

# Fermi News

Fermi National Accelerator Laboratory

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## President's Science Advisor Explores Fermilab

The director of the Office of Science and Technology Policy walks Main Injector tunnel and visits DZero.

by Donald Sena, Office of Public Affairs

John Gibbons, President Clinton's assistant for science and technology issues, said he has often seen the world's most powerful particle accelerator from thousands of feet up in an airplane, but never had a chance to visit its home. That changed on April 7 when Gibbons came to Fermi National Accelerator Laboratory to gain a deeper understanding of the research occurring at the energy frontier.

Gibbons, originally a nuclear physicist, said he visited primarily to see the powerful tools of high-energy physics and learn about the basic science on the site, rather than to give a long speech or discuss policy issues. Donning a hardhat, Gibbons walked the beamline of the Main Injector with physicist Steve Holmes, discussing luminosity, antiproton recycling and magnet construction. Later, Gibbons toured the DZero hall, climbing through the heart of the collider detector and learning about the upgrades needed to keep up with the Main Injector.

"It's been a long time since I pushed buttons and kicked machines myself," said Gibbons. "It's just extraordinary to see the elegance of technology now in providing a dependable but complicated system" for exploring the fundamental nature of matter.

Touring the Main Injector with a number of Fermilab scientists, Fermilab

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Fermilab Director John Peoples (right) discusses basic science with John Gibbons, as they climb around the DZero detector.



Photos by Reidar Hahn

in Gibbons addresses audience of scientists I West.

# DOE Conducts Lab's Annual Review

Reviewers commend Fermilab for current experimentation and planned upgrades, but express concern about long-term future.

by Donald Sena, Office of Public Affairs

Fermi National Accelerator Laboratory launched a successful fixed-target run in the last year, made solid progress on the construction of the Lab's newest accelerator and has a good plan in place for the upgrades to the two collider detectors, according to Department of Energy officials and consultants conducting Fermilab's Annual Review. However, the reviewers expressed concern about plans for the long-term future at the Laboratory, saying that in the coming year Fermilab should put more resources toward future physics tools and ideas.

The Annual Review, held April 1-3 at the Laboratory, included nearly 30 talks that encompassed Fermilab's work of the recent past, the present experiments and plans for the near-term (1997-2005) and long-term (beyond 2005) future. Speakers, including Fermilab employees and users from various universities, presented status reports and general information about all facets of the Lab's work. Reviewers also toured the Lab's facilities, going into the trenches where the cutting-edge science is taking place.

"With [Fermilab] doing so well exploiting its facilities...I recommend and encourage the Laboratory to bring a greater sense of urgency in planning for the future," said Paul Slattery from the University of Rochester, a review consultant. He added that Fermilab is the leader of the U.S. high-energy physics community and should actively seek ways to remain the leader "to have a future for the next generation of high-energy physicists."

## Director's overview

Director John Peoples began the three-day review with a summary of the Fermilab program. He spoke of anticipated results from the Laboratory, including progress on the phenomenon known as CP violation with the KTeV experiment; expected results from the collider run set to begin in 1999; and the search for



Photo by Reidar Hahn

dark matter and its composition with the Neutrinos at the Main Injector (NuMI) experiment and the search for cold dark matter.

Peoples quickly turned his focus to a common concern in the particle physics community: the federal budget. [Deputy Director Ken Stanfield also detailed the budget's implications for Fermilab's plans in the next two fiscal years at the end of the review.] Peoples said the fiscal 1997 budget presented a problem for operations, as a lower-than-expected outlay for Fermilab combined with new costs forced the director to make tough choices. The director said Lab managers reduced the staff by about 100 people, reduced equipment funds by a factor of two or more for everything except CDF and DZero upgrades, and deferred as many expenses as possible to fiscal 1998 and 1999.

"That's allowed us to go ahead with the fixed-target operation and finish it with some style," said Peoples, as he reminded the reviewers that this fixed-target run, scheduled to end in September 1997, will be the last 800 GeV fixed-target run for Fermilab.

Peoples also summarized the plans for collider Run II, scheduled to begin after the completion of the Main Injector in 1999. He said

Craig Moore, of the Beams Division, details the accelerator's performance.

the two collider collaborations are busy upgrading their detectors, while work continues on Run II accelerator improvements.

Peering into the near future, Peoples said the Main Injector, while providing protons for the collider experiments, could also supply 120 GeV protons for NuMI and possibly to one or two more fixed-target experiments. In addition, the director detailed an idea for a collision hall at CZero dedicated to charm and bottom physics.

Peoples also addressed the long-term future, saying the Lab is now focusing on two ideas: a muon collider and a Very Large Hadron Collider (VLHC). However, Fermilab is in a tough position, one reviewer noted, as it must balance its commitments to users in the present and near future, while also planning for long-term machines and goals.

"Our difficulty is to accomplish all we must do and still free up enough people to plan for Fermilab's future," said Peoples in the Annual Review booklet published in conjunction with the review. "We cannot neglect the program for the next eight years; it is far too exciting."

## The talks

Speakers from all areas of the Laboratory elaborated on the director's overview. Craig Moore, from the Beams Division, presented data on the accelerator's performance for the current fixed-target run. In a reserved manner, Moore presented chart after chart detailing steady improvement in beam luminosity and reliability, resulting in several recent Tevatron records.

When Moore finished, one reviewer, noting the implications of the data just presented, said, "This was a low-key presentation of incredible accomplishments."



Some members of the DOE review team. From left, DOE's Peter Rosen, Bob Diebold and Gordon Charlton.

Fermilab researcher Peter Kasper presented a synopsis of fixed-target results and papers from the 1990-91 run and anticipated results from the experiments now taking data. Switching to collider physics, Fermilab scientists summarized new results and expectations from CDF and DZero, while also explaining the ideas and schedules for the upgrades.

The focus on the near-term future continued with Computing Division Head Joel Butler's plans for dealing with the challenge of accumulating Run II data. Steve Holmes updated the review team on the status of the Main Injector; one reviewer noted that it was important to the high-energy physics field that the Main Injector was on schedule, on budget and well managed, because it proves that the particle physics community can still manage and complete a large accelerator "after the [Superconducting Super Collider] debacle."

## Day two marathon

Greg Bock, a Fermilab scientist, opened the second day of talks with an overview of possibilities for a 120 GeV fixed-target program. Bock said researchers have proposed a number of ideas, and a workshop on the subject planned for May 1-4 has generated wide interest. Two DOE reviewers said they had concerns about "proton economics," explaining that the competition for protons between the collider detectors, NuMI and other 120 GeV fixed-target experiments would be high.

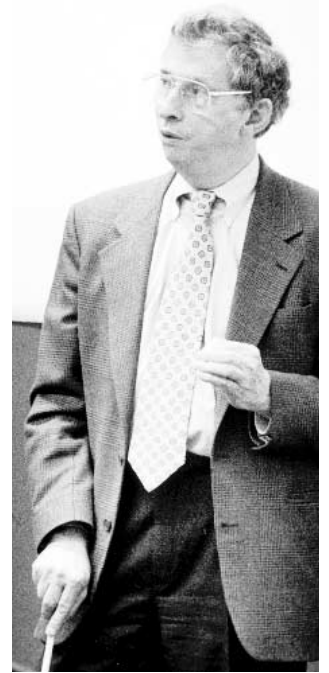
Gina Rameika, NuMI project manager, outlined the organization, facility and beam design, cost, schedule and project milestones for NuMI. Noting funding constraints, Rameika said she is constantly scrutinizing the budget of NuMI, looking for ways to reduce the cost. The project leader added that her team was heartened by the \$5.5 million line item for NuMI in President Clinton's FY1998 budget.

"It was an incredible morale booster for the people on this project," said Rameika.

One area of concern for Rameika is international participation, as CERN experimenters have shown interest in conducting a similar study in Europe. DOE reviewers shared that concern, saying they hoped other countries would consider collaborating with the NuMI project instead of launching an experiment in direct competition.

"There are lots of groups that could come together and coalesce into the program," said Rameika. "We should let that happen."

The spirit of international collaboration continued as Dan Green, from the Particle



Fermilab Director John Peoples addresses the DOE review team.



Photos by Reider Hahn

Fermilab Deputy Director Ken Stanfield discusses the federal budget.

# On Schedule and On Budget

How the review process developed by the Department of Energy's Office of Energy Research keeps multimillion dollar projects at national laboratories on course, for the advancement of forefront science

*"Plans are worthless, but planning is everything... So, the first thing you do is to take all the plans off the top shelf and throw them out the window and start once more. But if you haven't been planning you can't start to work, intelligently at least. That is the reason it is so important to plan, to keep yourselves steeped in the character of the problem that you may one day be called upon to solve—or to help to solve."*

~ Dwight Eisenhower

*By Judy Jackson, Office of Public Affairs*

Fermilab physicist Steve Holmes, project manager for Fermilab's Main Injector accelerator construction project, waited outside a Laboratory conference room for the thirteenth Department of Energy review of his \$229 million project to begin. As he adjusted the necktie he had donned for the occasion, he reflected on the review process that has become an integral part of managing the construction of large new research facilities for DOE's national research laboratories.

"I think reviews are very valuable," Holmes said. "We complain about them, but they have great worth, both for us and for DOE. I've often said that we could call off the review now, just before it begins, and we would already have realized much of the value. Preparing for a review forces you to climb out of the trenches and take stock and look at the broad perspective. It points up issues on the project we should be doing something about. And, of course, hearing what the project looks like from the perspective of people who are not involved in the day-to-day details that preoccupy us often leads to useful suggestions."

"DOE has a public responsibility for getting projects executed on budget and on schedule," Holmes continued. "They have an obligation to understand what's going on. Reviews take lots of resources to prepare for, but they are worth it."

Fermilab Deputy Director Ken Stanfield agreed with Holmes's assessment of the project reviews that DOE's Office of Energy Research instituted in the early 1980s in response to a series of project cost overruns at ER national laboratories. Stanfield has recently helped to guide DZero and CDF, Fermilab's two collider detector collaborations, through successful reviews of the multimillion dollar projects to upgrade their detectors for Collider Run II at the Tevatron. DOE's Dan Lehman led the reviews.

## **"We take them seriously."**

"One of DOE's chief success stories is in the construction of large user facilities for research," Stanfield said. "The review process is a critical part of that success. As I often say at the end of reviews, it is extremely important for the success of big projects to have a good plan, supported by all the players: the Administration, the Congress, the Department of Energy, and the laboratory. The review process is critical in order for everyone to buy in.

"Not all reviews are perfect," Stanfield added. "A given review may not place the right emphasis on all the key issues. But they are useful because they assemble a good group of people who can sit in a room and make up their minds about whether the project has a well-defined scope, accurate cost estimates, realistic schedules and good management. If a DOE Lehman review says the project is in good shape, you can have some confidence that it is."

"Believe me," Stanfield said, "we take the results of these reviews seriously."

Department of Energy officials also hold the process in high regard. "We consider Danny's reviews as an important part of the project management process," said James



Photo by Reidar Hahn

A recent Lehman review of Fermilab's Main Injector project.

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Photo by Reidar Hahn

# What Is a Danny Lehman Review?

The Department of Energy's Danny Lehman, director of the Office of Energy Research's Construction Management Support Division, has a clear idea of the purpose of the project reviews that now bear his name.

"Remember," he said, "our mission in ER is to do science, not to do reviews. Our purpose in doing reviews is to expedite the science that is what we're all about."

Expediting the science was the motivation for creating the review process in the early 1980's. The reviews originated as "Temple Reviews," named for L. Edward Temple, who inaugurated and built the review system that Lehman continues today.

"At the time," Temple said recently, "DOE was engaged in many big-dollar activities that did not involve much conventional construction," which DOE had previously been accustomed to monitoring.

"Many of these projects were suffering major cost overruns, which played havoc with planning in ER," Temple said. He began the practice of inviting a group of expert consultants to join DOE staff in reviewing the projects for their scope, cost, schedule, and management.

"We established some basic practices," Temple explained. "The participants would agree ahead of time on what was to be covered in the review, which would last from two to four days. We would leave the scene of the review with a draft report, including action items with due dates—things that all the parties involved, including DOE, needed to do.

"The review process evolved over time," Temple said. "In the beginning, people were reluctant to believe that it could be anything but adversarial. However, they gradually came to perceive that it did have some value. Projects everywhere began to see the benefits. I never viewed myself as 'the government' versus the labs. Instead, I tried to put myself in the place of the lab project manager and see things from that point of view."

Lehman joined Temple in 1981, and the two worked together for a decade, until Temple's departure in 1991.

Has the process changed in the five years since Lehman has been conducting reviews on his own?

"I think that the end results from a Lehman review are the same as from a Temple review," Lehman said. "How we get from point A to point B may be a little different. The trick is to be objective. The truth is the truth, and we tell the same story to the Program Office and to ER management. We don't adjust the facts to suit the audience."

Lehman said the review process is a flexible one. "It is not a cookie-cutter process. We tailor the review to suit the project and the phase it is in. If there are no real issues to resolve, the reviews can back off" and become less frequent and detailed.

## Acclaim from afar

"The process works well because all parties use it and rely on it: the lab, the program office, ER management, the Site Office and our office," Lehman said. "All contribute to it, and all abide by the results. If some parties don't participate, it will fall apart."

Physicists value the Lehman review. Retired Fermilab physicist Dick Lundy, himself a frequent expert consultant on reviews, said, "Scientists accept peer review. What Ed Temple and Danny Lehman had to do was to convince the scientists at the labs that DOE reviews were peer reviews. I think that, after a while, they succeeded in doing that."

Regard for Lehman reviews does not stop at U.S. national laboratories, as a February 7 memorandum from DOE's John O'Fallon, director of ER's High Energy Physics Program, reveals:

"On Monday, February 3, 1997," O'Fallon wrote, "at the initialing of the U.S./CERN LHC Agreement, Chris Llewellyn Smith, the Director-General of CERN, commented to all assembled on the high quality technical review that Dan Lehman had performed of the LHC [Large Hadron Collider] on April 22-26, 1996. In fact, he stated that DOE was 'the only agency in the world capable of performing a technical review of this kind.' This capability is due in large measure to Dan Lehman's leadership.

"While I have long maintained that the Lehman reviews (and previously Temple reviews) are invaluable to the program offices," O'Fallon concluded, "it now appears that they have gained international acclaim as well." ■

Dan Lehman, director of the Office of Energy Research's Construction Management Support Division, at a recent review of Fermilab's Main Injector Project.

**One definition of a Lehman review: 'A good group of people who sit in a room and make up their minds about whether a project has a well-defined scope, accurate cost estimates, realistic schedules and good management.'**

## On Schedule

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Decker, deputy director of the Office of Energy Research. "In no small measure, they are responsible for the success that ER has had in building projects on schedule and on budget."

Fermilab projects have undergone their share of reviews in recent months. DZero went through a Lehman review in mid-February, CDF had one in mid-March, and early April saw Danny Lehman and his review committee back at Fermilab to scrutinize progress on the Main Injector.

Physicists Jim Christenson and Mike Tuts, project managers for DZero's upgrade, pronounced themselves pleased with the results of their collaboration's review.

"We've been baselined!" Christenson declared, referring to the review committee's acceptance of the scope, cost, schedule and management plan outlined by the collaboration. "Danny Lehman had a smile on his face at the closeout. They told us they didn't see anything wrong."

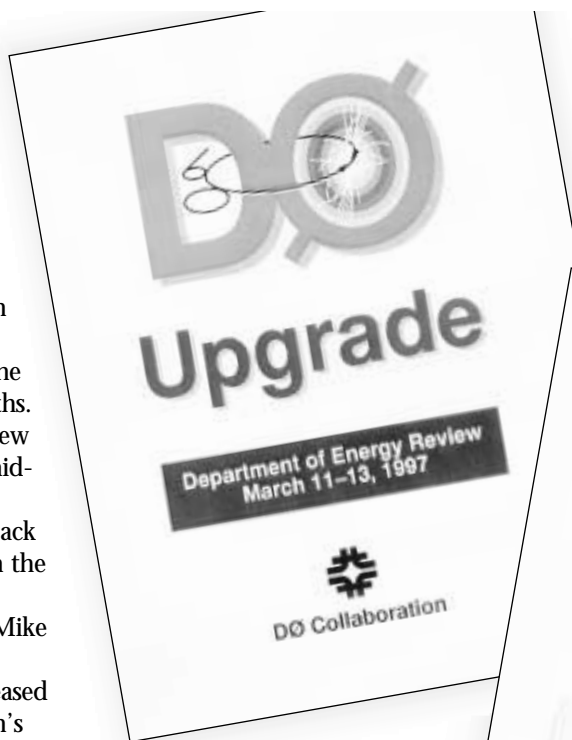
"Basically," Christenson continued, "you can't manage a multimillion dollar project to be ready in 1999 without a resource-loaded schedule and careful planning. A Lehman review pushes you to get things done that you need to do for the project."

DZero's next review will occur in six months. "The review process is a bit like painting a bridge," Tuts observed. "As soon as you finish one review, it's time to start getting ready for the next one. Now we need to do what we said we would. We have to spend the money."

CDF Upgrade Project Co-Manager Cathy Newman Holmes was also pleased with the results of her project's recent review.

"It validates our cost estimate and schedule for the project," she said, "and it makes people more inclined to have confidence in the upgrade."

"For this review," Newman-Holmes said, "we did a bottoms-up cost estimate, starting at the lowest level for both materials and labor. Labor is notoriously difficult to estimate in a project like CDF, where labor comes from many sources around the world, from universities and from other countries. The project management needs to understand what it will have to pay for and what it won't."



Fermilab's collider detector collaborations, DZero and CDF, recently completed successful DOE Lehman reviews.



Newman-Holmes said she had learned something important from the review. "One of the purposes is to make clear to DOE what THEY need to provide. DOE is reviewing the project, and they want to know what part is their responsibility."

Reviews have come thick and fast for the Holmes family this spring. Newman-Holmes the CDF project co-manager is married to Holmes the Main Injector project manager. Did her husband, veteran of a dozen reviews, give her any advice as she prepared for her first one?

"He did. He said it was important to understand the charge to the review committee and to agree ahead of time on the purpose of the review and what it was trying to accomplish. At one point, when we presented things in a slightly different way from what the reviewers wanted, Danny Lehman said to me, 'You should have known what we wanted from talking to Steve.'

"Also," Newman-Holmes said, "Steve was out of town during my review, so I had to leave every afternoon to pick up the kids from school. But this week I'm getting even. I'm leaving town, and he's having a review, so he'll have to pick them up." ■

**"Preparing for a review forces you to climb out of the trenches and take stock and look at the broad perspective. It points up issues on the project we should be doing something about."**

~ Steve Holmes,  
Main Injector  
Project Manager



Brenna Flaughter, a CDF experimenter, presents new results from Run I and expectations for Run II.

## Annual Review

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Physics Division, and Jim Kerby, from the Technical Division, outlined plans for U.S. and Fermilab participation in the Large Hadron Collider at CERN and one of its detectors, CMS.

Green, the spokesman for the U.S./CMS effort, explained Fermilab's role as the host laboratory for the U.S. work. Using an overhead showing a cutaway of CMS, Green outlined U.S. responsibilities for the detector, including construction of the trigger/data acquisition system, the forward muon system and the hadron calorimeter; he also detailed cost profiles, construction schedules and project management. Green said a review of the effort in early June will help set the full contingency level.

Kerby, the project engineer for the U.S./LHC accelerator team, detailed the management team for LHC work, provided cost estimates and gave an overview of upcoming work. Kerby said the national institutions' responsibilities on the project are in three main areas: interaction regions, the rf straight section and superconducting wire and cable.

"The centerpiece of our work here at Fermilab is developing the interaction region quadrupole" magnets, said Kerby.

The last talks of the second day focused on ideas for future accelerators on the Fermilab site. Robert Noble and Steve Geer, Fermilab scientists, detailed the feasibility and ideas for a muon collider. Ernie Malamud discussed ideas for the VLHC, including investigating high-temperature superconducting wire and low-field superferric magnets. Peter Limon, head of the Technical Division, rounded out

the 10-hour session with a presentation on possible technologies for physics tools of the future.

### Close-out

This future was foremost on the minds of the review team members during the close-out discussion.

"From now until the LHC turn-on, this Laboratory has a very bright future. But, the day will come when the LHC does turn on...and the energy frontier will pass," said John O'Fallon, director of the High-Energy Physics Program in DOE. "Fermilab must face that and [the Lab] should put its best minds to work on it."

The Fermilab director acknowledged the reviewers' concerns, and said during the course of 1997 the Lab plans to move more resources toward planning for life beyond the LHC. Peoples said when reviewers return next year, they would see more formalized plans for the years 2005 and beyond.

"Next year, you will still have some concerns about our future, but you will also see we will have made progress," said Peoples. ■

Jack L. Ritchie (left), from the University of Texas at Austin, and P. K. Williams discuss a portion of the Fermilab program. Dave Finley, head of the Beams Division, looks on.



## President's Advisor

*continued from page 1*



Director John Peoples and Beverly Hartline, from the Office of Science and Technology Policy, Gibbons viewed dipole and quadrupole magnets in the accelerator tunnel, examined permanent magnets in the 8 GeV line and saw the Neutrinos for the Main Injector (NuMI) stub—the beginning of a large future experiment to study neutrino oscillations.

Later, Gibbons toured the DZero hall with Hugh Montgomery, DZero spokesperson, and Dima Denisov, a researcher from Fermilab. They viewed the 5,000-ton particle detector from a catwalk, then ventured down to see the structure from the inside.

### A dialogue in 1 West

Between the stops on the tour, Gibbons addressed scientists in 1 West, giving a brief opening statement and answering questions from the audience.



Hugh Montgomery (second from left), DZero spokesman, discusses the upgrades for the collider detector in the DZero assembly hall with John Gibbons. Fermilab scientist Dima Denisov (far right) and Kam Seth, a user from Northwestern University, look on. Above, they view the detector from a catwalk.

The OSTP director said it has been exciting to work in the White House the past four years, as “we have a president and a vice president both of whom are very much interested in science and technology and its interplay with various other national goals.”

Gibbons said one of the factors driving the interest in the executive branch is the history of a high return on the investment in research. Going back to World War II, the rate of return on the investment in science and technology has been about 50 percent per year, according to Gibbons.

He said the funding challenge for science came about as government turned its attention to tackling the national debt. Gibbons said the administration has taken on the difficult task of trying to end the cycle of annual budget deficits, while still preserving programs that benefit the nation. After four and one-half years of trying to get that deficit to zero, they are still short, forcing every program to come under scrutiny, said Gibbons. He added that reductions generally come from the discretionary budget, which represents only a small fraction of the entire budget.

“So all of us, including yourselves, have to really look to every means we can develop to enable us to continue to do the work we are doing, and, at the same time, do it with greater efficiency and effectiveness,” said Gibbons. “And I must say that I am extremely impressed with the progress that’s been made here at Fermilab in just that regard.”

Gibbons added, although he is not here with a message of greatly expanding budgets for the future, the Administration will try to protect funding for science and education endeavors as best it can.

“We feel we can hold the line at least, with respect to the purchasing power of our work, in basic research,” said Gibbons.

Gibbons said he is heartened by the number of students who have received their Ph.D.s through work at the Laboratory, saying Fermilab is not only a place that advances the technology of accelerators and furthers the understanding of the fundamental properties of matter, but also “trains new minds” in a field that has much potential for new insight into nature.

“Certainly, [Fermilab] represents the high frontier,” said Gibbons. “The rate of advancement of knowledge in this area remains as exciting as it has been; and, it seems to me, [the Lab] also represents a place where there is a lot of convergence now between disciplines once thought to be very separate.”

Photos by Reidar Hahn





John Gibbons, President Clinton's advisor for science issues, talks with Steve Holmes, Main Injector project manager, about magnet construction.

Photo by Reidar Hahn

### Funding stability

After Gibbons opened up the room for questions, a scientist queried him about stability of funding for projects that take years to develop and execute. Gibbons said Franklin Raines, director of the Office of Management and Budget, supports full funding for certain projects upfront—meaning full authorization and appropriation of the funds, with the money for the outyears going into escrow. He said Congress is still divided on this issue, however.

### Future of DOE

Addressing a question about DOE's future, Gibbons acknowledged that there is some pressure in Washington to get rid of the department, but said he believes DOE performs many vital functions, including housing a variety of fundamental science endeavors, working with defense issues and environmental restoration and developing a long-term energy strategy for the U.S. Gibbons did concede that he sees room for improvement, and he believes Energy Secretary Federico Peña will address those issues. Among the concerns is department bureaucracy, as Gibbons said he hopes Peña "continues this evolution of stripping out middle management layers. I think there is a lot of opportunity there to streamline the system."

### Concerns about funding

Rocky Kolb, of Fermilab's Theoretical Astrophysics Group, said his students constantly ask him what can they do to help the cause of science and its funding.

Gibbons said all scientists should engage in outreach in the form of open communication with, and education of, the members of Congress about the benefits of basic science to the country. Gibbons said he already has seen some progress, as last year there were draconian cuts proposed for science and research programs, but this year there has been a greater awareness of the importance of science in Congress. Gibbons also said the outyear funding profile from the Administration is now showing a leveling out of funds, if not a slight increase, over the next five years—a far cry from when the projections showed a steep downward slope. Gibbons admitted outreach is easier for other disciplines, such as the life sciences, but is still possible, and necessary, in particle physics.

"Fermilab is a good example of doing not only excellent science but being deeply engaged in education and a variety of types of outreach. I would encourage you to keep it strong." ■

**"So all of us, including yourselves, have to really look to every means we can develop to enable us to continue to do the work we are doing, and, at the same time, do it with greater efficiency and effectiveness."**

~ John Gibbons



Photo by Fred Ullrich

A raccoon in a storage building on the Fermilab site.

## Distemper to Hit Raccoon Population on Site

The common raccoon disease is expected to be more prevalent than usual

*by Donald Sena, Office of Public Affairs*

Environmental specialists at Fermi National Accelerator Laboratory said the raccoon population on the site may experience an increased level of a disease known as distemper this spring and summer.

Distemper is a common disease in the raccoon population and carries many symptoms. Infected animals may appear disoriented and lose some motor capabilities, according to Bob Bluett, a wildlife biologist with the Illinois Department of Natural Resources. He said many raccoons with the disease give the appearance of being intoxicated, and they may have feces or urine on their fur due to the disorientation. Infected animals may experience respiratory problems as well. During the latter stages of the disease, a raccoon will have a thick, white mucus discharge from the eyes and nose, and its eyes often are swollen shut; an infected raccoon may also go into convulsions. Bluett said another symptom of distemper is aggressive behavior, and he added that some infected animals may even lose their fear of humans. The raccoons may also develop other ailments, as distemper weakens the animals' immune systems causing them to die of secondary infections.

Bluett said the raccoon population in Illinois is unusually high, and disease spreads rapidly in high densities of animals.

Based on various studies of the state, "It's safe to say some of the highest densities of raccoons occur in northeastern Illinois," said Bluett. He added that places like Fermilab—an open area in the middle of residential and commercial development—provide a sanctuary for animal populations, causing density to increase even further. As of this writing, the Fermilab environmental team has euthanized five raccoons with distemper, while disposing of two more that were found dead from the disease.

Fermilab's experts warned anyone who sees a raccoon that appears to be injured or dead, or exhibits any symptoms of distemper, not to go near the animal but to call the Roads and Grounds Department at 840-3303. If the animal is just sick or injured, the Fermilab team will take it to a sanctuary for rehabilitation. If the animal is suffering from distemper, the environmental team will euthanize the raccoon. ■

Based on various studies of the state, "It's safe to say some of the highest densities of raccoons occur in northeastern Illinois."

- Bob Bluett,  
Illinois Department  
of Natural Resources

# 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

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### Lunch Wednesday April 23

Shrimp with  
Spicy Rice Noodles,  
Vegetables and Peanuts  
Lichee Nuts, Grapes and  
Mandarin Oranges  
in Ginger Syrup

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### Dinner Thursday April 24

Puree Gloria  
Two-Pepper Shrimp  
Rice with Dill  
and Baby Vegetables  
Hazelnut Cake  
with Chocolate  
Raspberry Coulis

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### Lunch Wednesday April 30

Vegetable and Cheese  
Calzone  
Arugula and Bibb Salad  
Lemon Almond Tart

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### Dinner Thursday May 1

Leek Tart  
Sole with Tarragon  
and Pink Peppercorn Sauce  
Buttered Potatoes  
Vegetable of the Season  
Pineapple Cake  
with Rum Creme  
Chantilly

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# Hale-Bopp Over Fermilab

A group of 300-plus skywatchers gathered at Fermilab on the evening of April 5 to observe Comet Hale-Bopp through telescopes provided by members of the Naperville Astronomical Association (motto "Organized Amateur Astronomy"). Storm clouds parted just in time to permit comet observing from the parking lot of the Lederman Science Center. After viewing the comet, visitors attended an evening of comet lectures in Fermilab's Ramsey Auditorium. A few nights later, on April 8, Fermilab photographer Reidar Hahn photographed the comet (shown below) from inside the circle of Fermilab's Main Ring.

Another view of Hale-Bopp (right), photographed by Fermilab physicist Pat Colestock on March 27, at Cloudcroft, NM, where amateur Alan Hale first observed the comet that bears his name (and that of Thomas Bopp). "It was a primeval night," Colestock said. ■

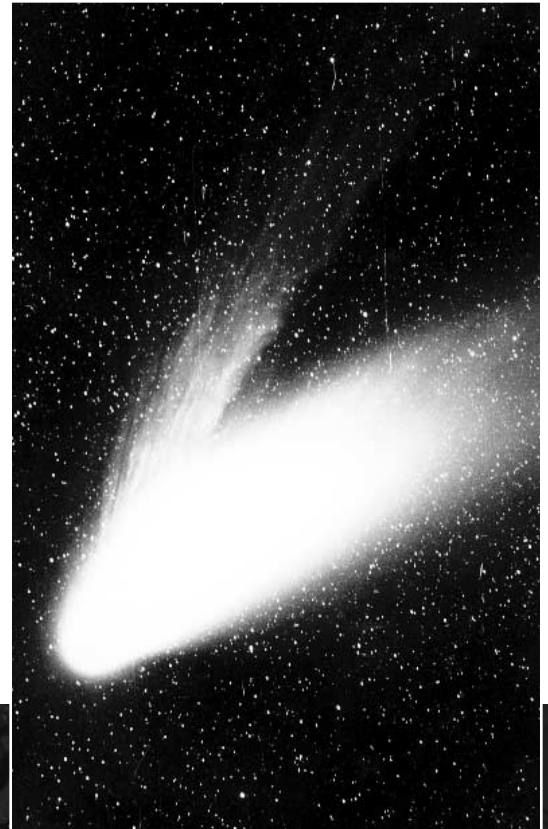


Photo by Pat Colestock

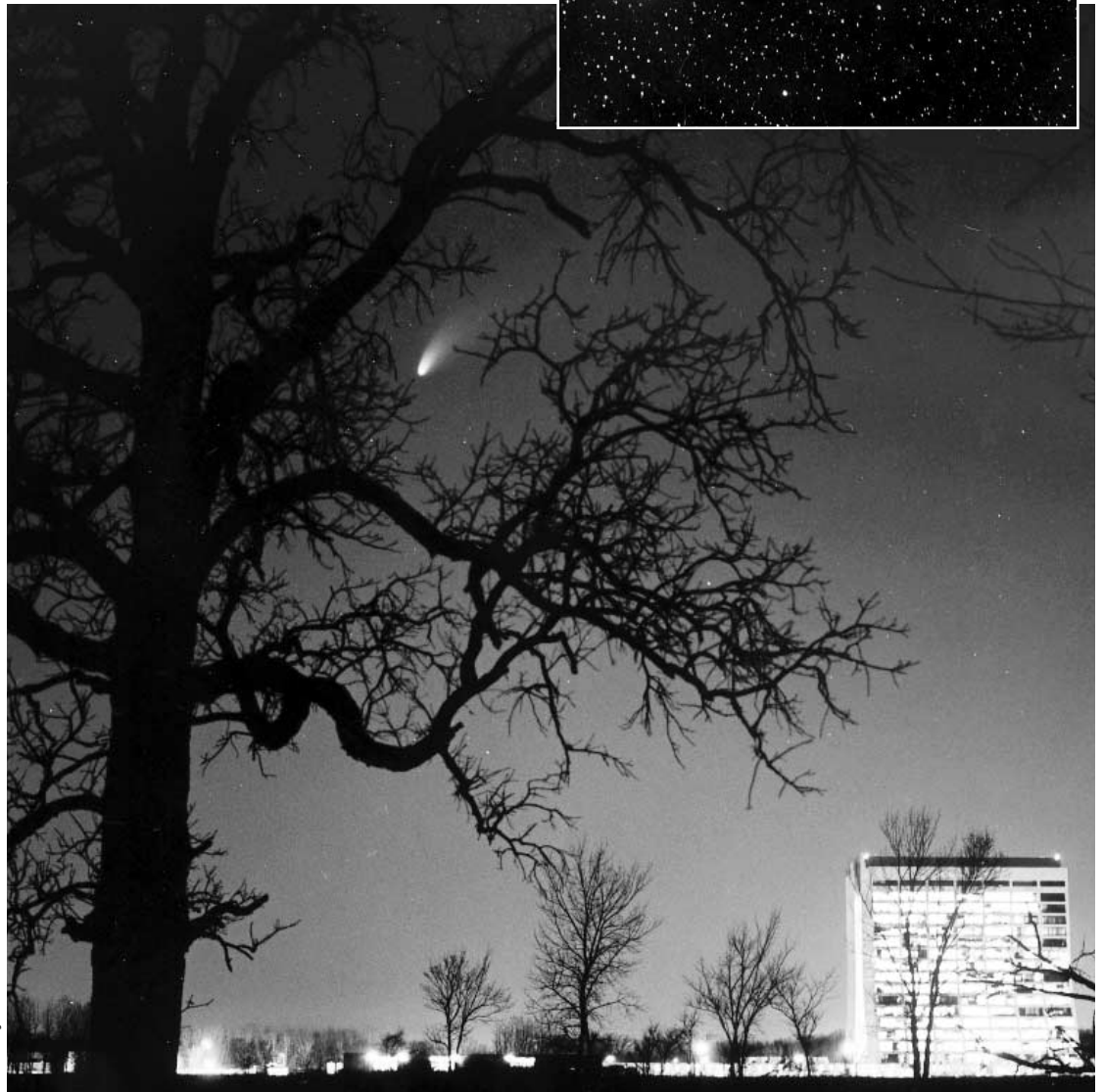


Photo by Reidar Hahn

## CLASSIFIEDS

### FOR SALE

- '92 Ford Crown Victoria LX, fully loaded, 43k miles, excellent condition, disk brakes. Phone (630)355-2740.
- '87 Winnebago motor home, Ford 7.5 liter eng., 64k miles, 24.5 ft, sleeps 5, self contained, furnace and air, excellent condition inside & out—ready to go. \$12,000 call Jackie, x3027 or Joe (630) 932-1450.
- 13" Color TV w/antenna \$100 obo. Contact James Done, x2125 or jpdone@fnal.gov.
- 8mm Camcorder, GE Model CG400. Includes one extra battery, charger, 3x zoom. Current discount price \$299 plus \$50 battery, asking \$200. Mark x4776 or markl@fnal.gov.
- Printer, Cannon 230 BJ (legal size) like new, still on first ink cartridge, \$75; Grass hay, clean and green 50 lb. - 60 lb. bales, \$2.75 each; Duplex dog house, 7' x 4' x 4' high, shingled roof, cedar siding, totally insulated, exterior plywood interior w/porch overhang, \$150; Rabbit hutch, 4 stall 8' x 4' x 5' high, made w/ treated lumber, fiberglass roof, 8 access doors, 4 enclosed nesting areas, 4 shaded open areas, chew proof interior, and 4 feeders \$75. Call Pam x3377 or pryback@fnal.gov.
- Cockatiels, 3 hand-raised and fed (2 males 1 female) \$50 each. Two more on the way—ready by Mother's Day. Breeding pair w/large cage and some supplies including baby bird formula, \$300 obo. Call Trina (630) 879-9356 or Pam x3825.

### 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 am to 5 pm. 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.

## LAB NOTES

### SUMMER DAY CAMP

There are still openings in all three sessions. For more information contact the Recreation Office, x2548, x5427 or jeanm@fnal.gov.

### CORVETTE OWNERS

We are in the process of compiling a Fermilab Corvette owners registry. Please send your name, vehicle year, body style and your mail station to Chuck Nila at MS 219 or cnila@fnal.gov. Your thoughts on a "Vette Show" in the future?

### GOLF LEAGUE

The Fermi Lab Golf League at Phillips Park is looking for players. We play every Thursday night from the beginning of May to the end of August. To sign up or get more information contact Steve Baginski, x4538, Baginski@Almond.fnal.gov or Joe O'Malley, x2504.

## CALENDAR

### APRIL 20

Afternoon barn dance at the Village Barn from 2—5 p.m. The dance features live music by The Blind Tigers and calling by Paul Watkins. 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.

### APRIL 24

Take Your Daughters and Sons To Work Day - Arbor Day. Can you help? Volunteer your time to help make this day something to remember for the children of Fermilab. Send email to ferminews@fnal.gov.

### APRIL 25

All welcome to Potluck Supper at the Village Barn 5:30 p.m. Drinks/Appetizers, 6:15 p.m. Dinner. Please bring a main dish for 6 or a side dish or dessert for 10 to share. If you cannot bring a dish, please contribute \$3 per person. Drinks, babysitting and pizza for the kids are provided. We will collect \$1 from those adults drinking alcoholic beverages. Questions, call Angela Jostlein at (630)355-8279.

### APRIL 25

International Film Society presents: Three Colors: Red (Trzy kolory: Czerony) 8 p.m. Dir: Blake Edwards, USA (1963), 113 minutes.

### APRIL 30

Volunteer Prairie Seed Planting at the Margaret Pearson Trail at 11:30 a.m. If you would like to help Fermilab's Prairie Project by raking new seeds into the soil, please see the sign-up sheet located at the environmental display in the atrium or call x3303. Volunteers should bring a brown bag lunch. For rain out or other information please call x3303.

### ONGOING

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

## MILESTONES

### HONORED

Carlos Hojvat, winner of a Fulbright Scholar award for work on the Auger Project in Argentina during the 1997-98 academic year.

### RETIRING

Jess Rugg, #8023, on May 1, from the BS/Telecommunications group.



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