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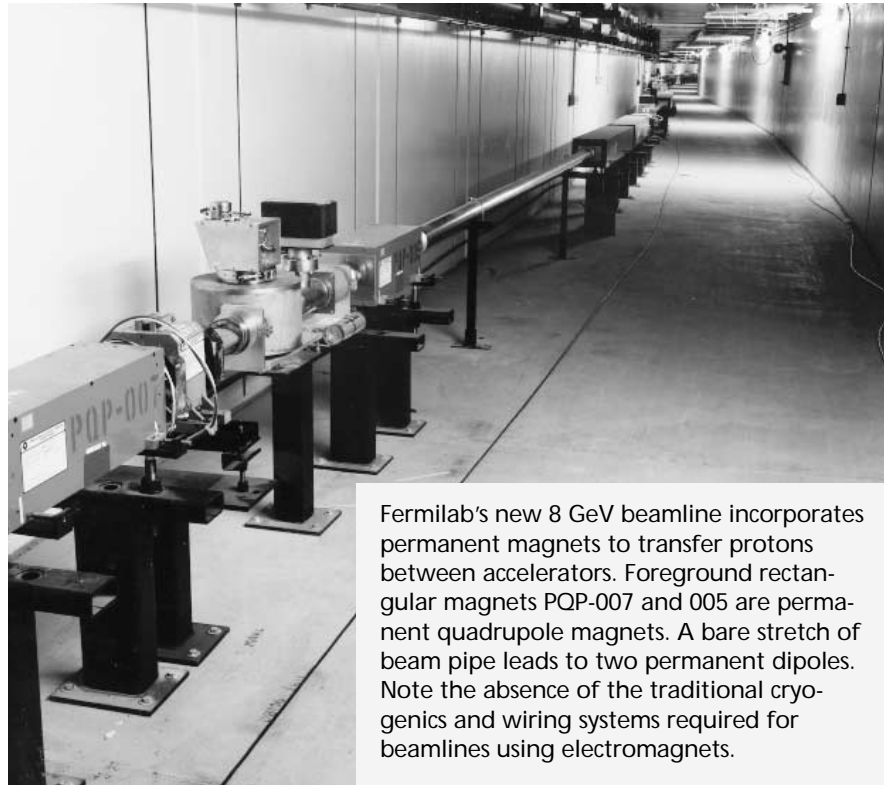
'Beam on the Flag!'

Once again, Fermilab makes accelerator history.

by Judy Jackson, Office of Public Affairs

It really was a dark and stormy night. A rain-soaked north wind gusted and howled around the High Rise. Inside, out of the gale, in the snug confines of Fermilab's Main Control Room, a group of evening-shift operators and Fermilab physicists and engineers hoped to make accelerator history. On this Thursday evening, February 20, they would try for the first time to send a beam of protons down an accelerator beamline using a technology that no one had ever used before. They weren't sure they would succeed, but—just in case—they had a supply of champagne on ice.

continued on page 2



Fermilab's new 8 GeV beamline incorporates permanent magnets to transfer protons between accelerators. Foreground rectangular magnets PQP-007 and 005 are permanent quadrupole magnets. A bare stretch of beam pipe leads to two permanent dipoles. Note the absence of the traditional cryogenics and wiring systems required for beamlines using electromagnets.

Suburban Sprawl Reaches Fermilab

As public officials eye further development, Fermilab stands in the path.



A house being built in Batavia. Fermilab's Wilson Hall rises in the background.

Particles and Pavement

by Donald Sena, Office of Public Affairs

On the prairie where once the Potawatomi native tribe hunted and fished, Fermi National Accelerator Laboratory long operated in relative pastoral tranquillity. Now, however, that situation has changed dramatically, and, although the Potawatomi have not returned, another group has settled in—the Cherokees. The Jeep Cherokees, specifically. And the Chevy Blazers. And the Ford Explorers.

Named in tribute to the country's rugged history, these vehicles now symbolize modern-day suburbia, as the relentless westward crawl of Chicagoland development has reached Fermilab.

continued on page 4

'Beam on the Flag!'

continued from page 1

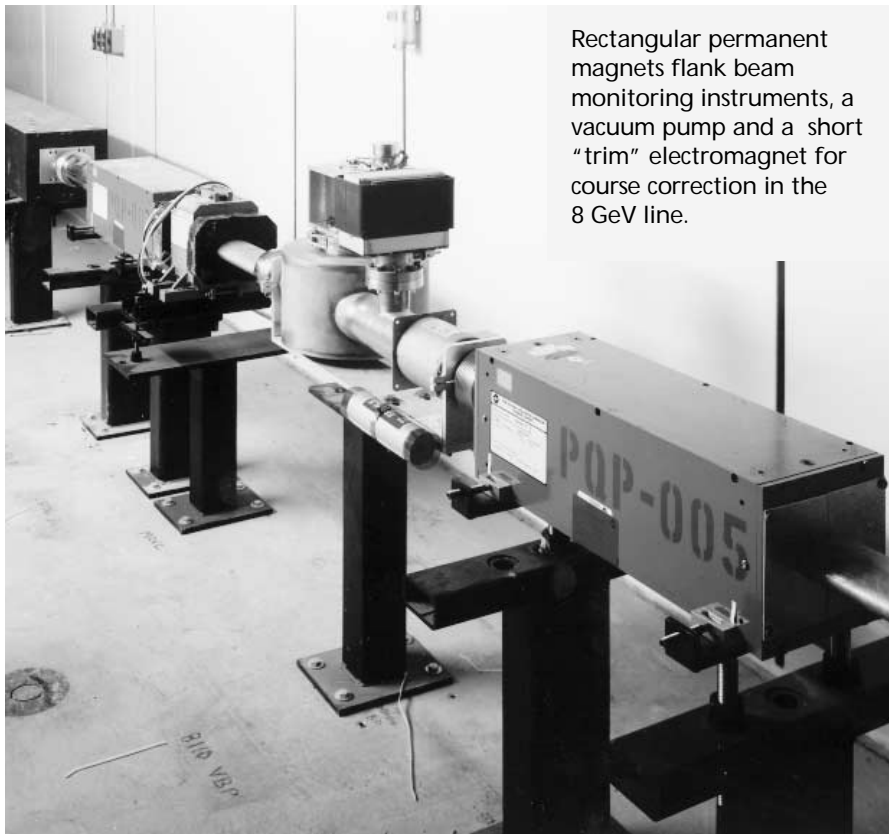
Sending protons down beamlines is Fermilab's bread and butter. Accelerator operating crews have done it literally trillions of times. What made this attempt unique was the nature of the beamline itself. Instead of familiar electromagnets, wound with coils of wire to create a magnetic field for steering charged particles down a central beam pipe, this beamline, "the 8 GeV line," consists mostly of permanent magnets that instead depend on magnetic materials to create the magnetic field. The 8 GeV (pronounced "jev,") line will ultimately transfer protons at the energy level of eight billion electron volts from the Booster, the third link in the Fermilab accelerator chain, to the Main Injector, the new accelerator that in 1999 will replace the Main Ring as the injector to the Tevatron.

Permanent magnets offer advantages over electromagnets in transfer lines and storage rings that use relatively low-field magnets and where varying the strength of the magnetic field is not required. For one thing, they don't use electricity. Bricks of magnetized strontium ferrite stacked around the beam pipe inside the steel case of the magnet create a permanent magnetic field. Theory, and months of exacting tests at Fermilab's Magnet Test Facility, showed that permanent magnets should work. "But with any new technology," said Fermilab physicist Bill Foster, project manager for the new beamline, "there's always a non-zero chance that it won't."



Bricks of magnetized strontium ferrite, stacked inside permanent magnets, create the magnetic field.

Rectangular permanent magnets flank beam monitoring instruments, a vacuum pump and a short "trim" electromagnet for course correction in the 8 GeV line.



Photos by Reidar Hahn

Excitement about trying the new 8 GeV line had been building all week. At first, Tuesday night looked like a go for testing the new beamline, but obstacles developed. However, late Thursday afternoon when the Main Control Room shift changed, Operations Head Bob Mau gave the thumbs up. Laboratory officials had signed the required beam permit and had established a "safety envelope" limiting the total number of protons that could be sent to the untried system. The crew would try that night.

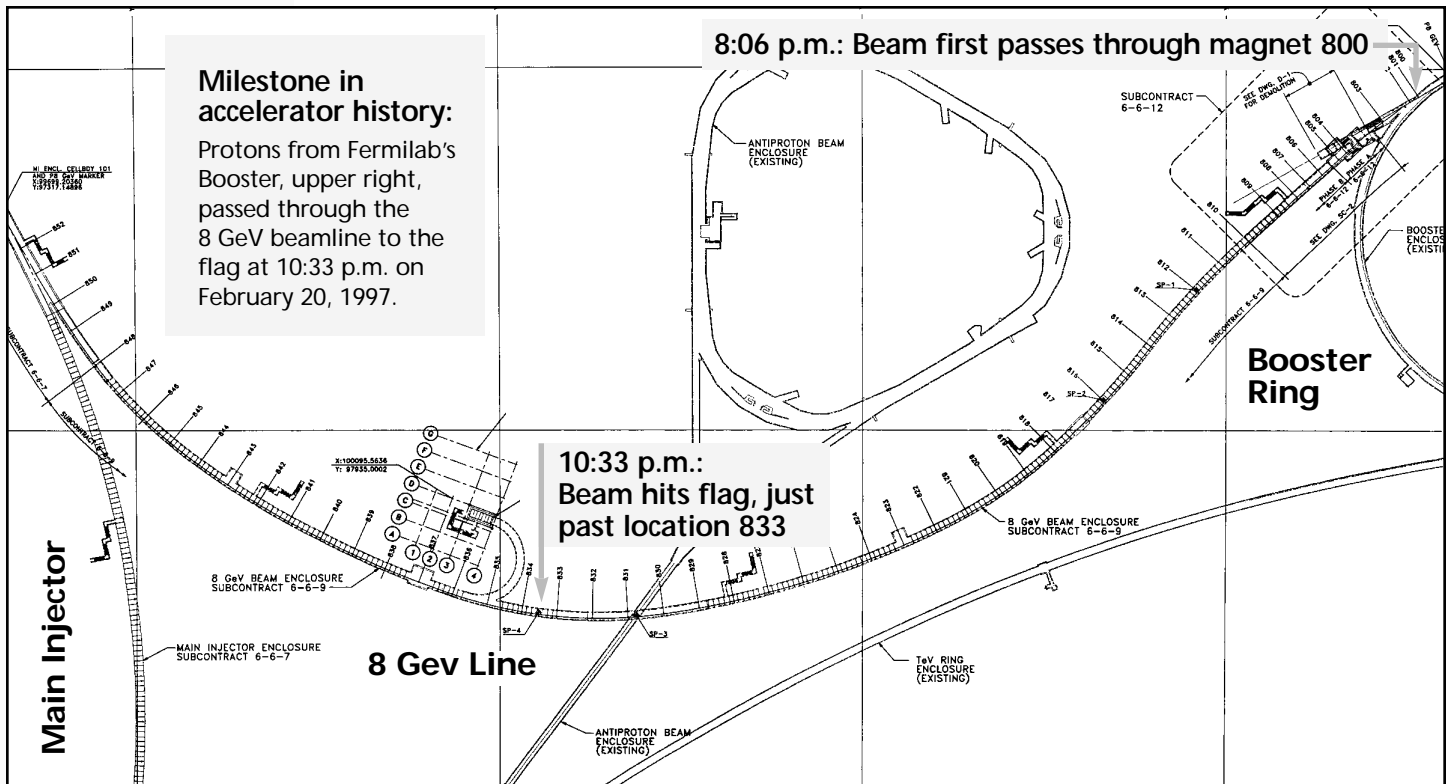
A team completed a final check at 7:30, and at 8:06 applications physicist John Johnstone, the beamline's principal architect, flipped the switch that sent the first pulse of protons toward the 8 GeV line. The goal was to send beam through a string of 74 permanent magnets arranged in 33 magnet "half-cells," from magnet number 800, inside the Booster, down the line to a beam dump just past half-cell 833. While electronic sensors along the way would detect the progress of the beam, the proof of the pudding would come from the "flag" at 833, a piece of fluorescent material that would light up when actual protons struck it—if any made it that far. A video camera was set to tape the flashes, if any, at the flag.

Things started slowly. While crew chief Denton Morris munched a burrito and kept an eye on Control Room action, a loose knot of people gathered around the monitors in the northwest corner, watching the screens that told the story of the 8 GeV line. "We now have beam in 801 and 802," Foster explained to a latecomer. "They're electromagnets. We're not out of the Booster into the beamline yet. We haven't crossed the shielding wall. Magnet 804 is the first permanent magnet on the beamline side."

Experts made adjustments, and watched the effects on the screens. "These thirty-second reps sure are a joy," someone said. Because of the small allotment of total beam permitted by the initial safety envelope, operators had to allow 30 seconds between pulses, making the wait to see the effects of tuning agonizingly slow. Then, at three minutes to ten, there it was: beam in the profile monitor for magnet 804. Out of the Booster and into the beamline!

"That was the first moment of truth for me," Foster said later. "When beam actually went through 804, that told me that the permanent magnets were doing more or less the right thing."

The experts made more adjustments, and at eleven minutes past ten, the monitor at magnet cell 810 showed beam moving down the line. "By the time we got to about 813,"



Foster said, "I thought that it would be only a matter of time" before beam showed up at the goal, the flag at 833. As more beam position monitors responded, Main Injector Project Manager Steve Holmes decided that it was time to go. He and engineering physicist Ray Tomlin dashed into the storm to drive to the beamline and see for themselves.

At 10:33, the phone rang in the Control Room. Deputy Project Manager Phil Martin picked it up. "They've got beam on the flag out there!" he yelled a moment later. By now a crowd had gathered, and everyone cheered. Foster grinned. At about midnight, they broke out the champagne.

A few days later, Foster described his relief that the beamline had worked. He was particularly pleased, he said, that the protons had made it to the goal without the need for course correction by the electromagnets that are included in the beamline for this purpose.

Much work still lies ahead, Foster said, to "move on from this initial success and make the beamline into a bullet-proof, rock-solid, robust accelerator component.

"One of the real joys of this project," he added, "is to see young engineers like Bruce Hoffman, Terry Anderson and

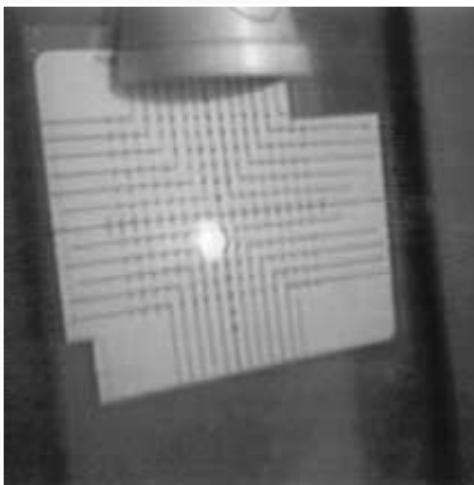
Anne Mason step up into the roles of the grand old men who have been building great accelerators around here for years. These are the people who will build the next generation of Fermilab accelerators."

Fermilab Director John Peoples praised the new beamline. "The success of the 8 GeV line demonstrates the wisdom of the choice of innovative permanent magnets for accelerators," he said. "The vision that Bill Foster and [Fermilab physicist] Gerry Jackson have brought will make a major contribution to our ambitious luminosity goal for the Tevatron. It is the first step toward building the Recycler."

The Recycler Ring will be the next Fermilab project to use permanent magnets. It will allow reuse of the antiprotons that remain at the end of a Tevatron store. The smooth commissioning of the new beamline so far encourages Foster in his work on the next project.

"When we bought the champagne for Thursday night," Foster said, "we had a choice: seventeen dollars a bottle or forty dollars a bottle. We went with the seventeen. We'll save the forty-dollar champagne for the night we get beam through the Recycler." ■

Beam on the flag: a fluorescent tile at location 833 glows as the first protons of the Fermilab's new 8 GeV beamline strike it. A video camera recorded the flash.



continued from page 1



A view of the Lab's eastern border with the Summerlakes subdivision in Warrenville on the right.



Bob Dijak, Fermilab employee and resident of Winfield, said municipal planners and Fermilab managers should seek compromise.



Job Hall, Fermilab employee and St. Charles resident, said he opposes in Eola Road expansion through the Lab.

Photos by Reidar Hahn

The area's exploding population—DuPage County alone has nearly doubled its residents since 1970—and heavy development have brought growing pains, not the least of which is increased traffic on area roadways. As a result, public officials are seeking ways to bring relief to the congestion, while at the same time planning more development in the years to come.

The question arises: Can an international particle physics laboratory—with its appetite for acreage—find a nice home in the suburbs?

In the last few years, Fermilab's 6,800-acre site has become an increasingly tempting target, as this once lonely outpost of scientific activity now looms as one of the area's last remaining large parcels of open space. At the same time, Fermilab's leaders are exploring ways to keep the Laboratory on the cutting edge of technology and science, allowing it to continue to carry out the mission assigned by the U.S. government.

Present problems/future development

In interviews for this article, DuPage County public officials said road congestion in the western half of the county is already a problem, especially traffic moving north and south. Moreover, they noted that congestion will increase as the population continues to grow and developers turn their interests to the western slice of the county where Fermilab resides. For example, West Chicago Mayor Steve Lakics said his town has a "significant" amount of land available for development, the bulk of it for commercial and industrial uses. County leaders also hope to spur development in the area. One proposal getting much of the attention lately is for a possible racetrack on land just south of the DuPage County Airport and north of Fermilab.

"When you look at available land for development in DuPage County, the bulk of it is in Wayne and Winfield Townships," said Julie Copeland, spokeswoman for DuPage County Board Chairman Gayle Franzen. She added, "If you're going to promote development, which [Chairman Franzen] feels strongly about, you need to have the infrastructure to accommodate that development."

The roadway improvement proposal getting the most attention is an expansion of Eola Road that would run from a new interchange on Interstate Route 88 through Fermilab property and end at Roosevelt Road. Eola Road,

which presently has no interchange with Route 88, now ends at Fermilab's southern border; the Laboratory no longer permits cross-through traffic. Mayor Lakics said the Eola proposal "is of vital importance," as it would help alleviate current traffic problems, while reaching a critical corridor of future development. County officials agree, saying DuPage is looking seriously at the possibility.

"There are very few north-south routes that can handle the traffic. [Eola Road] is already there and is a logical northern extension," said Donald Zeilenga, DuPage County Administrator.

Linda Kurzawa, county board member representing western DuPage, said she is one of the driving forces behind the Eola Road extension. She said the proposal has been an on-again, off-again issue in the county and is not tied to the racetrack, noting the latest push for the road follows the abandonment of the Fox Valley Expressway proposal.

Fermilab considerations

Fermilab receives a growing number of proposals from outside entities to use the site for purposes other than particle physics research, such as building a transmission tower or laying railroad tracks, according to Fermilab Director John Peoples.

"If a proposal for an alternate use of the site is based on a compelling community need and appears compatible with the Laboratory's science mission, Fermilab and the Department of Energy consider the proposal," said Peoples.

Fermilab officials said they must first assess the impact a proposed use, such as a road, has on the Lab's many stakeholders; stakeholders include 2,300 scientists from 38 states and 20 countries performing research at the site; 2,000 Lab employees; the Department of Energy, the Lab's owners; the U.S. Congress, the Lab's funding mechanism; teachers and students who use Fermilab's educational facilities; the approximately 50,000 people who annually use the site for environmental, cultural and recreational interests; and the Lab's neighbors in surrounding communities.

Fermilab and DOE managers said the Laboratory must consider its future as well, as particle physics requires constant advancement in the technology for accelerators. These large machines are necessary to continue the cutting-edge research at the Laboratory and the quest for new discoveries in high-energy physics. Particle physicists around the world meet regularly to discuss the next generation of accelerators, with Fermilab a logical spot for such a machine, according to officials. For example, Fermilab scientists have discussed the

possibility of a muon collider that would stretch into the Lab's northeast quadrant. Another possibility, a "site filler" synchrotron accelerator, would nearly fill the entire 10-square miles that Fermilab occupies.

The Department of Energy, which owns the Fermilab site, makes the ultimate decisions on land-use questions and requests.

Possible routes

Fermilab officials said they first learned about the newest push for the Eola Road expansion plan by reading a newspaper article on the subject; officials from DuPage County, Fermilab and the Department of Energy met soon after.

In meetings of the three entities, county officials have proposed two possible routes for an Eola Road extension; one traverses the center of the Laboratory and a second skirts the eastern portion of the Lab near the Summerlakes subdivision in Warrenville. A Fermilab official said the route through the center of the Laboratory would "wreak havoc with Fermilab's ability to carry out the day-to-day operations required for current physics research operations, and it would effectively end Fermilab's ability to develop future research facilities on the Laboratory site, should national needs require them."

County board member Kurzawa said she understands that a road through the heart of the Lab would be disruptive, and the discussion between county and Laboratory officials has moved for the most part to the east side proposal.

Fermilab is "there for a reason, and we have to respect that," she said.

Laboratory managers said the second option, along the eastern border, appears to be less disruptive and Lab officials and DOE representatives said they would not rule out considering such a proposal. Fermilab managers have repeatedly stressed that they want to cooperate with municipal planners, as the Lab is very much a part of the local community. At a recent meeting, county representatives asked DOE and Fermilab for a formal response as to whether a road through the site would be considered at all. Richard Stenzel, the DOE point of contact for the Eola Road issue, told county officials he would explore whether DOE and Fermilab will consider the proposal, and then respond to the county.

Other options

Other options arise as possible means to meet regional needs. An expansion of Route 59 from four to six lanes is one example, a proposal that many DuPage officials interviewed

continued on page 6

That was then...



Fermilab being built in 1970 in an undeveloped area.

...this is now.



Fermilab, seen here in 1996, is now surrounded by development.

continued from page 5

for this story said is not a viable option. Both Lakics and Kurzawa said the widening would harm existing development.

“It would decimate a commercial base in West Chicago,” said Kurzawa.

Fermilab and DOE representatives have raised the possibility of a larger road on the west side of the Lab that would involve widening Kirk Road in Kane County. That route would have the least impact on Fermilab’s mission and take advantage of a corridor of land that was originally set aside in anticipation of the need for better north-south routes from Route 88, according to Fermilab managers. The Kirk Road expansion already has an interchange from Route 88 and, along with an accompanying improvement of Fabyan Parkway, would appear to be the most practical, least costly, and most environmentally sound method to accommodate a higher volume of north-south traffic between Butterfield Road and Roosevelt Road, according to Fermilab officials.

However, DuPage County officials said a Kirk Road expansion would miss West Chicago’s critical corridor of industrial parks and future development parcels on the far west side of DuPage.

Reaction

Warrenville Mayor Vivian Lund said she understands the need to help regional traffic patterns, and added that her town has a good history of supporting local road improvements. However, she said local officials must listen to and “protect the interests” of their residents. The mayor said about half of the entire Warrenville population lives between Route 59 and the Elgin, Joliet and Eastern railroad tracks on Fermilab’s east border. The proposed eastern Eola Road extension would sandwich the residents between two large roads, according to Lund, and she has heard from many of her constituents about their opposition to the road.

When asked about a Kirk Road expansion, she said, “Kirk Road is a good option because that’s where we’re growing, and the Lab has a right-of-way dedicated over there.”

Batavia Mayor Jeff Schielke said his town is watching the Eola Road issue with great interest, adding that a Kirk Road expansion and an eastern Eola Road expansion would serve different purposes. He said there are already plans to widen Kirk Road from Butterfield

Road to Route 64, but the mayor questioned the availability of funding for such a project.

Bob Hall, a Fermilab employee and St. Charles resident, said DuPage County is being narrow-minded for not working with Kane County and considering other regional routes. Hall also said he fears that DuPage County may be hoping to expand the DuPage Airport.

“I’m definitely against [an Eola Road extension]. Fermilab is a pristine area with a lot of open space. Putting a road through the Lab would ruin it. There’s a lot of people that come out here and take advantage of” that space, said Hall.

Martha Smith, a resident of the Summerlakes subdivision in Warrenville, said she is against the Eola Road expansion, explaining that her neighborhood has too much traffic now and safety for the children in her community is her first concern.

However, another Summerlakes resident, Darlene Ullery, said she would support the expansion of Eola Road, as the traffic in the area is becoming unwieldy. Bob Flora, a Lab employee from Batavia, also said he would support a larger Eola Road on the eastern half of the Lab, as the need to bring some relief to the congestion should take precedence over any open space issues.

Ed Dijak, a Lab employee since 1978 and Winfield resident for 23 years, said compromise should reign. He explained that the Lab is in a tough position, as it uses a large piece of open land for a specific mission, yet is also part of the community. He said Fermilab should listen to all proposals that attempt to help the region with growing pains. Dijak said he doesn’t want a major artery to go through Fermilab, as the environment of the Lab is too important to sacrifice. Dijak, a park commissioner in Winfield, said a compromise could be achieved by opening the existing two-lane Eola Road through Fermilab as it once was, and expanding Butterfield Road to move people more easily between Route 59 and Kirk Road.

Compromise is also on the minds of DuPage public officials and Fermilab management, as both sides said they want to keep the lines of communication open. When asked how DuPage County would respond if Fermilab found that an extension of Eola Road on the Lab’s east side would jeopardize the Lab’s mission of science, Copeland said she would hope a balance could be struck between the benefits of that science and the need for a road in the community. She said, hopefully, a compromise would appease both entities, but ended by saying, “In no way does the county want to interfere with the research of the Lab.” ■



Vivian Lund, Warrenville Mayor



Bob Flora, Fermilab employee and Batavia resident, said he supports an Eola Road expansion as a way to alleviate traffic in the area.



Martha Smith, a resident of Summerlakes subdivision in Warrenville, opposes an expansion of Eola Road on the Lab’s east side, which would sandwich her neighborhood between two large roads.

Photo by Reidar Hahn

Photo by Reidar Hahn

Potential Accelerators on the Fermilab Site

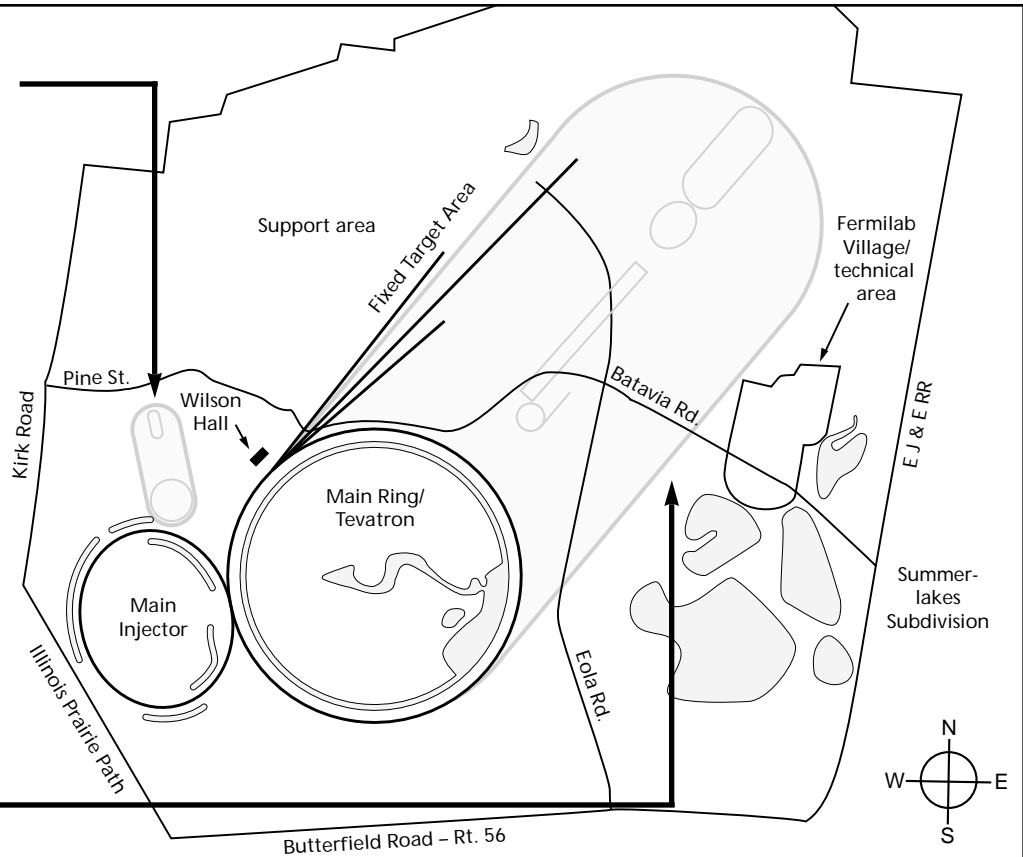
In order for the Laboratory to continue to carry out its mission of basic scientific research—and make new discoveries in particle physics—Fermilab must constantly develop new and more powerful particle accelerators and other scientific equipment, according to Fermilab scientists and managers. The diagrams below show some potential accelerators that Fermilab could build in the future.

Prototype muon collider

This low-energy prototype collider would be built to gain an understanding of the problems and challenges associated with building a larger muon collider.

Muon collider

The thick gray lines represent a full-scale muon collider. Muons are particles that would produce a different type of particle collision from protons, which Fermilab now accelerates with the Tevatron.

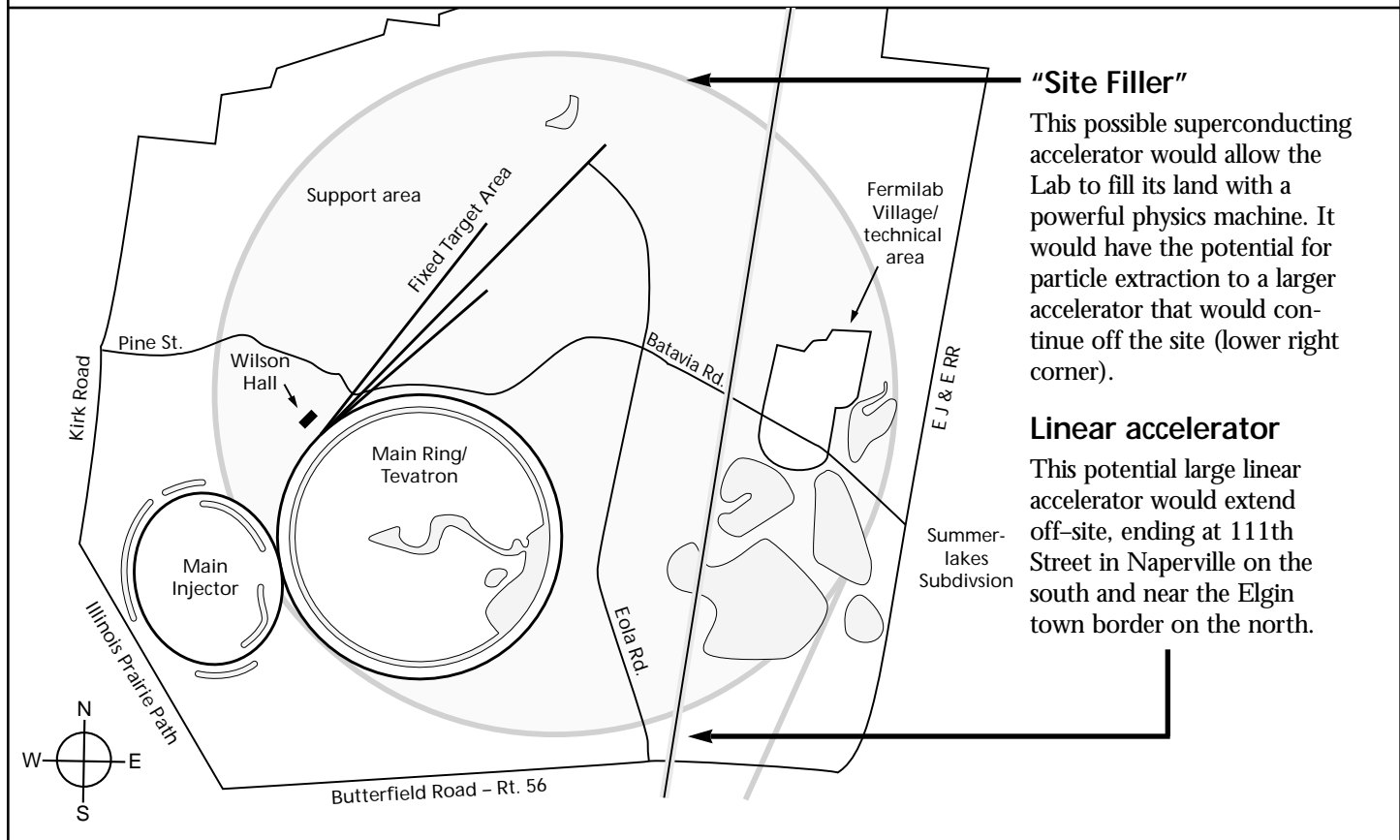


"Site Filler"

This possible superconducting accelerator would allow the Lab to fill its land with a powerful physics machine. It would have the potential for particle extraction to a larger accelerator that would continue off the site (lower right corner).

Linear accelerator

This potential large linear accelerator would extend off-site, ending at 111th Street in Naperville on the south and near the Elgin town border on the north.



What's Black and White?

Not the Eola Road story as reported in local papers

by Judy Jackson,
Office of Public Affairs

Fermilab officials first learned of DuPage County's latest plan to run a road through the Laboratory site by reading about it in the newspaper. There it was in print: a map of Fermilab with a road right through the middle. It came as something of a shock, the Laboratory officials said.

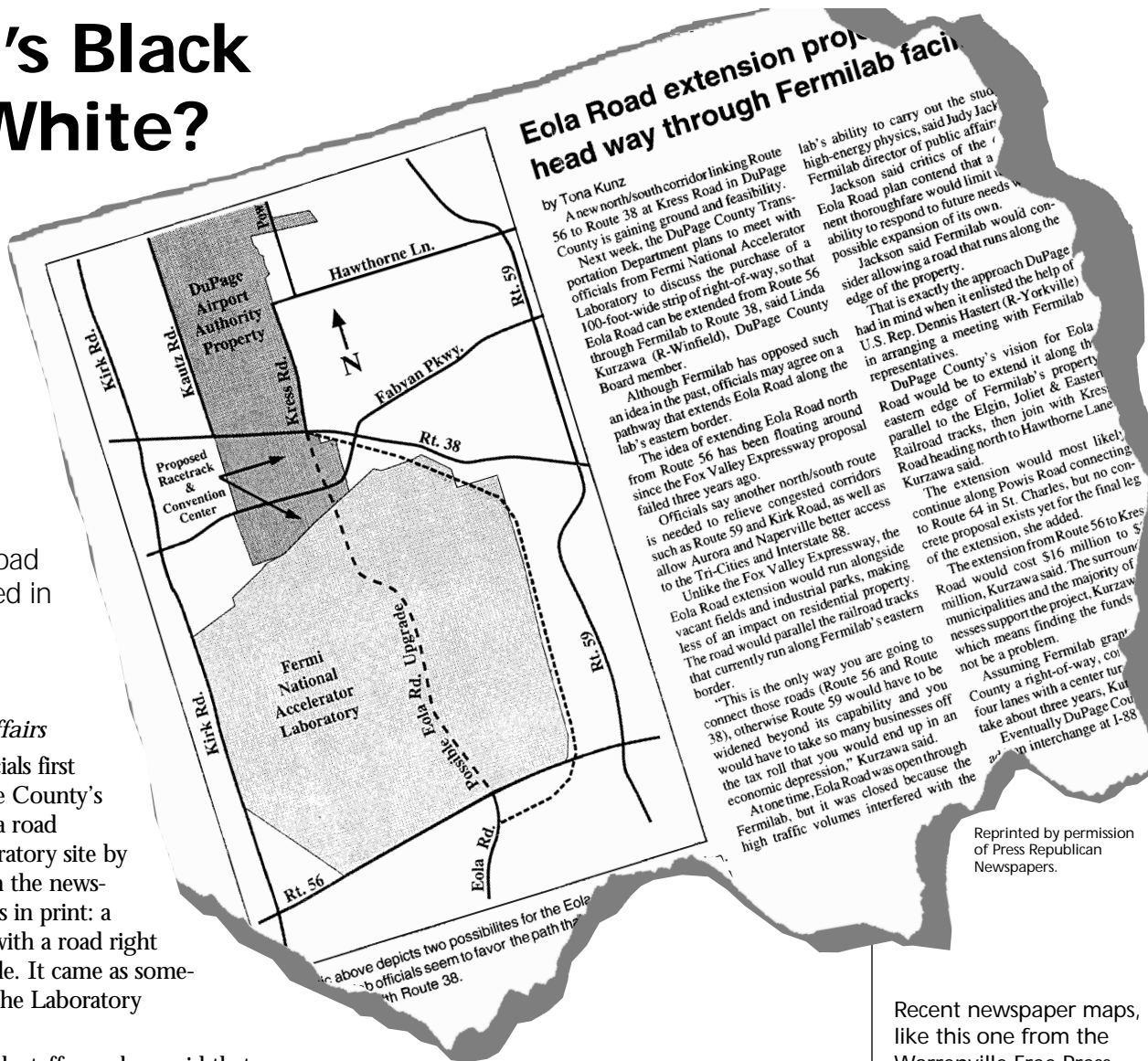
While Fermilab staff members said that direct communication among DuPage County, Fermilab and the Department of Energy has improved significantly since then, the high level of public interest in land use and transportation issues has produced a continuing stream of local headlines. News stories of varying accuracy have sometimes confused Fermilab employees and residents of neighboring communities alike.

A selection of headlines from the past year: "DuPage County officials are contemplating an Eola Road extension through Fermilab—if the physics lab allows it," wrote the Press newspapers in local communities on June 20, 1996.

"Back on the road: Development renews interest in plan to reopen Eola Road through Fermilab" and "Fermilab may be ready to deal on Eola Road," said the Daily Herald on August 9, 1996.

"Eola Road extension project gains head way through Fermilab Facility," Press newspapers wrote on August 15.

"County, Fermilab insist Eola Road talks are just preliminary," said the Warrenville Post on August 21.



Eola Road extension project gains head way through Fermilab facility

by Tona Kunz
A new north/south corridor linking Route 56 to Route 38 at Kress Road in DuPage County is gaining ground and feasibility. Next week, the DuPage County Transportation Department plans to meet with officials from Fermilab National Accelerator Laboratory to discuss the purchase of a 100-foot-wide strip of right-of-way, so that Eola Road can be extended from Route 56 through Fermilab to Route 38, said Linda Kurzawa (R-Winfield), DuPage County Board member.

Although Fermilab has opposed such an idea in the past, officials may agree on a pathway that extends Eola Road along the lab's eastern border.

The idea of extending Eola Road north from Route 56 has been floating around since the Fox Valley Expressway proposal failed three years ago.

Officials say another north/south route is needed to relieve congested corridors such as Route 59 and Kirk Road, as well as to allow Aurora and Naperville better access to the Tri-Cities and Interstate 88.

Unlike the Fox Valley Expressway, the Eola Road extension would run alongside vacant fields and industrial property. The road would parallel the railroad tracks that currently run along Fermilab's eastern border.

"This is the only way you are going to connect those roads (Route 56 and Route 38), otherwise Route 59 would have to be widened beyond its capability and you would have to take so many businesses off the tax roll that you would end up in an economic depression," Kurzawa said.

At one time, Eola Road was open through Fermilab, but it was closed because the high traffic volumes interfered with the lab's ability to carry out the study of high-energy physics, said Judy Jackson, Fermilab director of public affairs.

Jackson said critics of the Eola Road plan contend that a permanent thoroughfare would limit the ability to respond to future needs and possible expansion of its own.

Jackson said Fermilab would consider allowing a road that runs along the edge of the property.

That is exactly the approach DuPage U.S. Rep. Dennis Hastert (R-Yorkville) had in mind when he enlisted the help of representatives in arranging a meeting with Fermilab.

DuPage County's vision for Eola Road would be to extend it along the eastern edge of Fermilab's property parallel to the Elgin, Joliet & Eastern Railroad tracks, then join with Kress Road heading north to Hawthorne Lane, Kurzawa said.

The extension would most likely continue along Powis Road connecting to Route 64 in St. Charles, but no concrete proposal exists yet for the final leg of the extension, she added.

The extension from Route 56 to Kress Road would cost \$16 million to \$20 million, Kurzawa said. The surrounding municipalities and the majority of businesses support the project. Kurzawa means finding the funds which means finding the money.

Assuming Fermilab grants a right-of-way, construction of four lanes with a center turn take about three years, Kurzawa said. Eventually DuPage County would have an interchange at I-88.

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Particles and Pavement

"Warrenville on Eola extension: not so fast," said the Geneva Republican on August 22. "Eola road plan spurs protests," reported Press publications for the same day.

On December 19, Press newspapers said, "Eola road plans stuck in first gear."

And on January 7, 1997, the Daily Herald wrote "Officials explore building I-88, Eola Road ramps."

While the proposal by the DuPage County Airport Board to investigate building an auto racetrack on property just north of Fermilab has preempted headlines in recent months, Eola Road is likely to be back in the news before long.

"I encourage Fermilab employees, users and members of the public to call Fermilab's Office of Public Affairs for accurate information when they have questions or concerns about Fermilab's position on the Eola Road question, or other land use issues," said Director John Peoples. "That way they can get accurate information, straight from the source." ■

Recent newspaper maps, like this one from the Warrenville Free Press, have shown a variety of proposed routes for an extension of Eola road, which now ends at Fermilab's southern border.

Quarks, Catfish, and Concertos

To some it's a physics lab, but to many of Fermilab's visitors, it's a fishing hole, a bird sanctuary, or a concert hall.

by Judy Jackson, Office of Public Affairs

On Saturday night, they came for the music, as acclaimed American composer and pianist Philip Glass filled Fermilab's 830-seat Ramsey Auditorium with concert-goers from throughout Chicagoland. On Sunday morning, they came for the fish, as two dozen anglers braved the February chill to try for large-mouth bass and catfish in the open waters of Fermilab ponds. And on Tuesday, they came for medical treatment; eight patients arrived for cancer therapy at Fermilab's Neutron Therapy Center.

Particles and Pavement

Music lovers, fishermen, and cancer patients are some of the tens of thousands who visit Fermilab annually to do something besides particle physics research. On Sunday, February 23, besides the shivering fishermen, a 12-person bicycle club from Aurora pedaled briskly through the site, and a pair of joggers from neighboring Warrenville stopped for a moment to chat.

"We like to come to Fermilab on weekends to exercise," said Dave Hoppert, panting slightly. "And we often bring guests to look at the buffalo and to visit that tall building—what's it called?—to explain the physics to our friends. I think of Fermilab as like a preserve in the midst of all the development around us."

In winter, cross-country skiers replace hikers on the Prairie Interpretive Trail. Fermilab's restored prairie also draws hundreds to the annual autumn Prairie Harvest, when local volunteers join Laboratory staff to hand-harvest the seeds that will renew and strengthen tall-grass prairie ecosystems at Fermilab and other prairie restoration sites throughout the Midwest. Fermilab's prairie builders



Photo by Reidar Hahn

The Fermilab bike path is open to the public. It connects with the Illinois Prairie Path system.



Photo by Reidar Hahn

In winter, cross-country skiers replace hikers on Fermilab trails.



Photo by Donald Sena

John Rea with his son Nathaniel, two of the hundreds of volunteers who turn out annually for the Fermilab Prairie Harvest.

recently won a national award for their restoration efforts.

Birdwatchers from far and wide have learned that the diverse habitat on Fermilab's 6,800 acres and the relative lack of disturbance combine to make Fermilab one of the best bird-watching locations in the entire Chicago area. The list of birds seen at Fermilab boasts more than 240 species, including over 80 breeding species.

In April, members of a local astronomy society plan to view Comet Hale-Bopp from the Fermilab site; and in May, a 10K run will send sweating hundreds puffing along Laboratory roadways in support of the Kidney Foundation. Throughout the year, the Fermilab Art Gallery and Concert Series give visitors an opportunity to experience the work of contemporary artists in many media and contexts.

Local farmers lease approximately 1,600 acres of the Fermilab site to grow corn and soybeans. Probably the Laboratory's most popular attraction—besides its baby quarks—are the baby buffalo that each springtime swell the Fermilab herd and line the fences of their pasture with onlookers.

The thousands who visit Fermilab's open site each year to roller-blade, train dogs, photograph nature, hike, bike, ski, listen to music, receive therapy, see an art show, go canoeing, watch the birds, gaze at the stars or catch fish have in common that their activities meet a simple criterion: they can coexist relatively smoothly with the main business of Fermilab, which is particle physics research. Fermilab activities pose no hazard to the visitors, and the visitors, for the most part, don't get in the way of physics. Sometimes, as in the case of wintertime fishing, there is even a certain symbiosis.

"I fish at Fermilab in the winter," said Dale Andersen, of Berwyn, "because it's the only open water in the area." Because the ponds near Wilson Hall hold cooling water for Fermilab's accelerator complex, they rarely freeze, creating a boon for fishermen and Canada geese. As Andersen spoke, an angler on the opposite shore of Kidney Pond pulled a wiggling foot-long fish from the water. "He's got a catfish," said Andersen. "Now that's good eating." ■

Windex® and Through Traffic

How Department of Transportation regulations affect who can drive on Fermilab's roads.

by Judy Jackson, Office of Public Affairs

Fermilab is a low-hazard laboratory, as evidenced by its openness to the public. Nevertheless, the use of Fermilab's roads—both those on site now and any that might be built in the future—is governed by the provisions of a law known as the Hazardous Materials Transportation Authorization Act of 1994. Because Fermilab is operated by a federal contractor, this law, often called "HAZMAT," gives the U.S. Department of Transportation the authority to regulate the transportation of materials defined as hazardous over roads that DOT defines as "in commerce." Roads that permit members of the public to drive freely through the Fermilab site—in one side and out the other—fit DOT's definition of roads "in commerce."

Particles and Pavement

In practical terms, what does HAZMAT mean for Fermilab?

- HAZMAT regulations apply even to materials that are not normally considered especially dangerous: gasoline, for example, and spray cans of paint and window cleaner. If Fermilab roads were "in commerce," then DOT regulations would apply to the transport of many materials routinely carried around the site in the course of doing business at the Laboratory.
- The DOT regulations for transporting such materials would impose requirements such as special training, packaging, placarding and adaptation of vehicles, paperwork and record-keeping that Fermilab officials estimate would cost millions of dollars annually.
- The installation of guards and gates to prevent the public from driving through the site removes Fermilab roads from commerce. It means that the DOT regulations then do not apply. (Department of Energy and Laboratory regulations for safe transportation of materials still apply, however.)

Thus, making sure that Fermilab roads are not "in commerce" saves millions of dollars for Fermilab, as well as making roadways safer. The need to comply with HAZMAT is one factor that led Fermilab to change the policy for public access to the site in 1995,



Photo by Reidar Hahn

restricting public entry to the Pine Street gate and eliminating drive-through traffic, Fermilab officials said. They noted that DOT regulations would also figure among the many factors that Fermilab and DOE would consider in evaluating a proposal to build a road through the Laboratory site. ■

Common materials such as window cleaner, medical oxygen and insect spray are among the materials classified as hazardous under U.S. Department of Transportation regulations that affect the use of Fermilab's roadways.

Chez Léon

M E N U

Lunch served from
11:30 a.m. to 1 p.m.
\$8/person

Dinner served at 7 p.m.
\$20/person

For reservations call x4512
Cakes for Special Occasions
Dietary Restrictions
Contact Tita, x3524

Lunch Wednesday March 12

Cumin Roasted
Cornish Hens
Spiced Basmati Rice
with Lentils and
Caramelized Onions
Honey Cardamon Custard
with Strawberry Orange
Compote

Dinner Thursday March 13

Garbanzo Vegetable Soup
with Smoky Broth
and Fresh Avocado
Red Snapper Xaymaca
Vegetable of the Season
Spicy Jicama Salad
Banana Caramel Pie

Lunch Wednesday March 19

Three-Cheese Lasagna
with Italian Sausage
Tomato, Peppers and Olive Salad
Apricot Brandy Mousse with
Madeines

Dinner Thursday March 20

Roasted Vegetable Salad
with Roasted Scallion Vinaigrette
Braised Monkfish
in Tomato Wine Sauce
Green Risotto
Lace Cups with Strawberries

LAB NOTES

TLD BADGES

The Fermilab ES&H Section reminds users of TLD badges that the Dosimetry Program Office on WH7E is not staffed on a full-time basis. Personnel who need a temporary TLD badge should take note of the distribution points below:

At all times:

- Main Control Room
- Experimental Areas Operations Center

During working hours:

- Users' Office
- CDF
- DZero
- Technical Division Safety Office

For additional information or to notify us of any changes, please call the Dosimetry Program Office at x3642 or send a message to dosimetry@fnal.gov. Your area radiation safety officer can also help.

SUMMER CAMP

Children, ages 7-12, are eligible to participate in the Fermilab Summer Day Camp. The three supervised sessions are:

- Session I: June 16 – July 3;
- Session II: July 7 – July 25;
- Session III: July 28 – Aug. 15

The program is held in the lower level of Kuhn Barn with supervision from 7:30 a.m. until 5:30 p.m. Daily programs begin at 8:30. The program consists of arts & crafts, sports, swimming, field trips, etc. The cost for each session is \$225.00 per child. Application forms are available in the Recreation Office, WH15W, the Users Office, the Housing Office or for more information contact the Rec. Office at x2548, 5427 or jeanm@fnal.gov. Application deadline: March 28 at 5:00 p.m. Acceptance into camp is made by lottery drawing on March 31.

ON THE MOVE

Travel and Users' office

Fermilab's Travel Office and the Users Office will be moving to the west side of the atrium in Wilson Hall, in the area vacated recently by the Medical Office. The target date for the move is March 7.

Key and I.D. office

The Key and I.D. office has moved to the Ground Floor on Wilson Hall's north side.

CALENDAR

MARCH 9

Barn dance at the Village Barn from 7–10 p.m. The dance features live music by The Dead Mules and calling by Tony Scrimbolo. The dances are contras, squares, and circle dances. All dances are taught, and people of all ages and experience levels are welcome. You don't need to come with a partner. Admission is \$5. Children under 12 are free. The barn dance is sponsored by the Fermilab Folk Club. For more information, contact Lynn Garren, x2061 or Dave Harding, x2971.

MARCH 11

Wellness Works-Blood Pressure Screening, Users' Office, 11:30 a.m. to 1 p.m.

MARCH 12



The Fermilab Barnstormers Radio Control Model Club will host their annual Delta Dart Night on Wednesday, March 12, at 5:30 p.m. The Delta Dart is a small rubber band powered airplane constructed of balsa wood and tissue

paper. You can build one of these airplanes in about 45 minutes and fly it that evening in the Kuhn barn for fun and prizes. No experience is necessary. Barnstormers club members will be on hand to guide you through every step of the construction and give some tips for making the plane fly. The materials fee is \$1 for adults and teenagers. There is no fee for juniors (12 and under). Everything you need to build and fly is provided. The juniors fly-off will be held at 7 p.m.

MARCH 16

Afternoon barn dance at the Village Barn from 2 – 5 p.m. The dance features live music by The Hazardous Waste String Band and calling by Paul Ford. The dances are contras, squares, and circle dances. All dances are taught, and people of all ages and experience levels are welcome. You don't need to come with a partner. Admission is \$5. Children under 12 are free. The barn dance is sponsored by the Fermilab Folk Club. For more information, contact Lynn Garren, x2061, or Dave Harding, x2971.

MARCH 19 & 20

Wellness Works-Exercise Video, Covert Bailey, 1 West, Noon-1 p.m.

ONGOING

English lessons, Thursdays 10–Noon in the Users' Center, call Janet Antonio, (630) 769-6518.
NALCO coffee mornings, Thursdays 10 a.m. in the User's Center, call Selitha Raja, (630) 305-7769.
In the Village Barn, international folk dancing, Thursdays 7:30–10 p.m., call May, (630) 584-0825;
Scottish country dancing Tuesdays 7–9:30 p.m.; call Doug, x8194.

CLASSIFIEDS

FOR SALE

■ 1991 Ford Escort 4 door hatchback, excellent condition 56k miles, \$4800 obo. Phone Mac or Jim, (630) 377-5006.

■ 1990 Chevy Corsica, 76k miles, automatic, AC, AM/FM, 76k miles, newer tires, \$3950 obo. Call Greg, x2719 or (630) 789-9202.

■ 1986 Dodge Shelby Charger, 2.2 turbo, 5 spd, just over 100k miles, maroon w/ silver stripe, good condition. \$1800. Pioneer Stereo Receiver, 65 watts/channel, w/Fisher speakers (3 way, 23" H x 13" W x 10" D) Great for den, dorm, or bedroom! \$150; 3 speed ceiling fan, dark brown w/light kit-needs pull chain. \$25. Call Bob, x3829 or (815) 838-5933 after 5 p.m. weekdays.

■ 1984 Chevy Van, G20, 3/4 ton, 5.0L, 3 spd auto w/overdrive, conversion w/4 captain chairs & sofa bed, a well maintained 152k miles, \$900 call Rich, x4083.

■ 1950 restored Chevy pickup, \$7,900; Snow blower, Montgomery Ward, 5 hp, 24 inch cut, \$145; Out board motor, Martin 5 hp, \$65; Kings coal burning stove, \$45. Oxygen and Acetylene welding outfit, includes tanks, cart, hoses, regulators, torch and tips, \$365. Call Jim, x 2205 or tweed@fnal.gov.

■ Two bedroom sets. Henredon, beautiful, solid, quality, dovetailed furniture in excellent, "like new" condition. Five pieces; headboard, bed frame, dresser w/mirror, tall dresser, and night stand. A real deal for high quality furniture, asking only \$1,800. Smaller 3 piece set in excellent condition includes headboard, bed frame, and dresser w/tall shelves on top, \$200. Please call for appointment, (630) 717-5181 or (630) 369-8212.

■ Ski's - Atomic Arc 195 Salomon 547 Sport Bindings, size 12 US or 13 EU. Trappeur 2000 boots also have ski and boot bag \$200. Kerosene heater \$55; Johnson Outboard Motor 9-1/2 HP rebuilt in '95 \$500 obo; 16 ft. Fiberglass DuoMarine boat needs work, hardware already removed and rough sanding completed \$150 obo; Two Drake Satellite Receivers (ESR 424 and ESR 24) for Cu Band VideoCipher II and other older satellite equipment. Make an offer. Call Terry, x4572 or skweres@fnal.gov.

■ Frigidaire side-by-side refrigerator, color bronze. Clean and very good condition \$150. Call (630) 897-0263.

■ 13" Color TV w/antenna \$100 obo. Contact James Done, x2125, or jpdone@fnal.gov.

■ Desk, oak teacher's. 5'x3'd, 6 drawers, \$300 obo. Picture on bulletin board by the credit union. Call Joy x3649 or (630) 879-2387.

■ Ladies Golf Clubs, Wilson Patty Berg Autograph, consisting of 2, 3 & 4 woods and 2 thru 9 irons. Like new condition, first \$60 takes all. Call Jack, x2812.

■ Toddler car seat. Century Breverra Sport Booster car seat. For child 30—60 lbs. \$30. Call Karen (630) 897-8125.

■ Vivitar model 283 automatic electronic flash, \$20. Camera strobe and cable release handle \$5. Two (2) 15" electric fan attic ventilators with thermostats, never used, in original boxes, \$20. Call R. Trendler, x3084.

■ House, elegant Jefferson-Georgian, 2160 sq. ft., maintenance free, immaculate, 3 bedroom, loft, 2 and 1/2 bath, large family room, living room, dining room, custom patio, fireplace upgrades throughout, neutral decor, near Fermilab. \$157,500 2380 Boxwood, Aurora (630) 820-9038.

FOR RENT

■ Two-bedroom town house apartment in quiet Batavia, 2 miles from Wilson Hall. Bedrooms upstairs, living room and kitchen down stairs, fenced backyard patio. 425 N. Washington Ave., Batavia. Rent: \$585/month, free water. Available: March 1. If you move in prior to 18th of April, the current tenant will pick up 50% of the full rent for the period from the date you move in to April 18. To see, contact Hengjie Ma, x4490, (630) 406-8464 or mahengjie@fnal.gov. Please leave a message. For rental information, call William, Village West, (630) 897-3200.

WANTED

Interactive, experienced childcare sought: Long term position from April or May 1997 caring for pleasant, musical 2-1/2 year old girl five days/week, 9 a.m. to 5 p.m. English fluency and car necessary; cognitive development training and/or musical inclination desirable. Salary competitive. References please. Nicole Jordan and David Herrup, Warrenville, (630) 393-3970.

LETTER TO THE EDITOR

In the *FermiNews* of February 7, 1997, there was an article dealing with SVF's delivery of high quality half cores for use in the Fermilab Main Injector dipole magnets. The article emphasized the help Fermilab gave to SVF in meeting our demanding specifications; however, we failed to give due credit to the late Don Tinsley's part in that effort. Don performed several quality audits at SVF and was instrumental in our ongoing quality assurance efforts.

E. Gale Pewitt
FMI Magnet Project Manager
Technical Division



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The deadline for the Friday, March 21, 1997 issue of *FermiNews* is Tuesday, March 11.

Please send your article submissions, classified advertisements and ideas to the Public Affairs Office, MS 206 or E-mail: ferminews@fnal.gov

FermiNews welcomes letters from readers. Please include your name and daytime phone number.

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MILESTONES

BORN

Heidi (CD/EAG) and Lee Newberg

HONORED

Bob Johnson (BSS) was elected to the position of trustee, in Elgin, February 25, 1997.