area high intensity line. Inspecting it are (L-R) Rich Stanek, Peter Garbincius and Peter Mazur. This is the same magnet shown in the photograph on page 3. The view is up stream.

(Continued from Page 1)

The greater the current, the hotter the leads get. Consequently, more refrigeration is required to cool them. Since a secondary beam line has many pairs of leads, this is very important, Mazur explained.

The magnets that will be permanently installed in the beam line in the future will each be a 10-foot, low-current superconducting unit.

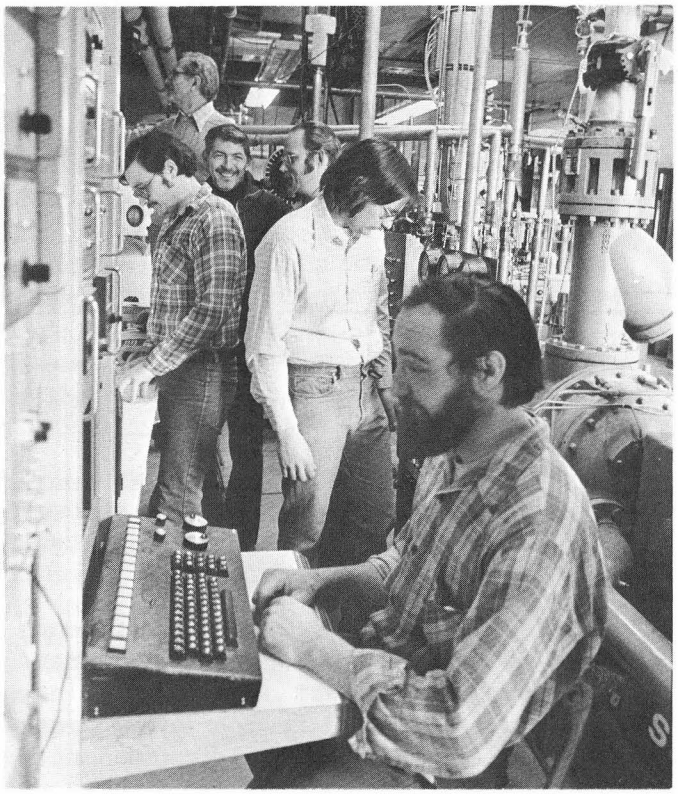
The second major project that recently was completed was the construction of a transfer line for carrying liquid helium at 4.5°K to the magnet from a helium refrigerator located in the P-4 Service Building. This transfer line "snakes" from the refrigerator at surface level downward, through the underground high intensity experimental hall (PW-5), then upstream toward the Central Laboratory to the prototype superconducting magnet, located near the middle of the high intensity line. "It is the longest (about 900 feet) and most complex transfer line ever built anywhere," said Mazur.

The third major project, of course, is the 500-watt refrigeration unit that was completed last year and successfully test run, making its first liquid helium in August 1979. This unit and its transfer line will service the downstream half of the high intensity beam line. A second unit eventually will serve the upstream half of the beam line.

The refrigerator, transfer line and prototype magnet now form a system, said Mazur, and the objective in the coming weeks will be to "run it to prove that we can do it reliably enough to meet the demands of the experimenters in the high intensity beam." He added that this new system in no way detracts from the conventional system that is there now for experimental use.

"The high intensity beam that is now running is using conventional magnets," said Mazur. "The superconducting conversion will free these for use elsewhere as well as increase the energy and intensity capability of the beam. Ultimately, the beam may be upgraded to energies as high as 1 TeV capability."

In addition to dipoles, the beam line will require numerous quadrupole magnets. Mazur called the prototype three-foot long low-current superconducting quadrupole magnet (not yet installed) built by Research Services a gem of technology that grew out of the close work between the scientists and engineers of the Proton Department and Research Services.

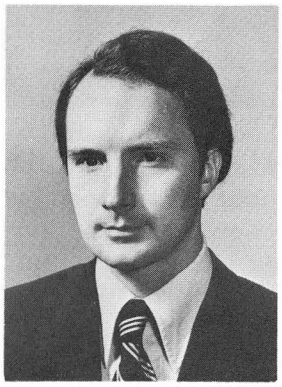


Key personnel at the site of the 500-watt refrigerator in the P-4 Service Building. (L-R) are Jerry Morris, Len Sawicki, John Norris, Peter Mazur, Rich Stanek, project engineer for cryogenics, and Bob Pighetti. In the right foreground is the helium compressor. In the background and right of the photograph is the cold box with its cryogenic piping and equipment.

* * * * *

On pages 4 and 5, readers of FERMINEWS will find a pullout copy of the newest map of Fermilab and its surrounding communities. The map was prepared to give its users a better perspective of the site and the location of major facilities as well as to help travelers get to and from the site. Additional copies of the map may be obtained by requesting a master print from the Fermilab Photography Unit.

CONTEMPORARY ART SUBJECT OF NEXT HUMAN VALUES LECTURE



Neff

Dr. John H. Neff, director of the Museum of Contemporary Art, Chicago, will give the next science and human values lecture May 2.

His talk on "Beyond the Studio: Contemporary Art, the Sciences and the Artist as Interdisciplinary Man" will begin at 8:30 p.m. in the Central Laboratory auditorium. Although free and open to the public, admission to the lecture will be by ticket only because of limited seating. Tickets may be obtained at the ticket sales desk in the atrium or by calling the desk at 840-3353.

Neff's appearance here is presented by the Auditorium Committee as part of Fermilab's Science and Human Values Lecture Series and by the Illinois Humanities Council.

He has been director of the museum since March 1978. From 1969 to 1971, Neff studied in Europe as the David E. Finley fellow of the National Gallery of Art, Washington, D. C., where he was subsequently fellow in residence. During the next two years, he served as assistant curator of the Sterling and Francine Clark Art Institute in Williamstown, Mass., and also held the position of assistant professor of the history of art at Williams College.

Neff joined the Detroit Institute of Arts, where he co-organized the major exhibition, "Henri Matisse: Paper Cut-Outs." He was with the institute from 1974 to 1978. A Matisse scholar, he has published and lectured widely on a variety of other 19th and 20th century artists and issues.

At the present time, he is a member of Chicago's One Percent for Art Committee, a consultant to the National Endowment for the Arts and a member of the Association of Art Museum Directors.

He was awarded his M.A. and Ph.D. degrees by Harvard University. Neff and his wife have three children. The family lives in Wilmette, Illinois.

* * * * *

ANNOUNCEMENT ABOUT RESTRICTED STORAGE

A list of items that have been declared surplus is periodically sent to approximately 100 mail stations throughout the site. Any of these items can be transferred to a potential user at no charge for use in Laboratory programs to offset new purchases.

However, this category of items does not include those that have been declared restricted storage. These are items that are being held for future programs by a specific group or by an experimenter. Support services has been assigned the responsibility for their care until they are used or released by the owner.

Listings of these restricted items are kept at two locations on site. They are in Fred Assell's office at the Site 38 warehouse and in Sharon Henderson's office CL6-W. Interested users and experimenters are welcome to come to these offices and scan the lists, but before Support Services can release any item, it must have the approval of the owner in writing saying that he or she approves the transfer.

"We feel this approach is the only fair and equitable procedure for insuring the security of centralized storage at this Laboratory," said John Colson, head of Support Services.

* * * * *

DON'T OVERLOOK THIS ENTERTAINMENT BARGAIN

Special discount tickets for the 3 p.m., April 27th performance of Gilbert and Sullivan's "H.M.S. Pinafore" are now available at Fermilab.

A section of seats on the main floor of the Paramount Theater in Aurora has been reserved for Fermilab people. Tickets are priced at $7.32 for adults, which is a 25% reduction, and $6 for students and senior citizens. Paid reservations must be made by April 15th.

Tickets are available at the ticket sales desk in the Central Laboratory atrium, Ext. 3353.

"Pinafore" has been one of theater's most popular musical comedies for more than 100 years. The touring company, Opera ala Carte of Los Angeles, specialzes in Gilbert and Sullivan works.

* * * * *

SWIMMING POOL SEASON TO OPEN

The 1980 swimming pool season at Fermilab will open May 24.

Use of the pool is open to Fermilab employees and users and their families and guests as well as employees of the Department of Energy office here and members of the security force.

The pool will be open week days from 6 to 8 a.m. for adults only (no guard will be on duty) and from 11 a.m. to 9 p.m. for family swimming (a lifeguard will be on duty). During weekends and holidays, the hours will be 9 a.m. to 9 p.m. for family swimming. The pool will be closed from 9 p.m. to 6 a.m.

Season memberships may be purchased during the week of May 5 at the Recreation Office, CL1-W, from 11:30 a.m. to 1:30 p.m. After that week, they will be available at the ticket sales desk in the atrium. Season rates are $20 for an individual, $35 for a couple and $50 for a family.

An individual who does not have a season pool pass can still use the pool by paying a daily admission charge of $1.50.

Swimming instruction for children will be available and taught by a certified water safety instructor. Parents can register their children with the lifeguards for these lessons.

* * * * *

NEXT COLLOQUIUM COVERS GEOMETRY AND PHYSICS

"Geometry and Physics" will be the subject of the next Physics Colloquium April 16. The lecture by Prof. Peter Freund, University of Chicago, will begin at 4 p.m. in the Central Laboratory auditorium. Presented by the Physics Colloquium Committee, the series is free and deals with a broad range of scientific subjects.

* * * * *

LIMITED OPENINGS REMAIN FOR GOLFERS

The Fermilab Golf League is looking for golfers who can play Monday and Wednesday nights. Limited openings remain. Individuals interested can call Norbert Lesnieski, Ext. 3387. The league plays at Arrowhead Golf Course.

* * * * *

EMPLOYEES SHARE KNOWLEDGE

More than 20 employees gave talks about Fermilab and helped conduct tours during March.

Patricia Zack on March 5 gave a talk about Fermilab to members of the Warrenville Women's Club. Penny Horak spoke about solar projects at Streamwood High School, Elgin Community College's satellite location, March 3; League of Women Voters, Batavia, March 11; Naperville Junior High School, March 20; and Kishwaukee Community College, March 22.

Bruce Chrisman spoke about Fermilab to members of the Elmhurst Women's Club on March 10. Linda Even talked about engineering careers on March 19 at Rosary High School. Doug Pinyan gave a general orientation about Fermilab to members of the Oswego American Legion on March 23. The following day, Henry Van Leesten gave a general orientation to the Geneva Rotary Club.

Helping with tours during that month were Miguel Awschalom, David Bintinger, Charles Briegel, John Cumalat, Paul Czarapata, John Elias, Bill Fenstrom, Mark Fisher, Norman Gelfand, Tom Peterson, Jim Prince, Roger Rice, Joe Rodriguez, Jay Schmidt, Sue Shaver and Larry Tate.

* * * * *

CHEZ LEON MENUS

Tuesday, April 15, 1980 - Cooking Class

Wednesday, April 16, 12:30 p.m. - $4.50

Herring platter
Assorted Smorgasbord
Apple cake

Thursday, April 17, 7:00 p.m. - $8.00

Coquilles St. Jacques
Tournedos de Veau a la Creme de Ciboulette
(Veal tournedos in chive sauce)
Broccoli and mushrooms in lemon
Saute squash
Beets in vinaigrette
Lemon sherbet w/raspberry sauce

* * * * *

FERMINEWS is published weekly by the Public Information Office of the Fermi National Accelerator Laboratory — P.O. Box 500 — Batavia, Illinois 60510 — Phone: 312-840-3351. ☆ U.S. GOVERNMENT PRINTING OFFICE: 1980—651-139/43