

F E R M I N E W S I

F E R M I L A B

A U.S. DEPARTMENT OF ENERGY LABORATORY



Fermilab Photo

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The **BIG** Picture



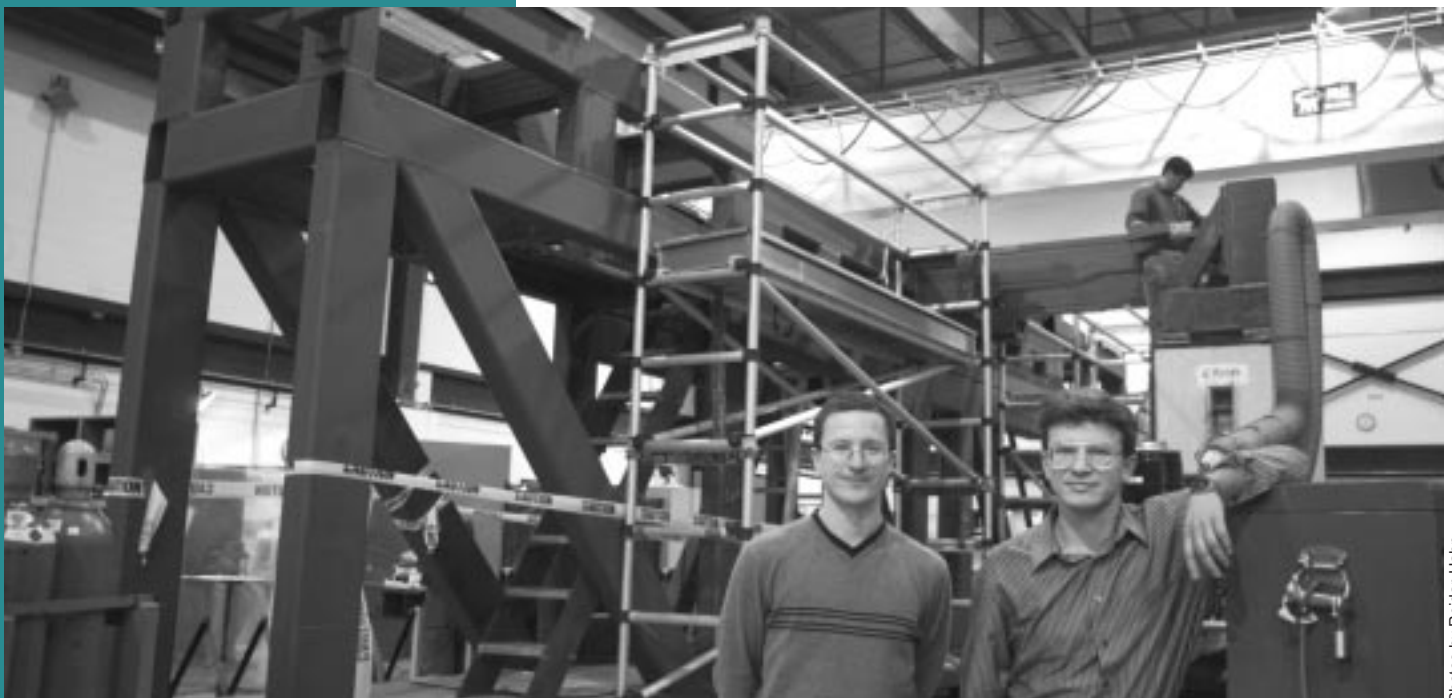
by Mike Perricone

Most particle physicists probably think at least six impossible things before breakfast each day.

But quarks, neutrinos, antiparticles—those impossible things are too small to be seen. Tom Diehl and Dmitri Denisov have to think about an impossible thing that's almost too big to believe. It's called the End Muon System truss, and it's major part of the Muon System, the largest single component in the upgrades to the DZero detector for Run II of the Tevatron.

Actually, there are two of these deceptively simple-looking trusses, each 40 feet by 40 feet and weighing 35 tons. They're too big to be built in the DZero assembly hall. Diehl must get both of them assembled, disassembled, moved, reassembled and put into niches where a non-physicist would swear they could never fit—especially after Denisov finishes hanging 1,600 scintillation counters and 2,200 mini-drift tubes, accompanied by 17,600 wires, onto each truss.

COVER: The alignment targets give extra sparkle to the EMS Truss outside Lab F. The photo was taken by the Fermilab Alignment and Metrology Group.



Photos by Reidar Hahn

Tom Diehl (left) and Dmitri Denisov are the overseers for design and construction of the truss and its intricate system of detectors and electronics at DZero.

End Muon System truss represents

35 tons of upgrade

for DZero detector.

They also must complete this project six weeks sooner than they planned—in August instead of October. The ultimate goal is to have the entire building-sized detector ready to roll into the collision hall with a hard and fast deadline of March 1, 2001 for the beginning of Run II.

“We had some contingency time in the previous schedule,” said Diehl. “Moving up the schedule certainly removes that contingency time.”

“It was a short-term notice for us,” said Denisov, “but there are many advantages for DZero to do it this way.”

Completing and installing the trusses at the north and south ends of the 5,000-ton DZero assembly, including their detectors and electronics, frees up more time for installing the silicon vertex detectors that comprise the heart of what is essentially a reinvented detector. Run II will mark the first time DZero operates with a solenoid magnet and with the tiny, intricate silicon vertex detectors surrounding the collision area.

“I like the irony that we’re changing the schedule for the largest part of the detector, the Muon System, to help the installation of the smallest detectors in the experiment, the silicon vertex detectors,” Diehl said. “Moving up our schedule gives the silicon guys six more weeks to finish their jobs. This is a big jigsaw puzzle, and I don’t think anything like it has been done before in particle detectors.”

As with any project this size at Fermilab, Diehl and Denisov are the point guys with too great a number of people involved to provide a complete list. The truss frames were built and welded in the Meson Assembly area by Don Carpenter’s technical crew, with critical contributions by Dave Erickson and Jerry Judd. The top of the frame looms above the roof of the low, flat assembly building. Ernie



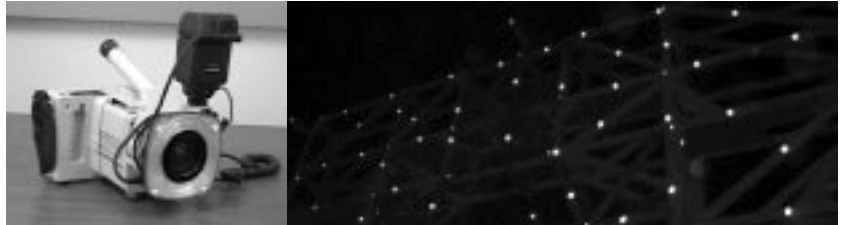
Outside Lab F, a crane truck assembles the truss from its four components, with two smaller sidepieces and a top frame added to the 25-ton base unit.

Villegas of engineering and technical teams did the design work on the trusses, and Delmar Miller is in charge of the final assembly at DZero and testing of the big shielding pieces that will also fit into the trusses, which provide frames for detectors, readout electronics and shielding.

The project follows these steps:

- The four sub-assemblies of each frame are built: full-width structures on top and bottom, smaller connecting structures on the sides. The bottom frame is the biggest and heaviest component, weighing almost 25 tons. It has to be strong enough to support nearly 100 tons of shielding

The **BIG** Picture



in addition to the detector components. And those 100 tons of shielding must be movable, to allow access to the center of the detector.

- The sub-assemblies are loaded by a special forklift onto an 18-wheeled flatbed trailer, and brought to the hardstand outside Lab F. There the four components are bolted together, with the help of a crane truck rented for the job.
- Once assembled, the truss is surveyed. The first has been surveyed and moved to DZero; the second is awaiting its survey.
- Once surveyed, the truss is taken apart, and trucked to the DZero assembly hall. The shielding blocks will be loaded onto the base. The toroid magnets at the ends of the big detector will be moved out of the way, as will large segments of the adjacent cryo system, clearing space for the truss components to be moved by overhead crane and lowered into place for final assembly. Then the scintillator and mini-drift tube detectors will be installed.

Because of the numbers of detector components the trusses will hold, they must be precisely measured and aligned when they are first assembled.

“When we put all the detectors onto this big frame,” Diehl said, “we have to make sure they don’t bump into each other and get into each other’s way.”

Enter John Greenwood and his digital camera, called the “V-Star.” The \$70,000 unit uses CCD technology, and records extremely high-resolution images (6.3 megapixels, about 20 to 30 times the resolution of most CCD cameras) onto a hard drive that pops out of the camera and into a desktop computer. The camera is one of about a dozen or so in existence.

“It’s already paid for itself with the time we’ve saved and the things we’ve been able to do with it,” said Greenwood, assistant leader of the Lab’s alignment and photometry group.

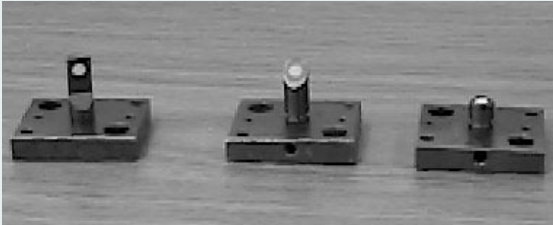
Greenwood and a surveying crew, including O’sheg Oshinowo, John Kyle and Ed Dajak, recently spent a Friday evening attaching 150 precision-measured reflecting targets onto the huge steel structure, then photographing it from several angles at night with an intense, fast flash. The reflectors show up as white dots in the black-and-white images. Scanning software resolves the centers of the targets within 1/100 of an inch; under ideal conditions, V-Star is precise to within 1/1000 of an inch.

Most surveying of this type is done indoors, but the assembled EMC truss won’t fit anywhere indoors except in its final placement at DZero. Shooting outdoors, especially with snow on the ground, meant shooting at dusk so the ambient light would not overwhelm the reflections from the targets.

“It was about 12 degrees the night we surveyed the first truss,” Greenwood said. “We’re waiting for a little warmer weather to do the second one.”

Denisov’s detector work must be nearing the finish before the weather gets much warmer. The trigger detectors, or scintillation counters, must be installed in May under the current schedule. They’ll be assembled into eight units called “octants,” which will then be affixed to the trusses.

The scintillators have been built and tested at the Russian high energy physics laboratory IHEP Protvino. The mini-drift tubes, gas-filled wire detectors which mark the positions of passing muons to within a millimeter, are being built at



Alignment and Metrology used the digital camera (far left) to photograph the truss at dusk so that the reflecting targets would not be overwhelmed by light (center). The precision targets (near left) are attached to the truss, and scanning software locates their centers to within 1/100 of an inch. (Alignment and Metrology Group file photos)

Dubna in Russia. Denisov said the Russian components have been arriving on schedule, with the last drift tubes waiting to be shipped in heated containers as soon as the severe Russian winter is past its peak.

The big truss project brings into focus the small world of particle physics, across the U.S.A. and back in the (former) U.S.S.R.

Greenwood is from California, born into a surveying family. He says his surveying work was in his backyard, his first paid surveying job came at the age of 10, and declares that he's in his sixth decade of surveying.

Denisov came easily and enthusiastically to science, with parents who were both particle physicists. He was dazzled by the space explorations and lunar expeditions of the late 1960s and 1970s. He said when he was in high school, "everybody wanted to go into the space program." The difference: it was the Soviet Union space program, with heroes like Yuri Gagarin instead of John Glenn. Denisov grew up near the Protvino lab now producing the scintillation counters.

Diehl is from Maine, and his speech is pure angular New England. His wife, Brenna Flaughter, is a physicist at CDF, DZero's rival detector across the Tevatron ring. They know it's unrealistic to try to keep professional secrets from each other.

"Our deal," said Diehl, "is that if we overhear something that's going on, we have to hear it from at least one other person before we can talk about it at our experiments."

So if they weren't before, the details of the end truss project are now fair game for Flaughter and CDF. 🌟



Photos by Reidar Hahn

The crane truck carefully lowers a side section into place atop the 25-ton base.

URA

Council of

Presidents

Meets in

DC

by April Burke

Neither a foot of snow, nor government closures, nor traffic tie-ups, nor even the President's State of the Union address could dampen the atmosphere of the 2000 Council of Presidents meeting in Washington, D.C. on January 27th. With about 100 representatives of the member institutions of Universities Research Association in attendance, the annual meeting, which provides universities with a status report on URA's activities, offered both internal reports and frank discussion with key government officials.



Rita Colwell

U.S. House of Representatives Science Committee chairman, James Sensenbrenner (R-WI), began the meeting with a summary of last year's accomplishments by the Science Committee. That summary included the House Science Report prepared by Congressman Vern Ehlers (R-MI), one of two physicists in the U.S. House of Representatives (FermiNews [date]). That report put the Congress on record supporting basic science, improving math and science education, and urging extension of the research and development tax credit. Sensenbrenner said he welcomes the emphasis on basic research, calling it "the intellectual engine for future technological advances."

Then Sensenbrenner shared some of his concerns for the nation, such as problems with U.S. education and the country's reliance on foreign workers.

"This issue is becoming extremely acute," Sensenbrenner said, pointing out that foreign nationals attending our higher education institutions are going back home because there are high tech jobs available in their countries.

"Those of us who support science know it is risky," Sensenbrenner continued, referring to the support of the Science Committee in response to undeserved criticism of experiments that do not result in breakthroughs. Sensenbrenner stressed that the Science Committee has passed authorization bills for science agencies with realistic funding levels. He explained to the Council that authorization levels must be realistic in order for the Appropriations Committees in the House and Senate to take the levels seriously.

Sensenbrenner closed with the familiar call for researchers to go out into the public to show how life is better due to basic research investments in past decades.

After financial status reports, the Council heard from National Science Foundation Director Rita Colwell. Colwell began with expressions of enthusiasm for the upcoming Presidential budget request for FY 2001 for NSF. She called the budget request "a shot in the arm for R&D." With a \$3 billion increase for the President's 21st Century Research Fund, including \$675 million for NSF, the Administration is expressing its serious support for federally funded basic research. She urged the Council members to treat the budget request as a "hunting license" to make the increase a reality. Colwell explained several initiatives in the President's budget request, including Information

Budget is “a SHOT IN THE ARM for R&D”

— Rita Colwell, NSF Director

Technology, Biocomplexity, Nanotechnology and Understanding the Nature of Learning.

Following Colwell, URA President Fred Bernthal introduced new members of URA, including John LaTourette, President of Northern Illinois University. Bernthal also acknowledged key government officials in attendance, including Peter Rosen and John O’Fallon of DOE and Marv Goldberg of NSF. In addition, Bernthal announced that URA and Battelle will jointly sponsor a Capitol Hill reception in May, 2000.

The next government speaker was Hans Mark, Director of Defense Research and Engineering at the Department of Defense. Mark spoke about key areas of research supported by the Defense Department and answered questions about DOD priorities.

In the afternoon, Fermilab Deputy Director Ken Stanfield gave a realistic review of Fermilab’s

budget and the prospects for scientific discovery in Run II. He was followed by Ernie Moniz, Under Secretary at DOE, who spoke frankly to the Council.

Moniz reiterated that URA and Fermilab have a good history. He stressed that last year was a tough one for DOE, because of Congressional action on security at DOE facilities. He said he is “cautiously optimistic” that the DOE has the ability to address security concerns such as computer access. He reassured the Council of his commitment to the continued exemption of Tier 3 laboratories, such as Fermilab and SLAC, which perform no classified research.

Moniz urged the audience to resist overreaction to the security policies. “These policies are in the early stages” he said, and have not been tested internally. Tier 3 labs should be treated as academic institutions on security issues, Moniz said. 🇺🇸



Fermilab Photos

Joe B. Wyatt (left) of Vanderbilt University, Chair of the URA Board of Trustees, and Fermilab Deputy Director Ken Stanfield approve as House Science Committee chairman James Sensenbrenner calls basic research “the intellectual engine for future technological advances.”



Tata Scientists returning to Fermilab

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by Mike Perricone

Fermilab's International Affairs department has received the go-ahead from the Department of Energy to invite experimenters back from India's Tata Institute of Fundamental Research, closing an awkward chapter in the Lab's long history of attempting to practice physics without borders.

"The process is going on, and we have invited several people from Tata," said Roy Rubinstein, head of the International Desk. "We anticipate it will take some time to obtain visas, but I'm not aware of any serious problems so far."

A member of the Lab's DZero collaboration since 1990, the Tata Institute was hit by the sanctions imposed by President Clinton against India and Pakistan for those nations' testing of nuclear weapons in 1998.

The Tata Institute appeared on the original list of affected "entities" announced by the U.S. State Department on June 18, 1998; it was one of 51 entities removed from the list by the U.S. Commerce Department on December 16, 1999 in what was described as "a consensus decision by the Administration to more tightly focus the sanctions on those Indian entities most directly involved" in the weapons activities.

No Tata scientists were actually expelled from Fermilab. As Rubinstein explained, their scheduled stays ended while the Lab sought clarification of their status from DOE. Rubinstein was prevented from issuing any further invitations to them, until now.

But the sanctions have meant that, for more than 18 months, collaborators from the Tata Institute were unable to install and test more than \$500,000 in scintillation counter equipment they had provided for the detector's muon system upgrades for Run II. They have essentially lost that opportunity, since much of the work has been completed by other members of the DZero collaboration in their absence. The sanctions also limited their opportunities for physics analysis of Run I data.

"The experience would have been valuable to the students and young colleagues at TIFR," wrote V.S. Narasimham, spokesperson for the Tata collaboration, responding to questions by e-mail.

The Hadron 13 conference was another casualty of the sanctions, and another that Narasimham felt personally. He was the convener of the 13th Topical Conference on Hadron Collider Physics held in Mumbai, India in January 1999.

Fermilab scientists, as members of a national laboratory operating on DOE funds, were banned from attending the conference, although their results were to have served as a primary focus of the conference. (Rajendran Raja of Fermilab gave his scheduled talk after paying his own way to the conference; see the accompanying story, "*Principles had priority on passage to India.*")



Photo by Reidar Hahn

The Tata Institute of Fundamental Research has been a member of the DZero collaboration since 1990. In this 1992 photo, the Indian flag is the one in the center.

“The emphasis of the meeting being on results from the Tevatron, naturally the absence of people from Fermilab was greatly felt,” Narasimham said. “To the credit of Fermilab scientists, however, their talks were quickly redistributed to some of their colleagues from universities who were not under such restrictions and who made sure that the results were presented.”

Reacting to the Hadron 13 ban, Fermilab physicist Paul Grannis, a longstanding member of DZero, sent a petition signed by some two dozen scientists to Secretary of Energy Bill Richardson. The petition read in part: “Restriction of access of U.S. national laboratory scientists to open conferences is antithetical to the spirit of free scientific inquiry;

is unprecedented in basic research over the past 50 years; and is wholly irrelevant to national security concerns.”

Grannis and the DZero collaboration also sent three communications to the State Department; one about the conference, another asking for the sanctions to be lifted, and a third asking for Tata to be removed from the list. Grannis also noted that Secretary Richardson met with Deputy Secretary of State Strobe Talbott shortly before the Hadron 13 conference to plead for a removal of sanctions.

“The DOE was very supportive throughout,” Grannis said, citing efforts by Peter Rosen, director of high energy and nuclear physics. “The DOE’s heart was surely in the right place.”



Paul Grannis



**“This has nothing to do with science,
AND IT DID NOT IN ANY WAY AFFECT
our interest in the [DZero] experiment.”**

— V.S. Narasimham

There was, however, the “flag flap” at Fermilab. Shortly after the sanctions were announced, the Lab was advised through DOE channels to remove the flag of India from the row of flagpoles in front of Wilson Hall. John Peoples, the Lab’s director at the time, said he wasn’t quite sure how to react, because of conflicting advisories as time went on. But the flag has remained down.

“One thing I suggested was that we take down all the international flags,” said Peoples, who along with Grannis emphasized the Lab’s history of internationalism by citing the continuing participation of experimenters from the Soviet Union throughout the Cold War days. Peoples

noted that both the Soviet presence and the Tata absence stemmed from decisions at the highest levels of government, with the attendant complexities of putting those decisions into action. He recalled, for example, that the primary duties of one Soviet “scientist” at Fermilab, whom everyone surmised to be a KGB agent, consisted of driving the Soviet scientists’ wives on shopping trips in the contingent’s official vehicle, a VW Microbus.

“Paul Grannis and our International Affairs people really carried the ball on getting this [Tata] issue turned around,” Peoples said, “and fortunately, Secretary Richardson is very much an internationalist.”



Photo by Reidar Hahn

The Tata Institute supplied more than \$500,000 in scintillation counter equipment, but could not work on installation and testing because of U.S. sanctions.

Principles had priority on

passage to India



Although the sanctions prevented Fermilab scientists from traveling to India using DOE funds, Fermilab physicist Rajendran Raja paid his own way to the Hadron 13 particle physics conference to present his scheduled talk. Here, he explains his reasons:

The Internet is also very much an internationalist, offering communication that was not as satisfactory as personal interaction, but highly effective in keeping channels open. Narasimham said the collaboration with DZero would have been “hopeless” without Internet communication.

“The collaboration obviously went on,” Grannis said. “We just had to use e-mail and neutral territory. During the time of the sanctions, our Indian colleagues completed physics analysis, we discussed them, argued over them, finalized them and submitted them for publication.”

Tata is also a major collaborator on the US/CMS project for the Large Hadron Collider at CERN, the European particle physics laboratory in Geneva, Switzerland. Fermilab’s Dan Green, the US/CMS project manager, couldn’t travel to India. He had to hold a major Engineering Design Review at CERN.

“There was no way to go [to Tata] and kick the tires,” Green said. “We met at CERN. I had personal difficulties with e-mail, and several times had to resort to sending e-mail to CMS in CERN to be routed to Tata as a third party.”

In summary, Grannis said the sanctions “did not make us look good in the international community.” But he felt that most other scientists perceived American scientists as fighting against the sanctions, and Narasimham was gratified that “many scientists and scientific institutions tried to intervene on our behalf.”

Narasimham plans to return to Fermilab next summer; some Tata scientists will precede him, and the collaboration is planning a computer farm to generate Monte Carlo simulation data for DZero results in Run II. The collaboration has survived

“I think the sanctions were unwarranted, certainly in their application to TIFR and to our collaboration with DZero,” he said. “But this has nothing to do with science, and it did not in any way affect our interest in the experiment.”

Tata and Fermilab are free to focus on science once again. 🌐

The sanctions, as applied in this instance, only affected physicists who worked at DOE National Laboratories. The conference was attended by 21 U.S. physicists from U.S. universities, some of whom were under DOE grants. I asked the Fermilab Directorate whether it was all right for me to give the invited talk, “Tevatron Top Quark Physics,” as a private citizen. I was told that it was OK.

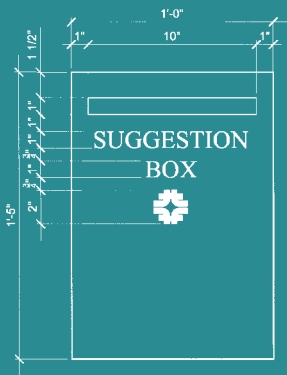
At a personal level, I opposed the move by India to test nuclear weapons. I think that India’s greatest contribution in contemporary world affairs is Gandhian non-violence; the decision to test flew in the face of guarding that heritage. Having said that, I think the pursuit of pure science and the investigation of how nature works at its most fundamental level is an activity that has tremendous potential to bring people together. In Europe after the war, no one thought that the Germans and the British could work together, but CERN proved them wrong and served as a model for the European Common Market.

The laws of physics are the same whether in India, Europe, the U.S.A. or anywhere else in the known universe, and the unfettered pursuit of their understanding is a fundamental human right, just as free speech or free expression in the arts. To prevent the free exchange of scientific ideas by using science as a tool for political leverage was anathema to me, and to the Fermilab tradition of science without borders begun under the late Robert Wilson (which survived the cold war intact).

Preventing eight physicists from attending the conference, while permitting 21 others to do so, did nothing, I believe, to further the cause of non-proliferation. As a U.S. citizen, I felt it my duty to register my feelings by going to the conference and giving my science talk as a private citizen.

—Rajendran Raja

Feedback



by Judy Jackson

She spent the first morning of her new job in employee orientation, where she learned, among other things, how to fill out a time sheet, where to go in case a tornado approached and that, if she ever had a suggestion, she should write it down and put it in the suggestion box.

On her lunch break, out of curiosity, she went to look for the suggestion box. She couldn't find it. The next day, she asked her supervisor where it was. The supervisor thought it was around somewhere, but she couldn't find it either. It seemed that the suggestion box, a venerable Fermilab institution, had vanished. No one could remember exactly when or whence it had disappeared, but it was definitely gone. Fermilab was a suggestion-free zone.

Was the vanishing suggestion box in this true story a symptom of the overall communication gap at the laboratory that some Fermilab employees identified in a 1999 workplace survey? Or did it simply move to make way for a Wilson Hall gala event, and never return to its rightful place? Whatever the case, the suggestion box is back. First it appeared as a converted wooden disk-holder with a slot in the top. Now it's a built-in fixture on the northwest atrium wall of Wilson Hall. (A recent suggestion: Label the Wilson Hall atrium with the points of the compass, in tasteful lettering, so that people can see which way is north. Response: Good idea. The letters for "North," "South," "East" and "West" have been ordered and are on their way.) The box has made a comeback.

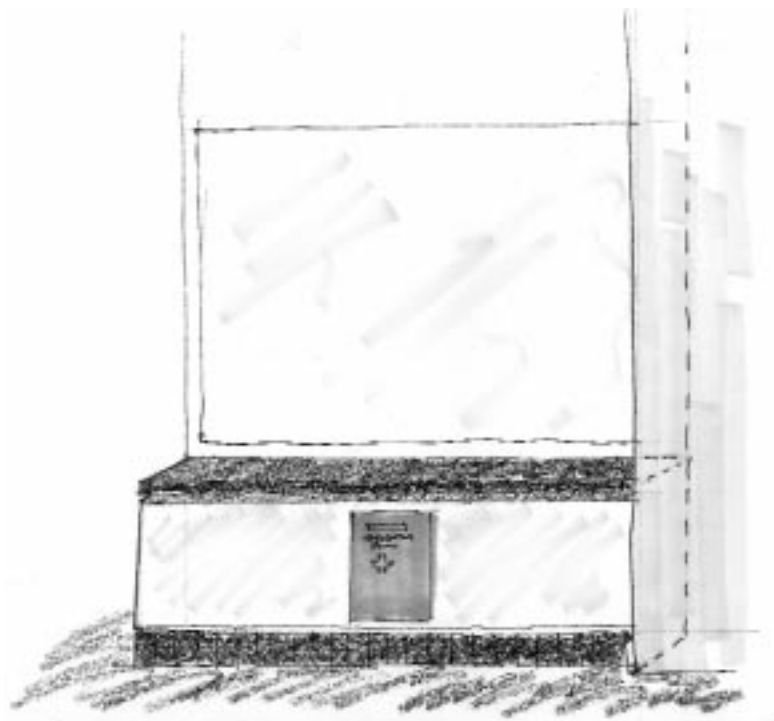
The traditional physical suggestion box, for hard-copy suggestions, is now joined by an electronic version on the Fermilab Web site (http://www.fnal.gov/directorate/public_affairs/suggestion.html). Suggestions from both sources will go, not directly to the shredder, as some skeptics have suggested, but to the Office of Public Affairs for forwarding to appropriate members of the Fermilab community for response. A suggestion to add trees to Wilson Hall parking lots went to the Facilities Engineering Services Section, for example. (Response: Good idea, but Roads and Grounds staff is too small to allow for the increased maintenance in summer and the snowplowing complications in winter that trees would add.)

Unless the suggestor requests otherwise, suggestions and responses are posted both on the Free Speech Bulletin Board in the atrium, above the suggestion box, and on the Web. Both electronic and hard-copy suggestors can remain anonymous if they choose.

ANY QUESTIONS?

Of course, the now-you-see-it-now-you-don't suggestion box was never the only mechanism for the expression of questions or concerns. Question periods at Fermilab Director Mike Witherell's All Hands Meetings in December gave another opportunity for employees to speak up about what was on their minds. Often the responses required a bit of research. Some examples:

- Question: We held an open house at Fermilab several years ago. Do we have plans for another?
- Response: A labwide open house is a powerful community-relations tool, but it takes an enormous effort and costs a very significant amount of money. As useful as they are, Fermilab can't afford to hold open houses too often. However, the Users' Executive Committee and the Office of Public Affairs have teamed up to offer a series of open houses on a smaller scale, with weekend tours of a single experiment or area, led by Fermilab scientists. The first "pilot" tours, of CDF, on February 12, were in such demand that many more people called to sign up than the tours could accommodate. More Saturday tours are coming. After Collider Run II gets going, another labwide open house is a possibility.
- Question: Would an "alternative work schedule" option work for Fermilab? What about offering the choice of four 10-hour workdays a week, or nine nine-hour days every two weeks, instead of the traditional schedule of five eight-hour days?
- Response: A Fermilab employee committee studied alternative work schedules and how they function in other organizations. The committee recommended that Fermilab give them a try. However, the Directorate and division and section heads were not enthusiastic, mostly because they thought



The Suggestion Box is located beneath the free speech bulletin board outside the 1N conference room on the first floor of Wilson Hall.

such schedules would not be fair. Because of the nature of the work at Fermilab, many employees would not be able to take advantage of alternative schedules. Managers thought it would be unjust to offer the option to some, but not to all.

- Question: Will the holiday shutdown continue?
- Response: No. There will be no enforced vacation during the Christmas-New Year holiday in 2000. Fermilab will remain open, in order to let people choose their vacation time to suit their own schedules.

Didn't have a chance to ask your question? Not the suggestion-box type? Don't forget the option that so many others have used: sit right down and write *FERMINEWS* a letter. Your thoughts will reach readers at Fermilab and around the world. 🌐

Senator Fitzgerald Visits Fermilab



Photo by Reidar Hahn

Senator Peter Fitzgerald (center) discusses particle physics with Fermilab Director Michael Witherell (left) and physicist Stan Wojcicki.

On January 17, Senator Peter Fitzgerald (R-IL) paid his first visit to Fermilab. He brought with him a lively interest in physics. “What effect do the discoveries you make here have on Einstein’s theory of general relativity?” Fitzgerald asked CDF spokesmen Al Goshaw and Franco Bedeschi during a tour of the CDF detector. Goshaw said it was the first time he could remember being asked that question by a U.S. Senator. Fitzgerald also pledged support for a strong future for Fermilab. “Any new accelerators built in the U.S. should be built right here,” Fitzgerald said.

CALENDAR

FERMILAB LECTURE SERIES

Friday March 3, 8 p.m.—Ramsey Auditorium, Wilson Hall: Dr. Fred Smith, of Northern Illinois University, will discuss *Neandertals and the Origins of Modern Humans*. Tickets are \$5. Call (630) 840-ARTS for more information.

MARCH 4, 3:00 PM IN RAMSEY AUDITORIUM

You are invited to celebrate the New Year with the Russian community at Fermilab by attending a concert of dance and music presented by our children. Arrangements, choreography and costumes by Irina Polubotko, please contact her at 208-9529 or polub@fnal.gov for more information.

MARCH 8 Delta Dart Night

The Fermilab Barnstormers host their annual Delta Dart Night on Wednesday, March 8th in the Village Barn. The Delta Dart is a small, simple rubber band powered airplane constructed of balsa wood and tissue paper. It can be built in about 30 to 45 minutes and with a little luck can fly for 30 to 45 seconds. Barnstormer club members will guide folks through the construction and give tips on flying. Materials are \$1 for adults and teenagers, and free for juniors 12 and under. The barn opens at 5:30 pm and the juniors fly off a friendly, competitive chance for the juniors to compete against the clock for the longest flight) will start at

Web site for Fermilab events: <http://www.fnal.gov/faw/events.html>

7 pm. Small prizes will be awarded for the juniors. All employees, families and friends are invited. For more information, please call Jim Zagel (x4076) or Dave Pushka (x8767).

MARCH 22, WEDNESDAY

HEARTLAND BLOOD CENTER blood drive will take place between 9am to 2pm in the WH GF NE training room. For further information contact the Medical Office x3232, or Sharon Koteles (630)840-3598 fax (630)840-3053 koteles@fnal.gov.

INTERNATIONAL FILM SOCIETY February 25

Ramsey Auditorium, Wilson Hall 8:00 p.m. \$4.00. *Fireworks (Hanna-Bi)* Dir: Takeshi Kitano, Japan (1970) 103 min. Stylish, violent and tremendously moving. A direct descendant of Dirty Harry and the Wild Bunch; a thrilling combination of action and sentiment.

March 10

Ramsey Auditorium, Wilson Hall 8:00 p.m. \$4.00. *Children of the Paradise (Les Enfants du paradis)* Dir: Marcel Carne, France (1945), 195 min. Carne's masterpiece inhabits the glittering world of backstage life, following a group of actors and actresses who eventually achieve fame, but never the happiness they so desperately seek.

ART SERIES

Saturday, March 11

Mick Moloney's Irish Music and Dance Festival. Ramsey Auditorium, Wilson Hall, tickets are \$18. A brilliant repertoire of Irish tunes and songs performed by five outstanding musicians, with four champion step dancers.

ONGOING

NALWO's free morning English classes in the Users' Center for FNAL guests, visitors, and their spouses have been expanded. Monday and Thursday, 9:30am - 11am beginners (Music Room) and intermediates (Library) Monday and Thursday, 11am - 12:30pm advanced, emphasizing pronunciation and American idioms (Music Room) NALWO coffee for newcomers & visitors every Thursday at the Users' Center, 10:30-12, children welcome. In the auditorium, International folk dancing, Thursday, 7:30-10 p.m., call Mady, (630) 584-0825.

BARN DANCES

All dances are taught and people of all ages and experience levels are welcome. Admission is \$5, children under 12 are free (12-18 \$2). Contact Lynn Garren x2061 garren@fnal.gov or Dave Harding x2971 harding@fnal.gov, or see <http://www.fnal.gov/orgs/folkclub/>.

LAB NOTES

URA SCHOLARSHIP INFORMATION

Candidates for Universities Research Association (URA) scholarships are reminded that applications are due March 1. Applications are available from and should be returned to Human Resources, WH 15SE, Mail Station 124. Scholarships are

awarded on the basis of S.A.T. (Scholastic Aptitude Test) scores. URA awards a number of scholarships to regular, full-time Fermilab 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 \$3,000 for tuition and fees and is renewable for four years if the student progresses in good academic standing. Applicants will be notified regarding the scholarships in early April

LUNCH SERVED FROM
11:30 A.M. TO 1 P.M.
\$8/PERSON

DINNER SERVED AT 7 P.M.
\$20/PERSON

CheZ Léon MENU

FOR RESERVATIONS, CALL X4512
CAKES FOR SPECIAL OCCASIONS
DIETARY RESTRICTIONS
CONTACT TITA, X3524

[HTTP://WWW.FNAL.GOV/FAW/EVENTS/MENUS.HTML](http://www.fnal.gov/faw/events/menus.html)

LUNCH WEDNESDAY, MARCH 1

Baked Pasta Shells with Ricotta,
Spinach, and Pine Nuts
in a Creamy Tomato Sauce
Chicory and Bacon Salad
Coffee Ice Cream with Espresso
Chocolate Sauce and Hazelnuts

DINNER THURSDAY, MARCH 2

Booked

LUNCH WEDNESDAY, MARCH 8

Carne Asada a la Tampiquena
Frijoles Charros
Arroz a la Mexicana
Spicy Jicama Salad
Tropical Fruit

DINNER THURSDAY, MARCH 9

Booked

F E R M I N E W S I

F E R M I L A B
A U. S. D E P A R T M E N T O F E N E R G Y L A B O R A T O R Y

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The deadline for the Friday, March 10, 2000, issue is Tuesday, February 29, 2000. Please send classified advertisements and story ideas by mail to the Public Affairs Office MS 206, Fermilab, P.O. Box 500, Batavia, IL 60510, or by e-mail to ferminews@fnal.gov. Letters from readers are welcome. Please include your name and daytime phone number.

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CLASSIFIEDS

FOR SALE

■ '99 Goldwing SE (Silver) 11K Miles - Runs Great Must Sell - Will even store it for the winter. Asking \$16,000 has Markland receiver hitch and (5 pin) OEM trailer wiring kit, Markland floorboards, foam grips and extra windshield. Also have 2 headsets for the intercom one full-face helmet model and one that can be used either on a full-face or open-face. Still has 2 yrs on original warranty as of Nov 5 (unlimited miles). Can get another 3 yrs extended (unlimited miles). Call Terry x4572 or e-mail skweres@fnal.gov .

■ '95 Mitsubishi Mirage 2dr coupe, 100k, red, automatic trans, AC, p/s, p/b, AM/FM, dual air bags. New: tires, battery, timing belt. Good condition. \$2900 obo. Oleg Kurmaev x4308 or (630)784-0048 or e-mail Kurmaev@fnal.gov.

■ '94 Hyundai Excel GS 3 door hatchback, 5 speed manual trans, 65K am/fm/cassette, new tires, excellent condition. (630) 377-3412 or x3044, or rapids@fnal.gov.

■ '91 Honda Civic DX, 3 door hatchback, AC, stereo, manual trans., 108k, well maintained, no rust or leaks, \$2500 obo Volker Sander, sander@mcs.anl.gov, (630) 985-1995 (h) (630)252-7497 (w) Argonne National Laboratory Fax: (630)252 - 5986.

■ '90 Toyota Corolla Deluxe Wagon 5D, automatic, AC, power steering, cruise control, AM/FM stereo and cassette, 92k miles, new tires, new battery, new exhaust system. Runs very well. The car is in very good condition due to regular maintenance. Small amount of rust. Kelley Blue Book retail value of more than \$5000. Asking \$4000 obo. For more information: mishra@fnal.gov x4094.

■ '90 GMC V1500 Jimmy SLE, 92K, vgood cond't inside & out. 5.7 Litre V8, auto transmission, AC, security system. \$9575 obo. waw.fnal.gov, or x3169, home (630) 325-4608.

■ '89 Dodge Colt, Red-150k. Moonroof, am/fm stereo, manual transmission, new brake system, cellular phone included. \$1590 contact Juan Pablo Fernandez x8630 or fernand@fnal.gov.

■ '89 Ford Taurus 4Dr GL Sedan Sandalwood, 94k miles, auto, loaded, original owner, good condition, new brakes, \$2,300, chou@fnal.gov or x5489.

■ '87 Nissan Stanza, 128k miles, auto. 4dr, AC, no rust or leaks, good condition, \$1,550 obo, x2444 or lizhou@fnal.gov.

■ '87 Jeep Cherokee Laredo, navy, 6 cyl. 4.0 l, 4WD, auto transmission, tilt, AC, 2 dr, power locks & windows, AM/FM stereo/cassette, 165k miles, good condition, very little rust. \$2800 obo. Marek x2373 or (630)983-8635, marek@fnal.gov.

■ '86 Honda Accord, ac, 128k miles, runs reliably, no rust, \$1500 obo. Frank, x4828 or tecker@fnal.gov.

■ 19" color TV, \$100; changing table \$40; vacuum cleaner \$50; air filter \$80; all less than a year old. Frank, x4828 or mail to: tecker@fnal.gov

■ "The Pro" Nordic Track - electronic speedometer/chronometer which monitors distance, time, speed and calories burned - like brand new \$600.00 obo Linda x3082.

■ 1" x 60' roll of new copper tubing...new, \$98; sell for \$50. Dijkak@fnal.gov or Ed x6300.

■ Guitar Amplifiers, Marshall VS65R. 65 watts. Tube Preamp. \$250. Marshall AS80R 80 watts. 3 channel. Acoustic. \$375. Curtis x2394 crawford@fnal

■ Heathkit GR-8000 projection TV, with stereo TV tuner, stereo audio amplifier, infrared remote. Identical model retailed fully assembled under Zenith brand name. Includes GR-8000 manual and schematic set. Composite video, antenna and stereo audio input/output. \$500 or best offer. I am happy to demo the unit if you are a serious buyer. John Urish, x3017; urish@fnal.gov, or view it at <http://www-pcs.fnal.gov/urish/home>

■ Duncan Phye (drop leaf) mahogany dining table with triple pedestal and 4 matching chairs with lyre backs, circa 1940. Need refinishing. Asking \$325.00. Contact Shelley at ext. 5809 or krivich@fnal.gov

■ Electric organ, Conn model 626M Rhapsody, contemporary style, has two 61 note independent manuals and 25 note pedalboard. Made -1964. \$150 obo Jim Engelbrecht x4073.

HOUSES FOR SALE

■ Batavia - West side \$197,000. 3 bedrooms, 2.5 baths, 2 car garage, partial basement, large lattice enclosed deck, stone fireplace. (630) 761-0221.

■ Charming Bungalow in Wheaton \$157,000. 2 bedroom, 1-1/2 bath, living room, dining room, eat-in-kitchen, playroom/3rd bedroom, loft. Walk to town, train, schools, Prairie Path. Jim Kerby (630) 690-1288, or x3595.

FOR RENT

■ Room-Batavia West side \$375 per month. Available for one person, nonsmoking. Shared kitchen, washer and dryer available. Cable connection and separate phone are possible. Sharon x2536, pager (630) 905-3305, or e-mail saustin@inil.com

■ Coach House for rent in West Chicago. 2 bedroom, 1 bath situated on 2-1/2 wooded acres, on the edge of Fermilab property leave message (847) 446-4957 Ye Olde Sign Shoppe.

■ Room for rent in private home in St. Charles. Quiet environment, kitchen and laundry privileges, separate phone line. Available March 15. Call Mary 630-377-0862 (evenings).

GOLFERS

■ Have an urge to hit something with a stick? The Tuesday Prestbury Golf League has openings for singles or teams. For more information contact Dean Sorenson deans@fnal.gov, x8230 or Rod Klein rklein@fnal.gov, x4682.

MILESTONES

RETIRING

Wayne Ganger, ID 702, BD-BS-Proton Scr, effective May 1. Last day of work March 1.

A FRIENDLY (\$150) REMINDER

The Warrenville Police Department would like to remind all Fermilab employees and visitors that if you are caught speeding in the School Zone on Batavia Road east of the Lab entrance, the fine is \$150. The speed limit is 20 mph when the lights are flashing on the School Zone signs.

http://www.fnal.gov/directorate/public_affairs/ferminews/

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