April 16, 1993 Vol. 16, No. 7

Ferminews

FERMI NATIONAL ACCELERATOR LABORATORY

Lab program given award of excellence

Fermilab's Particles and Prairies Interactive Multimedia Program, developed and produced by **Liz Quigg** (CD/Div. Ofc.) in collaboration with **Visual Media Services**, was awarded the Award of Excellence by the New Media INVISION 1993 Multimedia Awards Competition. The program also received the Gold Award in the education K-12 category.

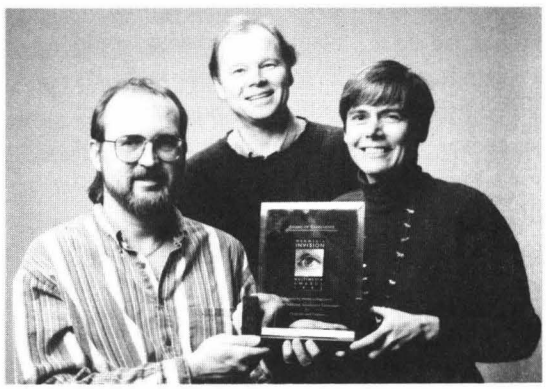
Liz and **Jim Shultz** (LS/VMS) accepted these awards at a ceremony held during the Intermedia '93 conference in San Jose, California on March 30. A panel of judges unanimously selected Particles and Prarires for this honor and throughout the conference *New Media* magazine showcased the program with other award winners in their exhibition hall booth. In addition, the program will be included in a special feature section on the competition in the June issue of *New Media*.

Particles and Prairies faced keen competition at the conference, vying for awards with other organizations and businesses such as Apple Computer, Inc., Arthur Anderson & Co., IBM, Microsoft Corp., Yale University School of Medicine, Union Pacific Railroad and the Minneapolis Institute of Arts.

The Particles and Prairies Interactive Multimedia Program is an integral part of the junior high school Particles and Prairies science unit at the Leon M. Lederman Science Education Center. The science unit was developed by a group of nine teachers and Education Office staff who recognized the potential of Fermilab's native ecosystem as a site for students to perform meaningful field research and at the same time learn about ecology and environmental issues. Liz, Visual Media Services and several Fermilab scientists and technical staff worked together in developing the program. Funding was provided in part by the DOE Office of Energy Research, the Illinois State Board of Education's Science Literacy Program and Friends of Fermilab.

The multimedia station consists of 37 video segments and 10 slide collections on a videodisc ready to view on a computer screen at the click of a mouse. Full-motion video appears in a large window on a color video monitor of a Macintosh computer and on a twenty-inch auxiliary monitor.

Unlike a videotape, the videodisc is not a linear medium, but a series of short video segments and slides organized on the computer in a hierarchical structure. Using software on the Macintosh, students can browse the video and slides on the videodisc and branch off to activities related to the topic, Liz said.



l-r Jim Shultz, Fred Ullrich and Liz Quigg display their award of excellence.

There are four main areas that students can explore on the videodisc. They include ecology, history, outdoor research at the Laboratory and the restoration of the prairie.

"This is a good resource for students to learn different aspects of the prairie," said Liz. "They can go to anything they want." For example, by simply clicking on an icon, a student can watch a time-lapse slide presentation of a prairie burn or go to the segment on birds and play the Birdcall Game or go on to learn about pollination and prairie seed dispersal.

Liz noted the multimedia station is a beneficial teaching tool because it appeals to different learning styles. "Visual learners delight in the graphics, animation and wide array of flora, fauna, seasonal changes and action videos. The narration by their peers, birdcalls and audio feedback whenever they select a topic or activity reinforce auditory learning. Choices of video and activities appear on the screen both as pictures and text. Processing of textual information seems less painful to students lacking motivation to read independently when they can use a mouse to click on text to select a slide from a

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Ferminews is published by the Fermilab Publications Office. MS 107, P.O. Box 500 Batavia, IL 60510 708 840-3278 FNAL::TECHPUBS

The deadline for the Friday, May 7 issue of *Ferminews* is Wednesday, April 28. Please send your article submissions or ideas to the Publications Office.

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Vessel ready to set sail

A Fermilab-designed "vessel" built using the largest application of a novel fabrication technique known as isogrid will ship out to Japan this month, marking the end of a very successful collaboration between the Research Division and several industrial partners.

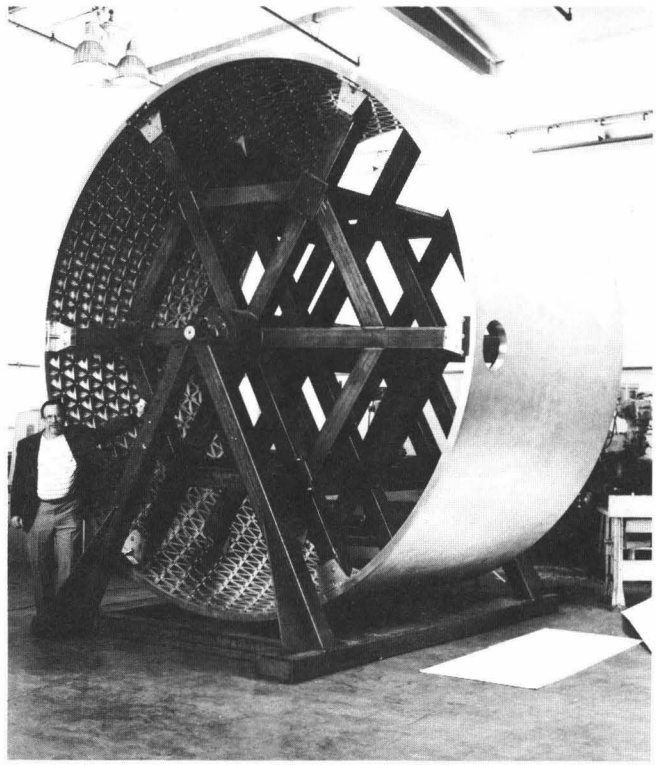
The vessel is more accurately known as a vacuum shell for a prototype of the SSC's SDC detector solenoid which will ultimately be built by the Japanese high-energy-physics laboratory, KEK. The shell was built using an established technique known as isogrid, a geometric pocket design that provides a very high strength to weight ratio. Because of this feature, it is used extensively in the aerospace industry—most notably in the Titan missile.

Ron Fast and **Chuck Grozis** of the Research Division led the Fermilab effort that included Thermal Systems Group members **Bill Cyko**, **Don Friend**, **Bob Wands**, **Ang Lee** and **Nelson Sample** (BS/Contracts). The team took the project from a Mechanical Support Department drafting table to an industrial assembly building in California where the completed shell will soon be prepared for shipment to Japan. The vacuum shell is one of a number of projects that Ron and Chuck have worked on together during their 24 years at the Laboratory. Some of their previous work has been on the superconducting coils for the Chicago Cyclotron Magnet, the 30-inch Tohoku bubble chamber and the CDF solenoid. Work on the prototype vacuum shell began about two years ago.

"The structure is very impressive," Chuck said. "This is the largest isogrid structure that has ever been made for a vacuum type application such as we have." Second to the shell's sheer size, which measures 160 inches in diameter by 100 inches long by 2.2 inches thick, the structure's next most obvious feature is its intricacy of design.

In its finished form, the structure is circular, but the aluminum panels that form the walls of the circular shell start out as solid, flat slabs of metal. The pockets, 585 of which line each plate, are milled out of a solid piece of aluminum one-at-a-time on a gantry mill, decreasing the structure's overall weight while giving the structure an even stiffness in all three directions.

If the vessel had used a conventional design involving a solid aluminum plate, its thickness would have been one inch. By milling the pockets out of a 2.2-inch thick plate of aluminum into the isogrid pattern, the effective thickness of the vacuum shell's walls could be reduced to 0.413 inches. This smaller effective thickness, in turn, will allow the high-energy particles streaming out of the detector's collision region to interact with fewer aluminum atoms and nuclei, yielding more desireable physics results.



Chuck Grozis in front of the prototype vessel. Second to the shell's sheer size, the structure's next most obvious feature is its intricacy of design.

Paul Slysh, president of P.S. Associates, consulted on the design of the shell. His familiarity with the design approach was instrumental in preparing the plans for fabrication, Chuck and Ron agreed. "Paul has really been a key player in the development," Ron said. "He holds some of the original patents on isogrid." After drawing up the preliminary plans for the shell, Dial Machine of Rockford milled a small test panel in preparation for work on the actual prototype.

"Three or four companies were involved in the final fabrication of the shell," Ron said. "It took a lot of R&D effort to do that."

"To our knowledge, the forming of isogrid panels this thick had never been done before," Chuck added.

Amro Fabricating in California formed the flat panels into the final curved shapes and has served as the prime contractor for the isogrid shell during its construction. Camarillo Dynamics, also in southern California, milled the isogrid pockets into the aluminum plates, while Square Tool, another California firm, participated in the shell's machining. "I've done a lot of fabrication at the Lab, and Amro is really a superb company to work with," Chuck noted. "They went way above the scope of R&D for a project like this with excellent results."

The outer shell is now complete, and within the next two weeks a smaller inner shell will be mated to the larger outer shell by two flanges. The system will then be sealed, leak-checked, crated and put aboard a ship to Japan. There, the Toshiba Corporation will install the solenoid magnet and transport the full assembly to KEK for further tests.

Ron and Chuck's isogrid shell will never see an SSC particle collision – their structure is, after all, a prototype only one-quarter the length of the actual SDC solenoid. Still, they take pleasure in knowing that they built something which had never before been attempted. The result was a learning experience not only for Ron and Chuck, but also for the companies who helped them. *—Brian Charles*

Fermilab's fifth buffalo auction a success

Fermilab's fifth buffalo auction was held on March 26. The sale drew ranchers and farmers from as far away as Florida.

Many of the 79 registered bidders had come before to the Laboratory's previous auctions in 1984, 1987, 1989 and 1990. But there were newcomers too in the crowd of about 200 bidders and spectators who represented 12 states.

The physical build of the 74 buffalo that were auctioned was the best that one Ohio buyer had seen in his dozen years as a bison rancher. But those more familiar with Fermilab's role as a high-energy physics research laboratory came because, as one local resident shouted above the crowd, "I had no idea you had buffalo at Fermilab."

Behind the success of the event was chief herdsman **Don Hanson** and the Roads and Grounds staff of **Mike Becker**, **Susanne Freund**, **Jim Kalina**, **Gary Konen**, **Rich Kujath**, **Lonnie LaSourd**, **Kelli Linnert**, **Bob Lootens**, **John Plese**, **Dave Shemanske**, **Roger Slisz**, **Larry Thomas**, **Fred Torres**, **Steve Whiteaker** and **Clarence Winders**. Roads and Grounds manager **Bob Hall** managed the event from setup to loadup.

The sale was led by auctioneer John Almburg. Eighteen buyers purchased buffalo during the sale. The price they paid for a bison depended on the age and sex of the animal they purchased. The lowest price for a buffalo was $850 for a male calf, while a 2,000 pound, 7-year-old bull brought in $2,100, the highest bid at the auction.

L. LaSourd and D. Hanson open the gate for two buffalo on their way to the auction block.

This spring's sale thinned the buffalo herd from 132 head down to a more manageable size of 58. Now roaming the pastures are eight male and 14 female calves; 14 male and five female yearlings; 15 male and one female 2-year olds; four male and one female 3-year olds; three female 4-year olds; five female 5-year olds and one male and three female 7-year olds.

Although buffalo meat has become a healthy alternative to beef in recent years because of its lower fat content, not all of the animals that left the Laboratory were headed for the dinner table. Buyer Dave Stone represented one of the many farmers who raise buffalo—in his case, ostriches and llamas too—on "hobby" farms. The term is somewhat of a misnomer for Stone's spread. The first-time buffalo buyer from Kentucky plans to let his three head live the good life on more than 100 acres of bluegrass near Louisville. Smiling as he admired the animals his two sons were loading into the trailer, he said: "Depending on how this goes, I might need to buy some more."—*Brian Charles*

Education Office program gives girls a taste of science

Over 350 area middle school girls got a chance to experience what it's like to be a scientist this March when they attended Expanding Your Horizons, an educational conference sponsored by Fermilab's Education Office. This national program is held at more than 150 sites throughout the country.

The conference was held on March 13 at both the College of DuPage and Waubonsee Community College. The purpose of the conference, which is co-sponsored by Argonne National Laboratory, the two junior colleges, Valley Education for Employment System and Waste Management, Inc., is to help middle school girls get hands-on experience working with activities used in different science careers. Each Kane and DuPage county middle school was invited to send five girls to the conferences.

Forty-eight women presenters from local schools, institutions and businesses lead the different individual workshops at both colleges. **Liz Quigg** (CD/Div. Ofc.) and **Tricia Heger** (TS/Eng.) of Fermilab participated as presenters. The activities that the girls did at the workshop were typical of the kinds of activities that would be actively performed as part of the presenters actual job. Some of the workshops given included "Bridge Engineering: More than Driving Trains," "The Colors of Chemistry," "Are We a Vet Yet?" and "Fettucini Physics." Other workshops were titled "How Buildings Roll with the Punches," "Digging for Ancient Evidence" and "Life in a Water Drop."

This is the second year that the Education Office has co-sponsored the program and worked as coordinators of the event, producing brochures and gathering presenters. **Robin Dombeck** and **LaMargo Gill** were in charge of coordinating the event.

A participant at the Waubonsee conference learns about structural engineering at the session "How Buildings Roll with the Punches."

Roads & Grounds sets first prairie burn of the year

Fermilab's Roads and Grounds Department in conjunction with the Fermilab Prairie Committee conducted the first prairie burn of the season this March. During the two days of burning, four of Fermilab's 18 prairie plots were burned.

Roads and Grounds conducts prairie burns twice a year in the spring and fall to suppress non-native grasses and plants and invigorate the growth of native prairie plants. Each year a different prairie plot is burned. Whether or not it is burned depends on the condition of the prairie itself. According to Lead Groundskeeper **Bob Lootens**, one plot may need more burning than another, but for the most part, each plot is burned on the average every one to three years.

The prairie fires are set by the Roads and Grounds crew using a drip torch filled with a combination of gasoline and diesel fuel. A back burn is lit on the down-wind side of the prairie. The crew then works the fire in the direction of the wind, using the head winds to drive the fire towards the back burn. Bob said the ideal conditions for a burn are low humidity, warm temperatures and proper wind conditions. Each plot, said Bob, has a preferred wind direction in which to start a burn. Wind speeds of 5-20 m.p.h. are ideal. Depending on the wind conditions and size of the prairie plot, eight to 10 groundsworkers are needed to work the fire.

Fred Torres of Roads & Grounds lights a back burn to start a prairie fire.

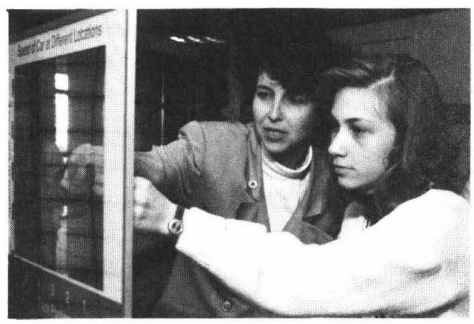
This spring, Roads and Grounds is scheduled to plant 55 more acres of prairie to add to the current 968 acres. In addition, they plan to burn the lower brush of some of the forested areas on site. This will rid the woods of less desirable shrubs, underbrush and smaller trees which increases the understory plants and flowers.

Vazquez given AAUW award

Laura Vazquez, a docent at the Leon M. Lederman Science Education Center, was recently presented with the "Agent of Change" award for 1993 from the Lombard-Villa Park branch of the American Association of University Women.

Each year the award is given to a member who works to bring about positive societal change. Laura was given the award in support of her vast community involvement. Laura has been a Lombard village trustee for eight years and is currently running for village president. She has been a docent for the Education Office for three years.

Laura said the award has made her feel that what she has been doing for the community is appreciated. "The number of women in political roles is increasing. I think it is important to be recognized by such a group of women," said Laura.



During a recent tour of the Science Center, Laura, left, helps a student at an interactive learning center.

Colleagues honored at conference

At the upcoming APS Particle Accelerator Conference to be held in Washington, D.C. in May, two physicists formerly associated with Fermilab will be given awards for their outstanding work in accelerator physics.

Thomas Collins, a Fermilab pioneer, will be given the IEEE PAC Technology Award "for his inventions of long straight sections for synchrotrons and storage rings, and his design of the lattices of the Fermilab Main Ring, Tevatron and Antiproton Source." His award is sponsored by the Nuclear and Plasma Sciences Society of IEEE.

John Palkovic, a 1991 graduate of the Fermilab Accelerator Ph.D. Program from the University of Wisconsin, will receive the American Physical Society Award for Doctoral Thesis Research in Beam Physics. He will receive the award "for research on the physics of low-energy ion beams, particularly for the development of a new type of Gabor lens, for showing that a Gabor lens is not practical for focusing negative ion beams, for the development of diagnostic techniques to measure the emittance of low-energy beams, and for demonstrating that most of the emittance growth in such beams occurs in a halo containing only a small fraction of the beam." His award is sponsored by the APS Division of Beam Physics and URA.

Also at the conference, as announced in the December 18 issue of *Ferminews*, Frank Cole, Don Edwards and Jim Griffin will be named Fellows of the APS Division of Physics of Beams.

Health Bulletin

U.S. Department of Energy Washington, D.C.

The following Health Bulletin is furnished for your information. It illustrates the need to understand the hazards of chemicals we work with. While the circumstances detailed below may be different from what might be experienced at Fermilab, there are people at this Laboratory who do work routinely with some of the chemicals discussed in this bulletin. If you have any questions about the use of personal protective equipment, contact your ES&H group. If you are experiencing any of the physical symptoms discussed below and work with these chemicals, call Dr. Morrison, x3232.

Occupational exposure to epoxy resins, hardeners and solvents

A new study of workers at DOE's Oak Ridge Gaseous Diffusion Plant (ORGDP) was published in the December 1992 issue of the *Journal of Applied Occupational and Environmental Hygiene* (7:826-834,1992). The purpose of the study was to determine if workers exposed to certain chemicals in centrifuge rotor manufacturing and testing processes had higher rates of cancer or other diseases than other workers at the plant. Between 1963 and 1985 centrifuge rotors were manufactured from fiber reinforced epoxy resins and were built on automated machines controlled manually by operators. These workers were potentially exposed to several types of chemicals and solvents used in the process.

All workers whose jobs were likely to involve routine exposure to epoxy resins, amine hardeners, or solvents in centrifuge rotor manufacturing or testing processes were identified from plant employment records. These centrifuge plant workers are referred to as the "exposed" group. Employees who did not work in the centrifuge rotor manufacturing area were eligible to be in the comparison group ("unexposed"). To ensure that the two groups were comparable with respect to other factors (see epidemiologic note) that could influence disease rates, the "unexposed" workers in the comparison group were matched to the centrifuge workers by age, race, sex and date of hire. Each "exposed" and "unexposed" worker was interviewed by telephone to collect information on his or her complete job history, lifetime occupational exposures, smoking habits, alcohol consumption and other factors related to health. A total of 263 centrifuge workers and 271 "unexposed" workers were interviewed.

The centrifuge workers were more likely than the "unexposed" group to report having worked with benzene, chromium, radioactive materials, trichloroethylene (TCE), phenol and methylene chloride. These exposures could have occurred in any job at ORGDP or during employment elsewhere.

The centrifuge workers were more likely than the "unexposed" group to report having experienced symptoms like dizziness and numb or tingling limbs. These symptoms have frequently been reported in the scientific literature to occur among workers who have high exposures to solvents. The centrifuge workers were more likely than the "unexposed" group to report experiencing skin rashes, which are known to be associated with epoxy resin exposure. The centrifuge workers were more likely than the "unexposed" workers to have had kidney stones.

Five of the centrifuge workers were diagnosed by their physicians as having bladder cancer, while none of the workers in the "unexposed" group reported having bladder cancer. The five bladder cancers occurred 10 to 20 years after beginning work in the centrifuge process. Although one of the epoxy resins used in the early years of the centrifuge process at ORGDP may be associated with bladder cancer, none of the five workers had any job that required "hands-on" work with this or any other epoxy-resin materials. However, four of these workers reported having been exposed to solvents. All five of the workers were former or current smokers. With the information available for this study, the researchers were unable to identify a specific cause for the bladder cancers.

No other conditions were reported to occur with significantly greater frequency among the centrifuge workers than among the "unexposed" group. Because the cause of the bladder cancers is unknown, it will be necessary to continuously monitor these centrifuge workers for the occurrence of cancer and to continue to investigate the types of exposures the workers with cancer might have had in common. Martin Marietta Energy Systems has initiated a comprehensive screening program for former workers in the centrifuge process. Under a Memorandum of Understanding, further epidemiologic studies of these workers will be managed by the National Institute for Occupational Safety and Health.

Epidemiologic note

Disease rates vary by many different factors like age, sex, ethnic background and others. For example, cancer rates are higher in adults over the age of 50 years than in younger adults. When a factor is related both to the disease and to the exposure of interest, it is called a "confounder." For example, age is related to disease rates and is also related to certain employment factors like the number of years employed. If an exposed group and a comparison group are different with respect to one or more of these confounders it is difficult to determine whether differences in disease rate are due to the exposure or to the confounder. To control for the effects of these confounders, epidemiologists used several techniques. One technique is to "adjust" for the confounder in the analyses. For example, the rate of disease for each age group in the exposed group is compared with the corresponding rates by age group in the comparison group. Another technique is to select a comparison group with the same distribution by the confounding factors (e.g., age, sex, race) as the exposed group. This is called "matching."

This Health Bulletin is one in a series of routine publications issued by the Office of Health to share data from health studies throughout the DOE complex. The authors conclusions do not necessarily reflect those of the department. For more information contact: Dr. Terry L. Thomas, director, Health Coordination and Communication Division, Office of Epidemiology and Health Surveillance, DOE, Washington, D.C. 20585; 301-903-5328. Issue 93-2, February 1993.

Cafeteria announces new hours

As an economy measure, the Cafeteria will no longer be open after 5 p.m. weekdays and will be closed on Sunday. However, some sandwiches will be available for purchase during the 3-5 p.m. weekday afternoon snack period.

New cafeteria hours

Effective Monday, April 19, 1993

Weekdays

7:30-10:15 a.m.	Breakfast
11:30-1:30 p.m.	Hot Lunch
1:30-2:00 p.m.	Sandwiches
3:00-5:00 p.m.	Snacks

Saturdays

8:00-10:30 p.m.	Breakfast
11:30-1:30 p.m.	Lunch

For daily menu recording, dial DINE.

Fermilab Report available

The latest issue of *Fermilab Report* is now available from the Publications Office. It features articles about the Sloan Digital Sky Survey, the history of hyperon physics at Fermilab and the Tevatron's record-setting performance. There are also reports from both CDF and DØ and a cultural article about Fermilab architecture.

If you would like a copy, stop by the Publications Office, WH15SW or call x3278.

Stockrooms to close for inventory

The Fermilab Stockrooms will be closed for annual inventory on the following schedule:

Wilson Hall Stockroom

Closed Friday, May 14 at 12 noon.

Will re-open Monday, May 17 at 12:30 p.m.

Site 38 Stockroom

Closed Monday, May 17 and Tuesday, May 18 all day both days.

Please plan accordingly. Any questions call the Supply Office at x3808.

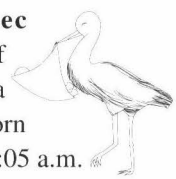
Arbor Day festivities planned

All Fermilab personnel are invited to help plant 130 oak, hickory and pine trees in celebration of Arbor Day on April 30. The trees will be planted on the east and west shores of the A.E. Sea near the Fermilab Village. The event will begin at 11:30 a.m. and will last until approximately 12:30 p.m.

Volunteers will dig holes and then plant the trees. Lunch consisting of hot dogs and chips will be available afterward. Each volunteer will also receive a sapling for participating.

Volunteers should park in Sauk Circle and walk to the site. Approximately 300 people participated in the 1991 Arbor Day event. Volunteers are asked to wear boots and to bring shovels if possible. For more information, contact **Mike Becker** of Roads & Grounds at x3303.

Congratulations to



Kelly and **Daniel Klepec** (AD/Instr.) on the birth of their daughter Alexandra Rachel. Alexandra was born on March 16, 1993 at 10:05 a.m. at Silver Cross Hospital in Joliet. She weighed seven pounds, six ounces and was 20 inches long. This is the Klepec's first child.

Nancy and **Rick Ziegler** (RD/MSD/Align.) are the proud parents of Claire Elizabeth. Claire was born on March 28, 1993 at 11:14 p.m. at Mercy Center in Aurora. She weighed seven pounds, 20 ounces and was 20.5 inches long. This is the Ziegler's first child.

Harper's Index

Average number of days each year that an American is in a bad mood: 110.

Percentage of Americans who are in a good mood every day: 2.

Nalwo activities

The Nalwo potluck on April 2 was a great success. Thanks to everyone who attended for the congenial atmosphere and especially for the large quantities of tasty and wonderful food! Nalwo would like to suggest that people who can conveniently bring their own place settings (plate, cutlery, cup) do so to try to cut down on the amount of paper and styrofoam and plastic used. However, we will continue to provide disposable place settings for those who cannot easily provide their own.

An **Eastern European cooking demonstration and luncheon** is scheduled for Monday, April 26 from 10 a.m. until 1 p.m. in the kitchen of the Users Center. The cost of the lunch is $4. Please register with Selitha Raja, 708-665-5539 or Brenda Kirk, x3440 or Mady Newfield, 708-584-0825. If you have young children, please register them for babysitting at the Playgroup by calling Anna Maria Feher, x2034 or 708-897-7228.

Nalwo is pleased to invite all Fermilab women to the **Annual Spring Tea** on May 7 from 10 a.m. until noon at the home of Nancy Peoples. Please bring a favorite dessert or appetizer, if you can. Please call Anna Maria Feher, x2034 or 708-897-7228, as soon as possible to register children for babysitting at the playgroup. The Peoples' residence is at the end of the private driveway which is the first road south of the Wilson Street entrance to Fermilab.—*Susan Mendelsohn*

Nalrec news

Don't forget that tonight is the **Spring Fling**. There will be barbecued chicken, potato salad and a roll for $2, as well as Homer deejaying for the party. Come and join us for the first barbecue of the season, starting at 5:15 tonight at the Village Barn.

Mark your calendars for May 14 for the **May Party**. Details are in the works for a great country and western party. Please contact Jesse at x4305 for more information regarding various **White Sox** and **Cubs** trips being planned. Also, George has made plans for a family outing to a **Kane County Cougars** game in June.

Fermilab lecture series

MR Images: How They are Made and What We Learn from Them

Suzanne Gronemeyer, Ph.D.

Magnet resonance imaging (MRI) is the most exciting development in medical imaging since the introduction of CT ("CAT") scanning, and has caused a similar revolution. MRI produces very clear images of nearly every part of the human body not by x-rays but by the use of a large magnet, radio waves, antenna and a computer. Dr. Suzanne Gronemeyer has been working with MRI since 1983 when she became an applications scientist for Siemens Medical Engineering, a manufacturer of MRI Technology. Dr. Gronemeyer will discuss the physics of MRI as well as its medical advantages in her lecture "MR Images: How They Are Made and What We Learn From Them" on Friday, April 30 at 8 p.m. in Fermilab's Ramsey Auditorium.

MR images are made using a strong magnet, typically a superconducting magnet operating at 30,000 times the earth's magnetic field. The images are a map of the body's hydrogen, which is the major constituent of the water, fat and macromolecules comprising the body's soft tissues. The exquisite anatomic detail of soft tissues provided by MRI makes it extremely useful in imaging the head, spine, pelvis and extremities. Unlike CT, magnetic resonance imaging uses no ionizing radiation and has no long-term bioeffects and MR images can be acquired in any part of the body. Dr. Gronemeyer will present her discussion of the physics of MRI in an easy to understand manner, assisted by a large number of stunning MR images.

Dr. Gronemeyer is currently an associate professor in the Radiology Department at the University of Tennessee as well as an associate member of the Diagnostic Imaging Department of St. Jude Children's Research Hospital in Memphis, which has one of the largest and best equipped MR imaging facilities in the nation. Dr. Gronemeyer spent five years refining MRI technology as an applications scientist for Siemens Medical Systems. She has authored numerous technical papers on MR images, and is frequently asked to speak on MR imaging across the country. She received her degrees from Washington University in St. Louis, conducted research for her Ph.D. dissertation in the Physics Division at Argonne National Laboratory, and worked as a Fellow in the Physics Research Laboratory and Radiology Department at Massachusetts General Hospital and Harvard Medical School. She was an engineering physicist and radiation safety officer in the Radiation Physics Section and Meson Department at Fermilab from 1980-1983.

Admission to MR images lecture is $3. For further information or telephone reservations, call 708-840-ARTS weekdays between 9 a.m. and 4 p.m. At other times an answering machine will give you information and a means of placing ticket orders.

Wellness Committee to hold health fair

Mark your calendars and make time to attend the health fair to be held in the Fermilab Atrium on Wednesday, May 12 from 10 a.m. until 2 p.m.

Eleven local health-care providers will participate in the fair sponsored by the Fermilab Wellness Committee. Information spanning a broad range of health-related issues will be available at the fair. According to **Bernie Dugan**, Wellness Committee member, the purpose of the fair is to provide information to employees about the health-care facilities, programs and options available in their communities so that they can make informed health choices. "Information presented at the fair will cover both men's and women's health issues, nutrition, back care and much more," said Bernie.

The fair will feature interactive displays, give-aways, demonstrations and literature. Health-care representatives will be available to answer questions.

More information will follow in the May 7 issue of *Ferminews* and on the Fermilab Information Channel.

For the health of it

Free blood pressure checks will be given April 20, 1993 from 11:30 a.m. to 1 p.m. in the Wilson Hall Atrium. Have your blood pressure checked—just for the health of it.

Brown bag seminar to be held in May

Family care givers and the elderly

The Employee Assistance Program Office will sponsor a brown bag seminar titled *Family Care Givers and the Elderly.* The seminar will be held Thursday, May 6 at 12 noon in Curia II. The speaker will be Laura Forbes, a social worker with a local private practice. "Laura has experience working with families who are dealing with the problems of the elderly and a background in both hospital and hospice work," said **Bernie Dugan**, EAP counselor and organizer of the event.

The seminar will address the changes in families and relationships as people age. Ms. Forbes will also answer specific questions that employees may have. "I am really happy Laura is willing to do this. Often people attend a seminar and get general information, but don't get their specific questions answered." If you have a question that you would like discussed at the seminar, you may call the Employee Assistance Program Office at x3591 before April 30. Bernie will forward your questions to the speaker for inclusion in the presentation.

"I think this seminar will be interesting to many people at the Laboratory. We are living in an aging society and many people are facing the problems related to aging," said Bernie. Laura is also very knowledgeable about local resources, Bernie added.

Classified ads

Vehicles

1990 Honda Civic LX, gray, 4-door sedan, 5 spd. man., 31-34 m.p.g., 45K miles, Eclipse AM/FM/cassette, power steering, power door locks, child-proof rear door locks, power windows, remote operated mirrors, quartz clock, tilt steering wheel, tachometer, trip odometer, cruise control, reclining front bucket seats, rear window defroster, front & rear mud guards, rear fold-down seat = extra luggage area, excellent condition, garaged and well-maintained by 1 owner, $7,750. Call Saundra or Jose 708-393-4521.

1987 Pontiac 6000, very good condition, $3000. Call Jerry at 708-851-9353.

1985 Ford EXP, 51K miles, red, 5 speed, AM/FM, ps/pb, garage kept, asking $1,100. Call Beth at (H) 708-739-6080 or (W) 312-540-2578 or Gary at x2264 after 1:30, e-mail mwest::talaska.

1975 Oldsmobile Cutlass, power brakes, steering and A/C, excellent condition, 2-door, 2nd owner, 55K miles, $4,300. Call Denise at x3585.

Miscellaneous

Golfer needed for Fermilab Prestbury golf league. Contact x3178 for more info.

Computer parts: 20 MG, MFM, HD, $75; motherboard 80286-8, $45; MFM, 2FD/2HD controller card w/cables, $10; Mathco 80287SXL, $35. Call Reehal at x4191.

Golf clubs: Ping Karsten I irons 2-SW with 22 steel shafts, $225; Taylor-made Bruner metal woods driver, 3, 4 & 5 with reg. steel shafts, like new, $200; Taylor-made driver 3, 5 metal woods with Adila graphite shafts, $175; Wilson Staff woods 1, 2, 3 and 4, $100. Call Ron at x3850.

Men's brown leather jacket by Members Only, size 46, worn only twice, $300. Call Shelley at x3324.

486 Packard-Bell computer with low magnetic field monitor, 107 meg dual HD, 2400 modem, 9600 fax, 5 months old in perfect condition. Software includes: DOS 5.0, Microsoft Windows 3.1, Microsoft mouse driver, telemate, Ami-pro, Microsoft Excel, Lotus Works, Expert Map, Utilities, After Dark 2.0, the New Print Shop, Norton Utilities, Central Point anit-virus, 688 Attack Sub and Carmen SanDiego! $2,000. Call 708-466-4989 after 3:15 p.m. or Dennis at x3626 or page 0600.

Snowmobile, 1981 Scorpion Sidewinder, 440 liquid-cooled, never damaged or abused, owned since new, 85+ m.p.h., has cover, $1,000; **ski boat**, 16ft. Glastron, 140 HP Mercury outboard, cover, stereo, stainless steel prop, brand new trailer and ready to use, $4,000. Call Denise at x3585.

Westinghouse 21 cub. in. **upright deep freeze**, excellent condition, $225. Call x3178.

Cello lessons for all ages, all levels, w/ experienced teacher. For more info. call 708-665-6073 (evenings) or send e-mail to FNALD0::CRETSINGER.

Real estate

Fox Valley model **townhouse**, end unit, 3 bed, finished basement & all equipped. Buy $89,900 or rent $895. Call 708-820-3609.

3 bed, **brick bungalow** w/finished rec. rm. in basement and detached 1.5 car garage. New cent. A/C sys. installed in 1991, spacious yard, accessible to schools, church and shopping. Approx. 1.5 miles from tollway, well maintained. Garage built in 1980, house reshingled in 1981. Stool & shower in basement. For more info. call 708-898-8767 or 708-851-0249.

Lovely **4 bed ranch**, 2.5 BA, full basement, 3 car attached garage, LR, family room with beautiful stone fireplace, formal dining rm. Many amenities, on quiet cul-de-sac. Call 708-377-0482.

Male summer employee seeks **roommate** to share expenses for apt/house or room-to-rent situation from May 10 to August 13. Contact x3278.

Excellence
continued

collection." Liz also said that teachers find the feature of using multiple learning channels a valuable asset when modifying the curriculum for learners with diagnosed special needs.

Liz said the development of the multimedia station was an effort on the part of many people, both at the Laboratory and at other organizations and schools. Liz believes the program is strong because so many people contributed to it.

Among those who worked on the project are **Jim Shultz**, **Reidar Hahn** and **Fred Ullrich** of Visual Media Services. Jim served as video editor, camerman and graphic artist. Visual Media Services is sharing the award with Liz for their video production contribution.

Angela Gonzalez (Directorate) contributed to the project by creating the original artwork used on the videodisc. **Rod Walton** (ES&H), **Judy Jackson** (Directorate) and **Robin Dombeck** (LS/Educ.) helped review the script. As with all education programs, the **Education Office** contributed a great deal to this project. **Rudy Dorner** (BS/Emer. Srvs.) and Fermilab Prarire Committee members **Mitch Adamus** (AD/RF), **Finley Markley** (retired from TS), Robert Betz and **Bob Lootens** (FESS/Rds. & Grnds.) helped inform Liz about the prairie. Mitch Adamus also provided slides and data for the plant database. **Adrienne Kolb** (Directorate), in addition, provided slides from the Fermilab archives. **Peter Kasper** (RD/Oper.), one of Fermilab's resident bird experts, also contributed by providing Liz with bird data.

Among those from outside the Laboratory who contributed were Pat Franzen and the other teachers on the Particles and Praries Committe; TRAC teachers Steve Sample and Thomas Las; a group of Madison Junior High School students, who provided the narrative on the project; Julie Jastrow from Argonne National Laboratory; Tom Warkins, a former Fermilab employee who contributed many slides; the Chicago Academy of Sciences; the Morton Arboretum; the Cornell Laboratory of Natural Sounds; and the Kansas Department of Wildlife & Parks.

★ U.S. GOVERNMENT PRINTING OFFICE 1993—746-064/60020