April 2003

ON TARGET

THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY • A DEPARTMENT OF ENERGY FACILITY

James A. Turi
Manager, JLab Site Office

Jim Turi comes to JLab as new DOE Site Office manager

by James Schultz

One vivid career highlight stands out in Jim Turi's memory: the launch, on October 18, 1989, of the space shuttle Atlantis. On board was the Galileo spacecraft, whose primary mission was to photograph and study Jupiter and its accompanying moons. Galileo was one in a long line of spacecraft to incorporate Department of Energy radioisotope thermal generators for power, a potential source of radioactivity should any mishap occur. The liftoff was flawless, and Galileo was deployed from the Atlantis cargo bay without incident.

"We got a lot of scrutiny. We worked long hours," Turi recalls, who was the DOE Team Leader on the project. "But the feeling you get when you watch the shuttle launch with those spacecraft: it's a combination of amazement and joy. That was definitely a major career highlight."

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Changing of the guard

Bernhard Mecking steps down as Hall B leader, returns to research

by Melanie O'Byrne
contributing writer

After nearly two decades of service to Jefferson Lab and its user community, Bernhard Mecking has stepped down as Hall B leader so he can return to his research pursuits as a staff scientist. Taking over as JLab's new Hall B Leader is senior staff scientist Volker Burkert, another longstanding leader in the Hall B community.

Beginning 18 years ago, Mecking led in the conceptualization, design, construction, and commissioning of the CEBAF Large Acceptance Spectrometer (CLAS), the centerpiece of Hall B. He oversaw the first round of experiments using the detector and, as of February 1, is now involved in analyzing the terabytes of data CLAS has accumulated.

Franz Gross, Emeritus Professor of Physics at the College of William & Mary and principal staff scientist at JLab, has been involved at the Lab since 1980 and was one of the staff responsible for hiring Mecking. He says, "Bernhard's contributions have been essential and outstanding. He led the team that designed CLAS, and I credit him with selling the design — which was unconventional at the time — to the scientific and technical review panels."

"CLAS is Bernhard's baby," Gross attests. "He was excellent in bringing together the collaboration needed to build such a major piece of equipment. In my opinion, he is one of the two or three most important contributors to the Lab!"

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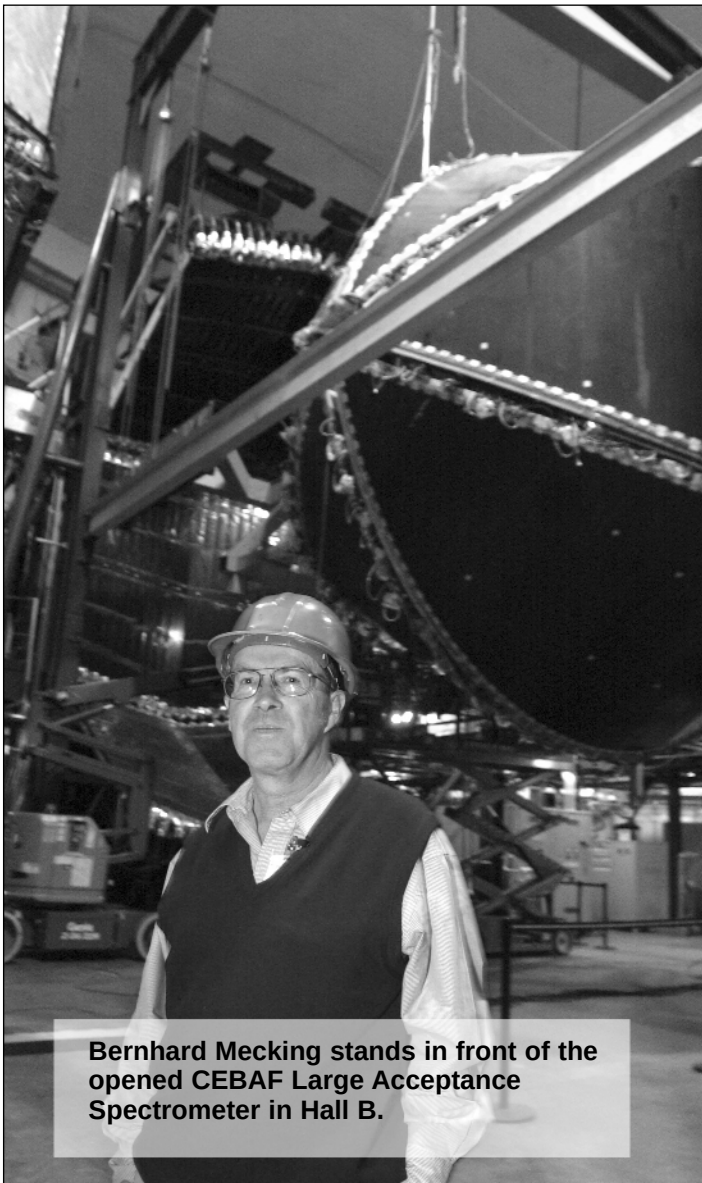
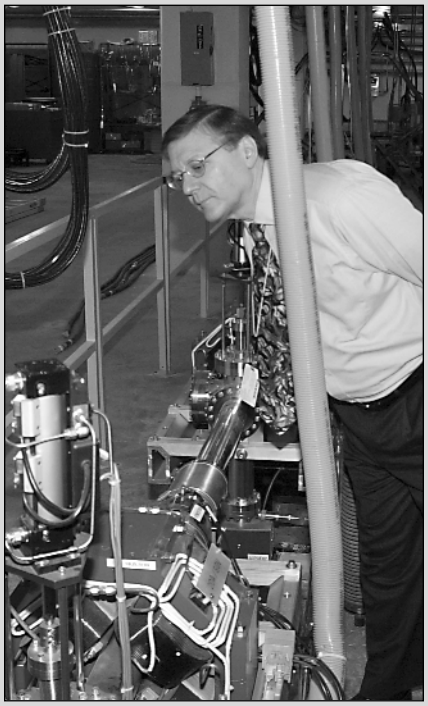


Bernhard Mecking stands in front of the opened CEBAF Large Acceptance Spectrometer in Hall B.

Turi becomes new Site Office manager...



Jim Turi examines a section of the Free-Electron Laser beamline during a recent visit to the FEL facility.

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Turi's most recent career highlight is more down to earth: his appointment, in early March as manager of the Department of Energy's Site Office at Jefferson Lab. As such, Turi says he is concentrating on getting to know JLab people and facilities, the better to accomplish his new responsibilities. He has set no specific milestones, nor has he developed any immediate agenda items. For now, Turi is concentrating on leveraging the lessons he's learned in nearly 30 years of program and project management.

"I'm used to change. It's trained me to listen, ask questions, to create an environment for people to be successful — and then get out of their way," he says. "I know what people in Washington are looking for. I think I can help the Lab and the Office of Science."

Given its facilities and track record, JLab's reputation is second to none, Turi believes. He wants to push for expanded funding for the Lab's research programs and facilities upgrades, while at the same time making sure that existing projects are finished on time and on budget. In particular, Turi cites the expansion of CEBAF Center as a priority, and is already involved in the planning and support of the Lab's hoped-for 12 billion electron volt, or 12 GeV, upgrade to its electron accelerator. He would like to see the replacement of Trailer City with permanent buildings, additional provisions for the user community and continued strong support for the Lab's Free-Electron Laser (FEL) program.

"I am a champion for the Lab," Turi points out. "One of my roles is as an advocate, to justify and defend the JLab budget, to speak to its accomplishments and possibilities."

Turi also plans to push for deeper connections among the Department of Energy, Jefferson Lab, and the Lab's management entity, the Southeastern Universities Research Association (SURA). Turi has set up weekly meetings with JLab director Christoph Leemann and has met several times with SURA president Jerry Draayer. His intention, Turi says, is to establish a routine exchange of information, knowledge and advice so that no one is blindsided and there are no operational or managerial surprises.

"It's a philosophy. What are the principles of living and working together?" Turi remarks. "We have a common goal. Everyone wants the Lab to be successful. When the Lab is successful, DOE and SURA are successful."

Turi was an avid reader of science fiction who grew up primarily in upstate New York and Connecticut, moving frequently because of the demands of his father's job as a regional manager for a life insurance company. A childhood fascination with nuclear power plants led to degrees in nuclear engineering and, upon graduation from college, a job with the U.S. Atomic Energy Commission.

Since then, Turi has held a variety of positions encompassing research and development, engineering and construction, facility operations, and environmental cleanup. He comes to the Lab from Washington, D.C., where his last post was acting chief of staff of DOE's Office of Science. He joined the Office in July 2000 as an associate director for laboratory operations and environment, safety and health. Turi says that he wouldn't have left Washington unless he felt he had found the right professional fit.

"This [job] is the right combination of programs, people, location and personal situation," he says. "Good fortune brought me here. This is my dream job. The Lab is great and the people are wonderful. And the Peninsula is a great place to live."

For now, he anticipates no changes to Site Office staff. Former acting site manager Jerry Conley will become the Office's chief operating officer, with all other staffers continuing their current assignments. Turi says he's excited and optimistic about the Lab's future, seeing the next decade as the time for all the players to establish an enduring heritage.

"Here's a chance to establish how the Lab will look 10 years from now. We have an opportunity to leave a legacy. We can build upon the accomplishments of the generation that came before us. That's a wonderful opportunity."

From the Director

Christoph Leemann
Jefferson Lab Director

NSAC/BESAC: Building our Future — Step by Step

Dear Colleagues:

As you know, the development of government funded programs in basic science is strongly influenced by special expert advisory committees. For our Nuclear Physics mission, the Nuclear Science Advisory Committee, NSAC, provides guidance and advice to DOE and the National Science Foundation on the scientific priorities within nuclear physics. In Basic Energy Sciences, the field relevant to our scientific work with the Free-Electron Laser, the Basic Energy Sciences Advisory Committee (BESAC) advises DOE. Both of these advisory groups have been engaged in long-range planning activities that will affect us and I want to take this opportunity to inform you of these activities and their bearing on JLab and its future.

Most of you know that NSAC has completed its Long Range Plan and that in the 2002 LRP, Jefferson Lab is included twice in the recommendations. The first recommendation is for funding to operate NP facilities where we have unique capabilities with both JLab and RHIC being mentioned. The fourth recommendation is for the timely realization of the JLab 12 GeV upgrade and the scientific opportunities it affords. In addition to the NSAC LRP process, Ray Orbach, Director of the Office of Science has been soliciting input from the advisory committees to aid in developing a 20-year roadmap for facilities within the Office of Science. Both NSAC and BESAC had subcommittees meet and rate proposed facilities with regard to their science capabilities and readiness for construction. Due to the significant and dedicated efforts of a number of JLab scientists and staff, the outcomes at both these meetings were very favorable for Jefferson Lab.

On Feb. 14-15, an NSAC subcommittee chaired by Charles Glashausser reviewed projects proposed for Nuclear Physics over the next 20 years. For Jefferson Lab that included both the 12 GeV upgrade and a potential Electron Light Ion Collider (ELIC) envisioned as a follow-up to 12 GeV science. NSAC met and heard presentations from each of the proposed facilities, and the subcommittee was charged by Ray Orbach to look at each proposal and rate it with regard to importance of science to the field and readiness for construction. Larry Cardman presented highlights of the scientific case and the technical readiness to begin construction for the 12 GeV upgrade, based upon input from staff in both the Physics and Accelerator Divisions. Rolf Ent spoke on the ELIC at JLab. The efforts of a large team of people, who worked not only on the presentations but also on the groundwork that preceded them, paid off in both cases. The 12 GeV upgrade received the highest ratings possible, judged to offer science that is "central" to the field and being ready to initiate construction. The ELIC science was determined "likely to be absolutely central to advancing the field" but posing "scientific/technical challenges to resolve." These findings were accepted at the March 7-8 meeting of NSAC and will further bolster JLab's case for a timely start of the 12 GeV upgrade in the overall context of nuclear physics, and position the JLab ELIC for consideration in the next Long-Range Plan.

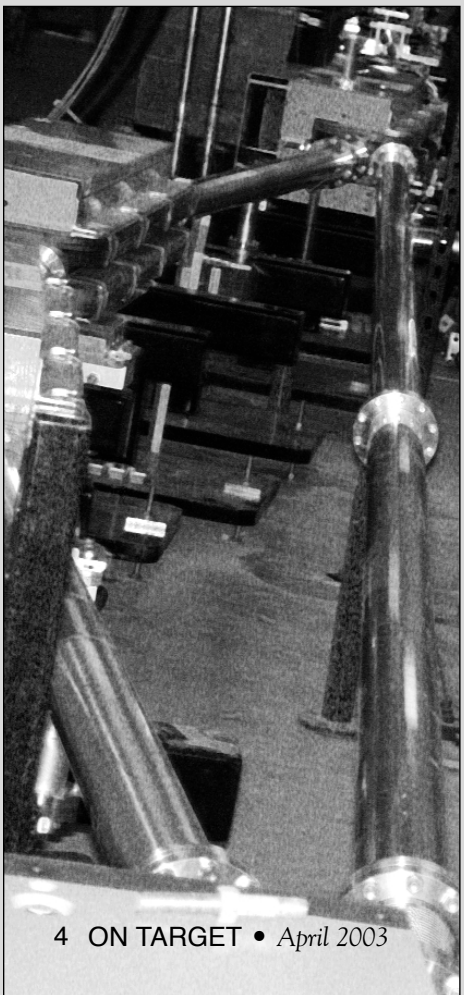
Though JLab's FEL does not receive operations funding from BES, we were offered the opportunity to provide input to the BESAC Subcommittee Workshop on the 20-year BES Facilities Roadmap. A request came to Jefferson Lab asking for any facilities we would propose within BES in the next 20 years. A white paper was produced and submitted, and JLab was asked to present the proposal at the meeting on Feb. 22-24. Gwyn Williams' presentation, on behalf of himself and Swapan Chattopadhyay, was very well received, with the science, particularly the potential for THz light, seen as critical and the report encourages national BES-sponsored workshops to build a coherent user community around this potential. In addition the report acknowledged the importance of FEL-related work on injectors and energy-recovered linacs for potential future facilities. While this will not lead to any immediate financial support for the JLab FEL by BES, it positions JLab's contribution most favorably in the national context and opens a door that we have been knocking on for quite some time.

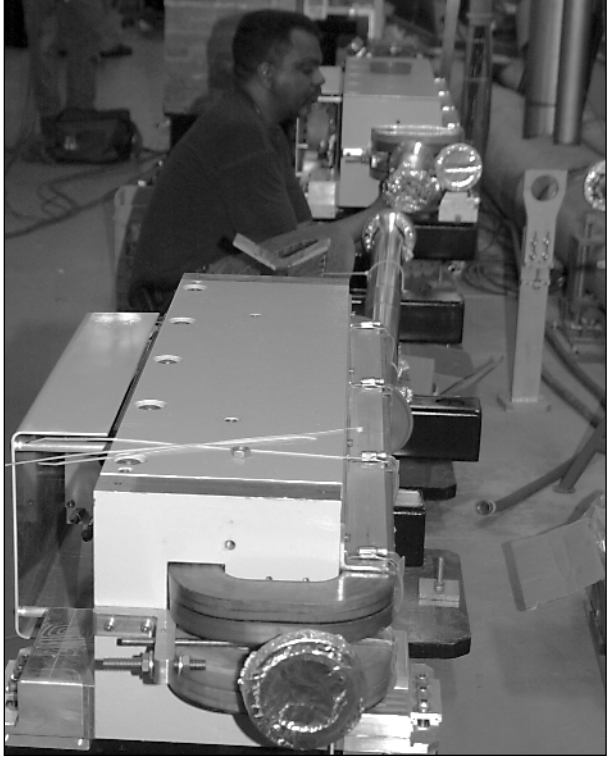
I want to thank all of those here at the Lab — especially the large number of contributors from across the Accelerator and Physics Divisions — and users who have helped in these community long-range planning efforts. They have helped to articulate the potential of Jefferson Lab to the larger scientific community and contributed to our efforts to build a strong and dynamic future for Jefferson Lab.

Energy Recovery

First of its kind experiment may lead way for new class of accelerators

Completed energy recovery chicane to the left of the regular beamline.





Elliott Smythe, vacuum technician, puts in place a copper gasket needed to seal a section of the energy recovery chicane beamline.

Jefferson Lab physicists recently began their own version of recycling — not with run-of-the-mill materials, but with radiofrequency energy and the high-energy electrons that they energize.

In an experiment that commenced during the third week of March and ran through early April, the Jefferson Lab accelerator, with slightly modified hardware, went from "ordinary CEBAF accelerator" to "novel test bed" for recirculating linacs with energy recovery. Dave Douglas, an accelerator physicist with the Lab's Center for the Advanced Studies of Accelerators (CASA), and Andrew Hutton, the Accelerator Division's Director of Operations, first proposed this groundbreaking experiment, which was actively promoted and supported by the Accelerator Division and Lab management and was approved in July 2002 by the Program Advisory Committee.

The experiment required a new magnetic chicane but few other changes to the accelerator. The point of the experiment is to test a way to dramatically reduce RF (radiofrequency) energy usage, thus saving power or alternatively for the same power usage, producing brighter and higher intensity beams. Researchers believe that demonstration of this technology with multiple superconducting accelerating cavities at billion electron volt energies will provide valuable lessons for the future.

If the results are what scientists hope for, any advances could be applied to future energy-recovery linacs, or ERLs. Existing machines, like JLab's Free-Electron Laser, or FEL, could benefit, as well as planned next-generation devices at national laboratories and universities, such as ion colliders and advanced light sources.

"RF power is quite expensive and limited; one can only feed so much power through a klystron into radiofrequency [energy]. Energy recovery is the centerpiece of a new operation mode for recirculating linacs, where the high energy beam returns its energy for further acceleration of a 'fresh' batch of electrons," explains Alex Bogacz, a staff scientist with CASA and co-spokesman of the experiment. "The idea is not so new. Essentially we will be using the available RF power twice. Rather than throwing out a 'hot' beam of high-energy electrons, we will extract its energy for further usage, then safely dump it at a low energy. One can cut power consumption by a large factor."

There are two phases involved in the March experiment's 12-day run, involving proof-of-concept beam acceleration and deceleration at modest energies, in the range of several hundred million electron volts, or

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Corey Butler, mechanical designer; (left to right) Alex Bogacz, CASA staff scientist and experiment co-spokesman; and Robby Hicks, mechanical engineer, stand in the JLab Machine Shop with one of the four BE magnets and a section of vacuum chamber built by the Machine Shop for the energy recovery experiment.

Lab Director Christoph Leemann (left) accompanies Will Oren, Accelerator Engineering Dept. head, on an accelerator safety walk through during the recent maintenance period. Here they examine a segment of the energy recovery experiment beamline under assembly.

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MeV (normally, the Lab's accelerator operates in the six billion electron volt, or 6 GeV range). A third phase has been planned but not yet scheduled. During this final phase — current doubling — the energy recovery scheme combined with simultaneous "coasting" beam (no acceleration), will result in the effective beam current being doubled — a very attractive proposition for next generation, high-brilliance light sources.

To run the experiment, modest hardware changes to the accelerator were made. During the recent maintenance month, technicians installed a chicane (series of four magnets) in the south linac (SL 22/23 region) designed to provide the slight phase delay as the beams circulate and recirculate, as well as the stands to accommodate them. A relatively small beam-extraction device, known as a "beam dump" was also built, so that the electron beam can be "parked" and examined once each phase is complete. In addition, dedicated optics for beam transport, instrumentation and vacuum chambers (the pipe that carries the beam) installed or readied for the experiment.

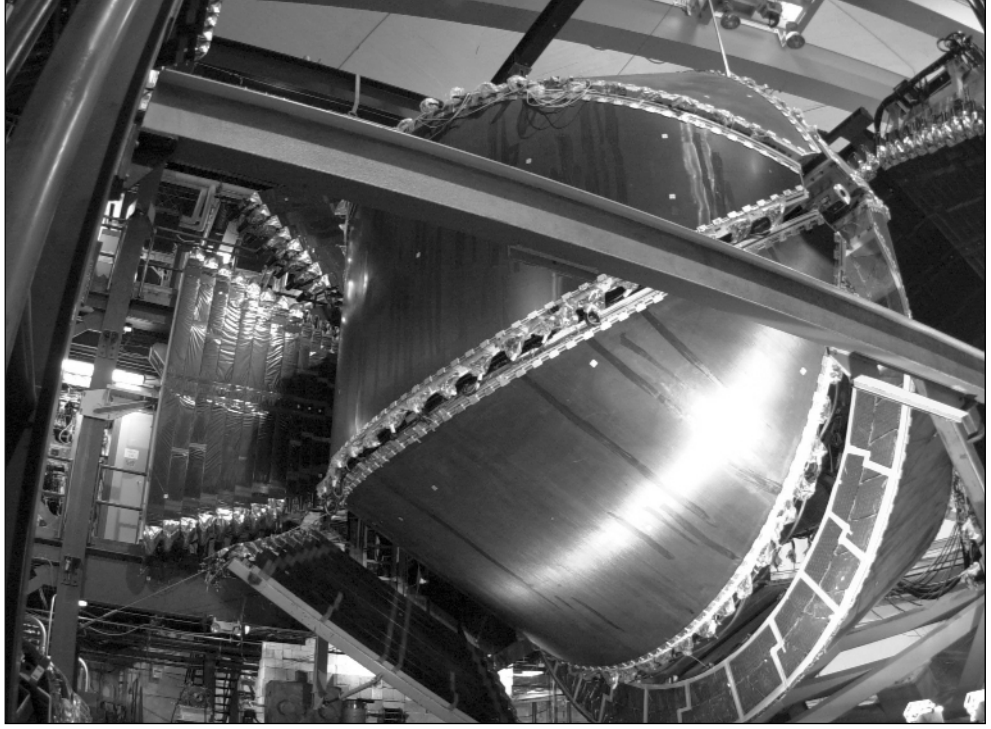
None of the new components will impede or interfere with any previously installed equipment, and will remain in place once this energy-recycling study concludes.

During the experiment, JLab scientists will be making meticulous measurements of beam properties — among them, energy, current, emittance (beam size) and "halo" (stray particles traveling with the beam) — to insure their beam quality remains high. To that end, they will be monitoring the experiment's dedicated optics to determine what, if any, factors degrade performance.

"The big question is how this will affect the quality of the beam," Bogacz says. "In principle, beam quality should be preserved and there should be no emittance dilution. That's what we'll be hoping to find when we take measurements of the beam that we extract at the beam dump."

In any case, if the March study pans out, Bogacz believes energy-recovery techniques may lead to an entirely new class of accelerators. "This is the next evolutionary step," he contends. "We're trying to run smarter and use the accelerator's innate capabilities. We think if we're successful, this will be very useful for the next generation of light sources and precision colliders."

Changing of the guard in Hall B...



This photo shows the outside of the CLAS Region III drift chambers. One section (bottom right) has been pulled back for maintenance.

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JLab's Chief Information Officer, Roy Whitney, was another of the people who recruited Mecking. He remembers their first meeting, at a University of Virginia (UVa) colloquium in spring 1984. "Bernhard had a physics vision of what could be done with a large-acceptance spectrometer. He wanted to discover if that vision could mesh with what we were planning to do here," comments Whitney. "He had to be willing to take a very big risk to do that. And he succeeded. He went out and got the people, and did the job."

The obstacles Mecking faced were significant. His proposal called for more than 100 staff and users working together, at a time when a group of 20 nuclear physicists was considered large. Whitney says there were two major challenges for Mecking: to convince everyone that his idea for the toroidal Hall B detector would deliver the science, and to accomplish it on a reasonable budget.

A favorite recollection for many who worked with Mecking during these early years of the Lab's growth and development is the story about Mark Waite (then in JLab's procurement department) and Mecking opening the bids for the CLAS torus. Mecking had estimated a cost of $6.5 million for the magnet. There were four bid quotes _ the first was $36 million, more than five times the estimated cost. Things were looking grim. With three of the bids opened, the lowest bid was $10 million — still too much. But the last bid, from Oxford Instruments, was right on target at $6.5 million.

"When I praised Bernhard's skill in estimating the cost, he said he was 'just lucky,' and it was only 'by chance' that one of the estimates was right on," recalls Franz Gross. "But this was a very important event for the Lab — I doubt we could have afforded the CLAS if the cost had been much higher than Bernhard's estimate."

"There had never been a large superconducting toroidal coil like the CLAS built," recalls John Domingo, Associate Director Emeritus of the Physics Division. "Bernhard was up against everyone, including the Director at that time, Hermann Grunder. They were asking how [CLAS] was going to be built, how much it was going to cost, and so on."

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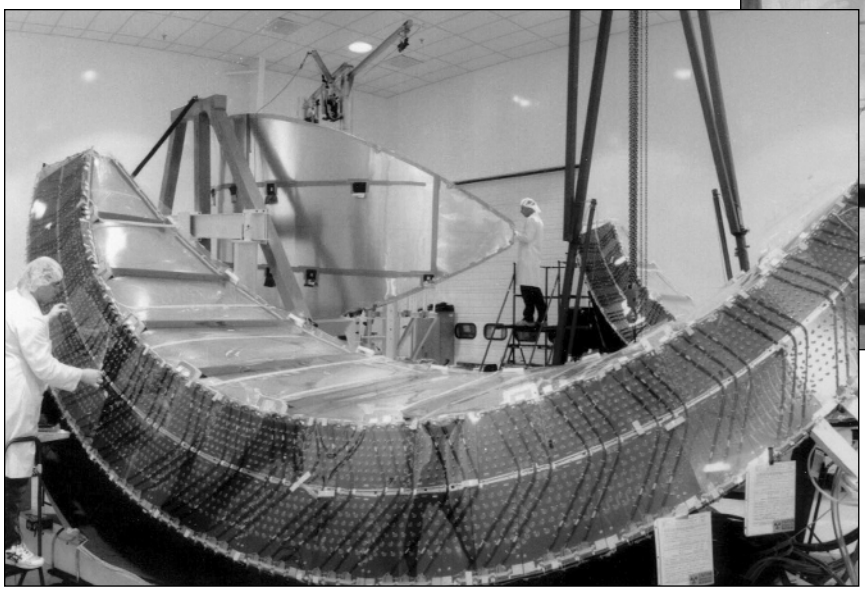
▲ Shown here is the space frame structure being assembled in Hall B. The beam tunnel is visible in the center of the picture.



▼ Visible here are two of the CLAS Region III drift chambers during construction in the Experimental Equipment Laboratory's clean room. The chamber in the rear is being instrumented with wires.

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"CLAS is really due to Bernhard," continues Domingo. "A lot of people obviously helped and played a very important role, but Bernhard is the guy who shepherded it through."

Bernhard as CLAS shepherd

"Shepherd" often describes Mecking, whose management style is to let group members identify and solve problems for themselves. So says Hall Crannell, head of the CLAS Collaboration and Professor Emeritus of Physics at the Catholic University of America. "Bernhard has been wonderful at giving collaboration members direction, when needed," says Crannell. "And he is very, very helpful in guiding research in terms of students and postdocs."

Hall B staff scientist Will Brooks, who joined JLab as a postdoctoral fellow in 1993, couldn't agree more. Brooks says Mecking generated an idea to study the magnetic form factor of the neutron (G_M^n), an opportunity nobody else had picked up on, which plugged him into the physics program at Jefferson Lab.

"Bernhard fosters young people in their careers, from students to postdocs to assistant professors," says Brooks. "He identifies and promotes talent and talented people's careers. We need more people doing that in this field."

Another notable aspect of Mecking's management style is shared by the new Hall B leader, Volker Burkert, who has also been a leader in the Hall B community since its inception. Brooks says that both Mecking and Burkert place high importance on dry runs of presentations within the group and collaboration. "In this field, presentations can be more important than papers," comments Brooks. "Bernhard and Volker work in parallel to point people in the right direction until they get better and better."

The Hall B collaboration and Jefferson Lab staff took the opportunity to thank Bernhard for his many contributions during a session and follow-on reception held the opening day of the CLAS Collaboration meeting on Feb. 27. In his trademark modest, humble form, Mecking summed up his achievements saying, "It's actually worked out wonderfully — at least most of the time. But there's always room for improvement, right?"

In their own words...

A 'Touch of CLAS' with Bernhard Mecking

As told to Melanie O'Byrne
contributing writer

I got my Ph.D. from the University of Bonn in the early 1970s, when the university became involved in experiments at the Stanford Linear Accelerator Center (SLAC). An older colleague went there on sabbatical and had his name on an experiment proposal.

Nothing happened with the experiment for a while, because SLAC only wanted high-energy physics, not nuclear physics. However, the experiment eventually was approved. My colleague had just received an offer to become a full professor, something that was very difficult to get. And he was not about to give this up. With a telex in his hand, he came out of his office, and I think I was the first guy he ran into. He asked me if I'd like to go to SLAC for a few months, and I said, "sure, why not?" I had no family at the time, and it sounded good.

So off I went in 1974. I really loved it out there; California is a very nice place to be. I have been invited back to SLAC every two or three years since then. I don't know how crucial I was to their experiments, but it seemed to be important for them to have me on the team.

At the time, I knew little about Virginia. My only connection to the East Coast was when my wife and I stayed in New York City on my way to California. I remember hearing about the National Electron Accelerator Laboratory (NEAL) to be built in the east, but it didn't appeal to me too much at the time. I recall the clashes over where it would be located; would it be built at Argonne or at the University of Virginia? Then UVa was proposing a place called Newport News as the location.

Then in late 1984, I received an offer from Jim McCarthy, the first director of NEAL (now Jefferson Lab), to come here. I arrived from Germany on 1 March 1985. I was somewhat shocked when I got here. The project had looked much more solid from a distance! The Department of Energy (DOE) had approved it but there was no real construction money being put in. At that time, the project was for a normal-conducting, pulsed linear accelerator.

Things changed dramatically when Hermann Grunder took over as director of the Lab in May 1985. He knew the DOE and soaked up the politics from his time as deputy director of Berkeley Lab. He brought with him quite a bit of expertise from the Central Design Group (CDG) for the Superconducting Super Collider (SSC), including JLab's current director, Christoph Leemann, and several postdoctoral fellows. The first thing he did was to re-evaluate the technology; he decided that a superconducting accelerator would be the better solution. After six months or so and a series of reviews, the DOE agreed with Hermann's changes. It really was executed absolutely masterfully.

I started to develop the idea of adding a large-acceptance detector to the Lab, but at that time there was not enough money to build all three experimental halls. But, somehow it all came together. We were very lucky with procurement of the superconducting magnet. The Lab's deputy associate director for the Administration Division, Mark Waite, was the procurement officer at the time. He had bids ranging from $36 million to $6.5 million. The very last bid we opened was the winner. It was from Oxford Instruments, a British company that generally specialized in magnetic resonance imaging (MRI) magnets and took on our project as a challenge. Despite all of this, the DOE was still apprehensive about the cost of the experimental equipment in three halls. This ultimately took a combination of regular project funding and — somewhat less certain — Additional Capital Equipment funding.

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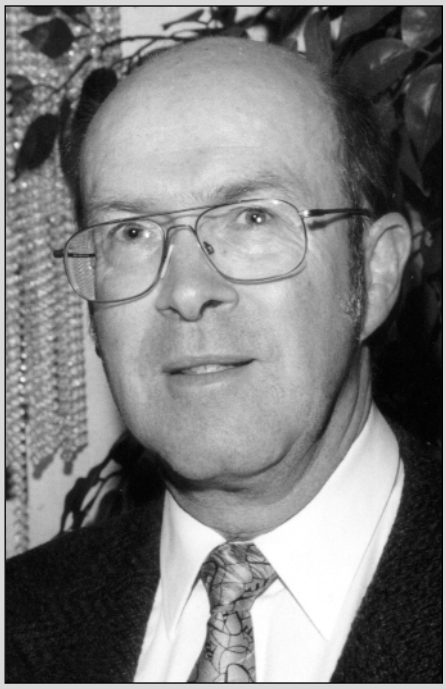
Nothing like the CEBAF Large Acceptance Spectrometer (CLAS) had ever been built before. So it was very important to design and build a detector that was solid and would work — guaranteed. The detector needed a lot of outside help from university groups to build the specialized components. This raised many concerns among outside reviewers about the capabilities of the user community. These concerns turned out to be completely baseless. Every piece of equipment that the user community put into Hall B is still there and is still working. It has really worked out very well.

There were still some concerns, especially among the Program Advisory Committee. Would the community that built the detector dominate the usage of CLAS and keep newcomers out? It turned out that the CLAS Collaboration was very accommodating when it came to taking in new collaborators. As long as the community takes good care of the Hall B physics program in the detector, all will be well. We're bringing in new people, even now. There are about 180 people involved in the CLAS collaboration. I have always tried to make sure that there's peace and quiet in the valley when it comes to the collaboration. You have to build trust in the community and communicate with them.

I do a lot of thinking in the shower. It was after my 60th birthday party (last year), I was in the shower and decided it was time to step down so I could analyze some of our data. We're sitting on tons of data, and there's plenty to do. Also, I have an approved Program Advisory Committee (PAC) experiment and want to help analyze the data and write the results up for publication. This is the first time in my life I've helped build an instrument and have not been able to use it. Maybe I'm just not very effective and didn't make good use of my time. I'll be 61 years of age soon …and there is research work I want to do.

When I first moved to the United States, I partly worried whether I would be accepted. Would people begrudge my German heritage? But my general experience has been very good. Nobody bothers you with comments about the place you come from. And I haven't had any problems getting accepted professionally.

I have a Green Card now, but years ago a Norfolk INS official questioned whether my original transition from a J-1 visa to an H-1B had been legal. By this time we had two kids who had gone through public school in Newport News. We would have all had to go back to Germany for two years and then reapply to come back. But the official spoke to his supervisor, who eventually said all was well. And here I am.



Bernhard Mecking

Briefs

Workers needed to staff April 26 Open House

Volunteers are key to the success of JLab's April 26 Open House, according to Linda Ware, Public Affairs manager. Hourly employees must have their supervisor's approval to work this event and they will be paid overtime for their work.

"We need workers for morning shift (8:45 a.m.-12:30 p.m.), afternoon shift (12:15-4:15 p.m.), or to work the whole day," Ware comments. Positions include bus stop monitors; greeters to ride the busses; crowd control in the accelerator, experimental halls and FEL; hands-on activities helpers, cryogenic demonstration assistants, etc.

Sign-up is underway at www.jlab.org/insider/ or contact Janet Prater, ext. 7587 or e-mail prater@jlab.org for more information or to volunteer. Open House information packages will be distributed to all workers at a volunteer training session that will be scheduled for the week leading up to Saturday, April 26.

For general information about JLab's Science is Cool Open House, please visit www.jlab.org/openhouse/.

Facilities Management in, Plant Engineering out

Just as Jefferson Lab has grown, what has been known as the Plant Engineering department that supports the Lab's infrastructure has also grown and evolved. Its name was recently changed to Facilities Management. The department is responsible for maintaining and protecting the Department of Energy's $600 million investment at JLab, and for providing a supportive work environment for the Lab's staff and users.

"The name change reflects the department's expanding functions in caring for the 738,000 square feet of facility space spread across 214 acres of land. We are responsible for preventive and corrective maintenance, security, strategic facility planning, design and construction oversight, and a long list of facilities and materials services," said Rusty Sprouse, Director of Facilities Management.

The Facilities Management department and its 29 staff members are guided by industry best practices in five areas: security; safety & emergency management; stewardship; sustainability and service.

"Sustainability involves energy and water conservation, and lifecycle costing and end-of-life materials disposal including recycling" Sprouse explained.

Partnering with the Procurement department, Facilities Management follows the U.S. Green Building Council's guidelines for investing in good design, durability and maintenance practices.

Stewardship involves preventive and corrective maintenance, capitalization, facility planning, project management and facilities support to new programs.

Protecting and securing Jefferson Lab requires a flexible security plan, contracted security personnel and coordination with community police, fire and emergency response systems. Facilities Management is also responsible for materials management including the safekeeping and tracking of property, export control, shipping and receiving, mail delivery and warehousing.

For additional information check the Facilities Management website at www.jlab.org/fm/.

SHIP students need projects, mentors

Each summer, Jefferson Lab hosts an in-residence education program aimed at high school honors students interested in pursuing a college education in math, computer science, or physics.

The Science Education staff is currently preparing for this summer's program and needs your help, says Dawn Pepe, Science Education specialist and SHIP administrator.

"We need Lab employees to help us by providing educational, hands-on projects for these enthusiastic students," Pepe explains. A dozen high school students from across the region will be on site from June 16 to August 8, and they will need both mentors and projects for their stay at the Lab. "Please contact me if you have a project or project idea that you feel would be appropriate for a high-achieving high school student or students," Pepe asks. Anyone interested in being a mentor for a student over the summer may also contact her.

Send Pepe a short description of the project and an explanation of what the student(s) would be doing. "We're hoping to attract a range of projects for the group," she says. "In addition to a variety of scientific interests, this year's group has students who are interested in engineering and electronics. Several of them have well-developed computer programming skills in C and C++.

Money to support the High School Summer Honors Internship Program (SHIP) students is handled through Education. There is no direct cost to a JLab group's budget for participating students.

Anyone with a project or project idea is asked to contact Pepe by May 23. This is the 11th year Jefferson Lab has sponsored this program. One hundred thirty-eight students applied for this year's 12 internships.
Call Pepe at ext. 7633 or e-mail pepe@jlab.org.

JAG Spring golf tourney set for April 30

The JLab Activities Group Spring golf tournament is set for Wednesday, April 30, at the Riverfront Golf Course in Suffolk. Contact Julie Oyer, oyer@jlab.org, for details.

Be safe, productive wear appropriate knee, elbow pads on the job

by Dr. Smitty Chandler
Occupational Medical Director

JLab job taskings periodically require many of us to work on our knees and elbows. That conflicts with 4.5 billion years of evolution. It is natural to work on your feet but not on your knees and elbows.

Therefore, some of us had not been equipped to be safe, happy and productive on our knees and elbows — until now. Recently, Hugh Williams called attention to this problem and so he, Patty Hunt, Bill Brisiel, Steve Knight, Richard Schwartz, John Chamberlin, Jennifer Williams and I met with representatives from a supplier (RAYCO) to discuss knee and elbow pads.

We concluded that since people and their work vary so widely, we should offer several options. The Lab now has pads that buckle, pads that are contoured, pads for welding, aprons for welding pads, and pads for elbows. For the first time, we are well padded.

Please take advantage of these pads by contacting the Technical Stockroom or Safety Lab. Using pads does not just prevent injuries like chondromalacia patellae (inflammation of the cartilage behind the kneecap) and olecranon bursitis (commonly called "draftsman's elbow," where fluid accumulates over the elbow), but it also makes you happier and more productive!

The Lab now has available the following Rayco products:

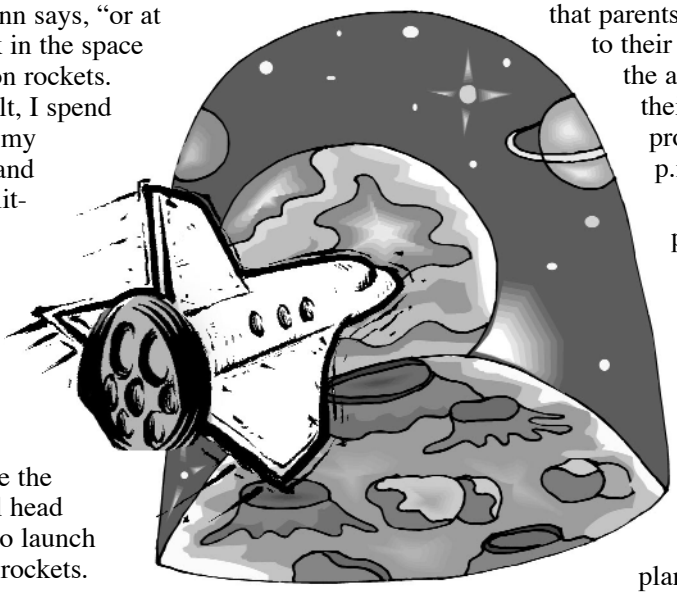
- JLab# 4240-20000: Knee pad deluxe with buckle, Rayco# ALL-6990
- JLab# 4240-20010: Knee Pad Contour, Rayco# ALL-7100
- JLab# 4240-20030: Knee Pad Welding, Rayco#ALL-6991-01q
- JLab# 4240-20040: Knee Pad Apron, Rayco#ALL-6991-03
- JLab# 4240-20020: Elbow Pad, Rayco# ALL-7104

TOCTWD 2003

Take flight, launch your dreams!

Jefferson Lab's scheduled Take Our Children to Work Day is set for 1:15–5 p.m. Thursday, April 24. "This year's activities revolve around 'taking flight' and launching dreams," says Jan Tyler, Science Education program manager. "We're inviting all 2nd through 8th grade children of Lab employees, contractors and users to join us for an educational and entertaining afternoon."

Registration takes place from 1:15–1:30 p.m. in the CEBAF Center lobby. Senior laser physicist Michelle Shinn kicks off the afternoon in the CEBAF Center auditorium — first talking about how the space program helped spur her desire to become a scientist, followed by how amateur rocketry demonstrates Newton's laws of motion. "As a child, I wanted to be an astronaut," Shinn says, "or at least work in the space program on rockets. As an adult, I spend time with my husband, and nurture a little of that childhood dream, by launching scale rockets." From there the group will head outdoors to launch their own rockets.



"We'll round out the afternoon by showing the feature film 'October Sky' in the auditorium, and if interest warrants we'll show a G-rated movie in the atrium," Tyler continues. "And we will have popcorn for everyone to munch on!"

"October Sky," rated PG with a running time of 108 minutes, is set in 1957 and based on Homer Hickam, Jr.'s autobiography "Rocket Boys," in which he recounts his struggles as a young man, to escape the small mining town where he was born, an escape that allowed him to — literally — reach for the stars. Reviews describe "October Sky" as a "sensational character-driven story with a strong narrative and great visual style." Produced by Chuck Gordon, who also produced "Field Of Dreams," this film uses similar themes regarding hopes and dreams and the realization that we all have them, but they're just not always the same ones.

Tyler adds. "Parents are welcome to participate with their children in the afternoon activities. We do ask that parents who go back to their work areas for the afternoon pick their children up promptly at 5 p.m."

Additionally, parents may bring their children for the entire day and keep them with them during the morning. A children friendly lunch menu is planned at Quark Cafe that day.

Pre-registration for the afternoon's activities will be on-line at www.jlab.org/children/, April 1–22, Tyler points out. "We ask everyone planning to bring a child to please pre-register, so we have adequate supplies for the planned activities."

Many members of JLab's Spallation Neutron Source (SNS) cryomodule production team posed for a group photo in the Test Lab on March 27. They are accompanied by Oak Ridge leadership including, Thom Mason, SNS project director; Carl Strawbridge, deputy project director; and Norbert Holtkamp, accelerator systems division director; and JLab's project leaders Claus Rode, SNS senior team leader; and Warren Funk, deputy SNS team leader.

ON TARGET

On Target is published by the Thomas Jefferson National Accelerator Facility, a national nuclear physics research laboratory in Newport News, VA, operated by the Southeastern Universities Research Association for the U.S. Department of Energy's Office of Science. News items are published on a space-available basis and are subject to editing. Submit news items to the Jefferson Lab Public Affairs Office, MS12C, 12000 Jefferson Avenue, Newport News, VA 23606.

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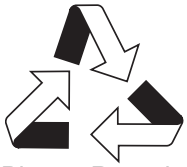

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