

FermiNews

July 1, 1988 Vol. XI, No. 12



Fermi National Accelerator Laboratory

Affiliates Meet to Measure "Pace of Progress"

The eighth annual meeting of the Fermilab Industrial Affiliates was held on Thursday, May 26, and Friday, May 27, 1988. The purpose of these annual meetings, held every May at Fermilab, is to improve communications between the industrial and university/national laboratory research sectors. Research directors and senior technical personnel from the Affiliates and other companies (some of them from overseas), visit Fermilab for two days of presentations reviewing technological advances at Fermilab and in our university-based user community that may be of interest to industry.

The eighth annual Affiliates meeting featured, on Thursday, the now-traditional Roundtable, the theme this year being, "The Science-Technology Spiral and

the Pace of Progress." The distinguished panelists included Hirsch Cohen, Consultant to the Director of Research, IBM; Joel Goldhar, Dean of the School of Business, Illinois Institute of Technology; Steven Lazaraus, President of ARCH, the innovative organization formed to exploit Argonne National Laboratory and University of Chicago technology; Richard Nicholson, Assistant Director for Mathematics and Physical Sciences, National Science Foundation; and Lee Rivers, Washington representative of the Federal Laboratory Consortium. The banquet speaker was Donald Frey, Chairman of the Illinois Governor's Commission on Science and Technology and former CEO of the Bell & Howell Corporation.

Continued on page 4

Exhibits Highlight Affiliates Meeting

A main item of interest during the annual Fermilab Industrial Affiliates meeting held on May 26 and 27 was an exhibit of some of Fermilab's current technology set up near the registration desk. Several groups from the Laboratory took advantage of this opportunity to display and show off their latest technology to more than 150 representatives of industry and other institutions.

Fred Ullrich (Visual Media Services) used a 50-minute video cassette presentation to give an overview of many aspects of Fermilab technology. The continuously running tape featured excerpts from past video news clips that are shown regularly in the Atrium. Highlighted was the proton therapy accelerator developed for Loma Linda University Medical Center, the printed circuit board assembly for the liquid-argon calorimeter at D0, and sequences of the huge detector at B0 being moved into the beam line with on-camera narration by Henry Weeks, Michigan State University. Also shown were two award-winning items: a spectrographic

Continued on page 4

Lab Goose Population Soars

Wild Canada geese are a common sight along Fermilab's ponds and streams. Unfortunately, these popular birds are facing an ecological problem that needs immediate attention: overpopulation.

In the past, Canada geese migrated south in the winter to avoid cold weather and limited access to food. Strangely, about 10 years ago, some of the geese stopped migrating south for the winter and remained north year-round. The result: an increase in the population of Canada geese in Northern Illinois. Why did some of the geese stop migrating south?

Generally, geese migrate south for two reasons: Open water and food. According to Rudy Dorner, Fermilab Emergency Services Coordinator, their year-round residence and subsequent rise in numbers

Continued on page 4

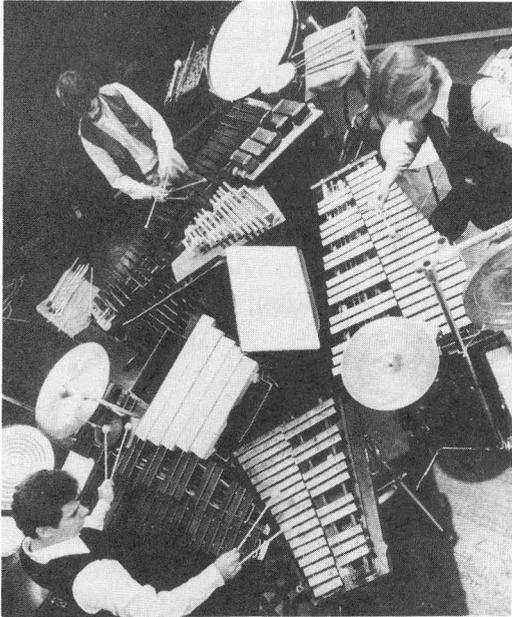
Blood Drive Coming to Lab

The Medical Office reminds everyone that the Aurora Blood Bank Drive will be held on Wednesday, July 13, 1988, from 9:00 a.m. to 2:00 p.m. in Wilson Hall 1W. Plan to donate and keep Fermilab's record of participation intact.

Fascinatin' Rhythms to Rock Auditorium

Got that rhythm, got that beat! An evening of percussion has never been so sweet!! Marimbas, xylophones, clangors, shakers, spoons! Cymbals, snares and congo drums make delightful tunes! Steel drums, kettle drums, rhythmic tapping feet! Body music, chimes and gongs make our show complete.

If you can shake it, clap it, hit it, or tap it, you'll hear music from it in "Fascinatin' Rhythms: A Showcase of Percussion Ensembles," on Saturday evening, July 30, 1988 at 8:00 p.m. in Fermilab's Ramsey Auditorium.



The Percussion Group/cincinnati

Fresh from their Ravinia performance, the virtuoso Percussion Group/cincinnati hosts this evening devoted to the aural and visual delights of the limitless world of percussion instruments. "It would be impossible to over praise The Percussion Group's performances," said the New York Times. Described as strange, wonderful and spectacular, these three virtuoso musicians sport a fantastic array of instruments - everything from amplified cactus needles and tuned sewer pipes to the more traditional xylophones, marimbas, drums and bells.

The Percussion Group will be joined by Midawo Gideon Foli Alorwoyie, one of Ghana's Chief Master Drummers, leading his drum ensemble in an acrobatic display of African drumming styles. Enormously popular in the United States, the distinctive percussive sounds of the Caribbean will be demonstrated by the Northern Illinois University Steel Band featuring Trinidadian Cliff Alexis. This entertaining evening will also feature the special per-

cussive talents of tap dancer Lane Alexander and the folk percussion of All Jump Up members Barb Silverman, Jenny Armstrong and Paul Tyler.

"Fascinatin' Rhythms," an indescribably rare and joyful evening of music sure to surprise and delight youngsters and adults alike, can be experienced for a \$7 admission fee. For further information or phone reservations, call (312) 840-ARTS weekdays between 10:00 a.m. and 12:00 noon, or 1:00 and 4:00 p.m. Phone reservations are held for five days, but due to ticket demand those not paid for within five working days will be released for sale.

PARS Receiving Network Installs Optical Disk

The IBM 3363 Optical Disk has recently been installed on the PARS Receiving Network. The Optical Disk is used as an online backup for the Receiving Network Program Library. This Unit allows Information Systems to keep multiple versions of the programs stored online on the Optical Disk, and provides the ability to retrieve older versions of the programs should the need arise. The Optical Disk stores an activity log of what programs were changed and the date the changes were made.

In the very near future, all of the batch reports will be sent to the Optical Disk. The user will be able to retrieve these reports from the Optical Disk at their discretion and schedule. This process will eliminate problems with unattended printers jamming or computers failing. The reports will be produced as part of the nightly processing instead of being requested by users.

The possibility of storing the Receiving archival data base on the Optical Disk is being investigated. However, because of the Write restriction, this investigation is on hold until an Optical Disk is available that allows multiple update to a file.

- Gerry Bresnahan

Percentage of voters who list their spouse as a "very important" source of information about candidates: **19**

Percentage of executives who rank themselves as their most trusted confidant in an ethical situation: **44**

Bounty that drug smugglers are rumored to have put on Barco, a U.S. Border Patrol drug-sniffing dog: **\$30,000** - *Harper's Index*

Benefits Notes

Health Chicago - Wheaton Clinic Members. . .

A meeting is scheduled for Health Chicago Members that use the Wheaton Clinic to discuss the recent letter that you received from Health Chicago and your options. The meeting will be on Tuesday, July 5, 1988, from 12:00 noon to 1:00 p.m. in Curia II, Wilson Hall. If you are absolutely unable to attend this meeting, please call the Benefits Office at ext. 4361.

- Paula Cashin

'Wellness Works' News

Walking Program. . .

Approximately 40 employees have requested information about Fermilab's Walking Club which held its first meeting on June 1, 1988. It's not too late for you to start a walking program. You can walk alone or join a friend. For information about Fermilab's Walking Club, call Dotti at ext. 4367.

- Paula Cashin

Have a Safe Summer. . .

With the return of summer, it's time to consider warm weather hazards. Below are some tips which can help you have a safe season.

Driving - Summer brings vacations and outdoor parties. Don't drive drunk and make sure you and your passengers are belted in.

Physical activities - Over exertion, injuries, and heat stress can occur during summer outdoor activities. You should gradually increase your activity level over a period of time, rather than assume you're completely "in shape" at the outset. Also, you should drink plenty of liquids on hot days, especially when the temperature exceeds 85 F.

Swimming - Don't swim drunk. Adults should use the "buddy system" and children should be continuously supervised. Make sure the water is deep enough before you dive.

Outdoor play equipment - Most children are injured on swings and slides. Make sure children know how to use the equipment and that it is sturdy and in good repair.

Lawn mowers - Most foot injuries occur while a mower is being pulled. Wear sturdy shoes and avoid pulling the mower, especially up hill or on wet grass. Shut off the mower before emptying the grass bag or refueling. Disconnect the spark plug before perform-

ing maintenance. Never attempt to remove a foreign object from under a mower while it's running.

Ladders - Outdoor maintenance often involves the use of a ladder. The height should be no more than four times the distance from the wall to the base of the ladder. The footing should be very solid and whenever possible another person should steady the ladder. Don't reach too far to the sides and don't step back to admire your work.

Pesticides - Read labels and follow instructions. In general, you should avoid all contact and be careful not to contaminate food. Buy only what you need to minimize the chances for accidental poisoning later on.

Outdoor grills - Don't use highly flammable liquids like gasoline to start charcoals. Grill only in well ventilated areas to prevent the accumulation of deadly carbon-monoxide gas. In many cases, even grilling inside an open garage may be dangerous.

Sunlight - Excessive exposure to solar radiation causes premature aging of skin and increases the chances of developing skin cancer. The cancer connection appears to be strongest for young children and recent evidence suggests that one severe sunburn in childhood may double the lifetime risk of melanoma. Avoid excessive exposure to sunlight or use a protective "sun block" with an SPF of at least 15. Learn to recognize the early signs of skin cancer. Have a safe and well summer!

- Tim Miller

The Safety Section

CPR Course Offered. . .

Those of you who want to learn CPR (cardio-pulmonary resuscitation) or need to renew your current card, please call the Fire Department at ext. 3428 between the hours of 9 a.m. and 4 p.m., Monday through Friday. If you have never taken CPR before, the class is eight hours, four hours if you only need the review. Your name will be placed on a list and when enough people sign up, you will be notified as to the time and date. Please get supervisor permission before attending.

- Neil Dal Cerro

Ratio of tourists to scientists and researchers visiting Antarctica last year: **1:1**

Price of a 1-kilo bag of 1000-year-old glacial "party ice cubes" in Japan: **\$1.50**

Price of an order of sushi at Dodger Stadium: **\$4.50** - Harper's Index

"Geese" continued from page 1

can be attributed, at least in part, to the cooling ponds and streams surrounding Fermilab. These ponds don't freeze in the winter. Therefore, the geese don't need to migrate south because they can withstand the cold as long as ponds remain unfrozen and food is available.

Furthermore, people with good intentions keep the geese here by hand-feeding them, which makes the geese dependent on people and reluctant to migrate to other areas. One Fermilab employee complained that "you can't even eat outside in peace without the geese coming right up to you, begging for food." Dorner is quick to point out that geese are designed to fly to new sources of food and habitat - they don't need any help from us for survival. But when the geese are hand-fed, they become too fat to fly and remain here through the winter.

Perhaps the greatest problem facing Canada geese populations in Northern Illinois is overpopulation. For example, some birds banded here as juveniles two years ago are now raising young of their own. Moreover, a pair of geese can raise four to six young each season. This can result in dangerously high population levels. One of the dangers of overpopulation is an outbreak of disease, most likely avian cholera or botulism. "The unpleasant result of these diseases could be mass deaths of the birds," warns Dorner, and that "it is possible that ponds around Fermilab could be littered with carcasses of geese that died as a result of disease."

Unfortunately, the risk of disease in overpopulated geese congregations is compounded by the unusually hot, dry weather this year in Northern Illinois. The intense heat increases the water temperature and causes water levels to recede in cooling ponds. As a result, the water holds less oxygen, and dangerous microorganisms and bacteria can breed more rapidly in the warm, poorly oxygenated water.

Large algal growths also rob the water of oxygen, further promoting the rapid growth of anaerobic organisms and bacteria. Eventually, the algae begin to die in the shallow water and pile up on the bottom of the pond. This oxygen-starved layer is an ideal breeding site for disease. Overpopulated bird congregations living in oxygen-poor water can't resist constant exposure to disease; they will become weak and eventually die. According to Dorner, one solution would be to let the birds die of disease to reduce the population, but this isn't an acceptable course action.

Other problems facing geese are interbreeding and parasitism. Domestic waterfowl released on site interbreed freely with wild geese, and this genetic mixing works against the wild geese - makes them less wild and more dependent on humans for survival. Parasite outbreaks occur when dense populations of geese defecate in the water, passing out the parasite eggs. Other geese inadvertently consume these eggs and become infected. Because the water is so warm, the parasite population can explode and affect a large number of geese.

Perhaps the best solution to these problems would be to stop feeding the geese, and to prohibit people from bringing in domestic geese to Fermilab. This would encourage the Canada geese to migrate and remain wild.

- Kevin A. Brown
(Kevin Brown, who is completing a Masters course in technical writing at Miami of Ohio University, is a summer intern with the Publications Office)

"Pace" continued from page 1

The Friday presentations provided first-hand accounts of leading Fermilab technologies with immediate relevance to the industrial sector. Tom Nash brought attendees up to date on the latest developments in the Advanced Computer Program, which has been ordered by several research centers, and which promises to have a major impact on computing at the SSC. David Anderson ("Detector Development at Fermilab") and Marvin Johnson ("New Developments in Electronic Busses") shed light on some of the more recent Fermilab technology developments. Steven Jones discussed the exotic possibilities of "Muon Catalysis and Hydrogen Fusion." Philip Livdahl, of the Loma Linda-Fermilab proton medical accelerator project, informed attendees on this exciting endeavor, which not only promises a new future for cancer therapy, but is proving to be a model for future commercialization projects.

"Exhibits" continued from page 1

nitrogen detector by Ron Walker, and a device by Al Baumbaugh used for enhancing the coma of Haley's comet.

Newly developed components of a high-voltage power supply and control system for drift chambers were displayed. The hardware showed the high-density packaging of up to eight separately control-

Continued on page 5

"Exhibits" continued from page 4

lable power supplies mounted on a single VMEbus module. Six of these modules, for a total of 48 supplies, fit into a standard VMEbus crate together with computer control and networking cards. The system was designed to meet the exacting specifications of the new collider-detector facility at D0. Those contributing to this technology include Tom Droege, Bob Goodwin, Al Jones, Marv Johnson, Mike Shea, and Steve Wimpenny, a collaborator from the University of California.

The Controls Group from the Accelerator Division displayed their latest version of FIRUS, a computer-controlled fire and utility reporting system. This significantly upgraded system is used throughout the site for centrally reporting fire and security alarms and for monitoring utilities and power consumption. The exhibit featured an IBM personal computer which gave a colorful display of the system's versatility. Viewers were able to push buttons on the computer keyboard and an operator from Controls Group was on hand to answer questions. The FIRUS was developed by Charles Briegel, Kevin Cahill, Al Franck, Rich Mahler, Rich Koldenhoven, and Joe Flores. Although specifically designed for Fermilab, FIRUS can be readily adapted to monitor similar systems at any facility.

Mike Notarus posted a schematic diagram of the proton accelerator and delivery system for the Loma Linda University Medical Center. Under a work-for-others agreement with Loma Linda, a group of Fermilab engineers, scientists, and technicians have been designing, fabricating, and testing a proton therapy facility. The group is headed by former Fermilab Deputy Director Phil Livdahl. Also shown was a pictorial floor plan of the treatment center which will house the accelerator and the treatment rooms.

From the Accelerator Division and the Physics Department, full scale samples of large printed-circuit boards were displayed. Boards of this size are virtually not available from commercial sources. Consequently, the process for making them, using a modified Gerber photoplotter and a modified Thermwood routing machine, was developed at Fermilab. Some of the people involved in the Gerber installation a few years ago were Mike Glaubman from Northeastern University (E-706), and, from Fermilab, Carl Lindenmeyer, Ray Yarema, Tom Fitzpatrick, John Korienek, Ed Arko, Jon Blomquist, and Al Ito. Some of the Fermilab people involved with the more recent Thermwood installation for D0 were Hans Jostlein,

Carl Lindenmeyer, John Korienek, Ron Miksa, and Jon Blomquist. The Lab 8 facility is currently being operated by the personnel from the Physics Department and Michigan State University. The boards will be used in a liquid-argon calorimeter experiment at the D0 collider-detector facility.

Two printed-circuit boards provided by the Data Systems Group were a QBUS Processor Interface (QPI) and a Segment Interconnect (SI) board. The QPI, designed here by modifying a UNIBUS Processor Interface, is used to combine the computing power of DEC computers and the data acquisition power of FASTBUS. The SI also is a commercially available board originally designed by the University of Illinois. It provides path communications between FASTBUS segments in a multicrate environment. FASTBUS is rated as one of, if not the, highest speed and lowest cost bus standards of all the major IEEE Standard 32-bit buses available. Fermilab people involved in the design and production of these modules are Carl Swoboda, Gary Moore, Hector Gonzalez, John Urish, and Rick Van Conant, who also prepared the display. To date, Fermilab has been responsible for commercializing over 16 FASTBUS devices.

The Technical Support Section provided an impressive display of the post and cradle developed at Fermilab to support Superconducting Super Collider magnets and the surrounding cryostat. A patent application is in process for the support post, and the Universities Research Association hopes to license the support system for commercial production. Its design incorporates special features that combine to provide high strength in tension, compression, and bending with low heat conduction into the cryostat. Persons involved are Ralph Niemann, John Gonczy, Tom Nicol, Bill Boroski, Joe Otavka, Mark Ruschman, Chris Schoo, Roger Zink, and John Zweibohmer.

Also displayed was an Advanced Computer Program (ACP) Multiprocessor, a Fermilab-designed computer, brought in by Omnibyte, a company located in West Chicago and headed by Greg Urban. Based on a popular 32-bit microprocessor, the parallel processing system is used at Fermilab to track millions of independent high-energy physics events. It makes use of hardware and software developed at Fermilab by the ACP. The combination of hardware and software makes it possible to use a system of 100 independent processors as easily as a single, uni-processor computer. It provides the answer to a processing bottleneck that has bogged down earlier com-

Continued on page 6

The Activities Office.

Swim Lessons. . .

Fermilab swim lessons will begin on July 6 and run until August 17. The classes are held on Monday, Wednesday, and Friday. Intermediate classes are from 10:00 a.m. to 11:00 a.m. and beginner classes from 11:00 a.m. to 12:00 noon. The cost for the class is \$15.00. There is a height requirement of 42 in. If you are interested in having your child/children attend these classes, please call Jean at ext. 3126 to have your child signed up. - Jean Guyer

Trudy's News from NALREC

Hello again. NALREC is presently experiencing some good news/bad news situations. The good news, covered in the last issue of *FermiNews*, concerned all the awards we won. The bad news is that we have had to cancel the luau due to lack of interest, and the trip to the White Sox game was not a sell out, so we intend to discontinue trips to Sox games. If anyone has suggestions for activities that could be of interest to all, please contact a NALREC member. In the meantime, we will continue to sponsor other trips and parties for your enjoyment.

Speaking of enjoyment: The **Hard Times Party** was great fun. Thank Tom Regan and Mike Urso for their hard work the next time you see them.

Dominick Carrulo has an update on the **River Rafting** trips. The folks who went on the June 25 and 26 excursion had a great time. Another expedition is planned for July 16 and 17 to the Peshtigo River. This trip includes two days of rafting and/or golfing, horseback riding, and outdoor cooking, all for \$149 including lodging and transportation. Call Dominick at ext. 3187 for more info.

August 7 and the **Family Picnic** are rapidly approaching. Plans are being finalized, and this picnic promises to be bigger and better than ever. There will be a few surprises along with all the old favorites, as well as that wonderful food and refreshment at reasonable prices. Plan on joining your fellow Fermilabbers for a day of fun. - Trudy Kramer

"Exhibits" continued from page 5

puters trying to digest huge numbers of events from fixed-target and collider experiments. The ACP has worked closely with Omnibyte to develop commercial support for this system. - John Paulk

FermiNews Cla\$\$ified Ad\$

FOR SALE

Motorized Vehicles:

1978 HONDA HAWK T2 motorcycle, 400 c.c., Vetter Quicksilver fairing, new mufflers, 12K miles, asking \$450. Call Fred, ext. 4082 or 897-2941 after 6 p.m.

1982 CHEVY S-10 Longbed P/U, V-6, 5-speed, AM/FM/cassette stereo, fiberglass cap, 34,000 miles, Ziebarted, mint condition, \$4000. Call John at ext. 4429.

1986 20-ft LESHARO MOTORHOME. Excellent condition, 28,000 miles, sleeps 4, gas engine, A/C, PS, PB, Cruise. Fully self contained: Shower, stool, stove, refrigerator, sink, etc. Many extras - T.V., microwave, awning, etc. Asking \$24,000. Phone (815) 729-9628. Ask for Paul.

Miscellaneous:

BICYCLE RIMS, NISI tubulars, anodized gold, excellent condition, pair, \$25. Call Mark, ext. 4776.

SLEEPER SOFA, good condition, asking \$75. Call Fred, ext. 4082 or 847-2941 after 6 p.m.

10-in. TABLE SAW with accessories, \$150. Breakfast room set, oval table, 5 chairs and deacons bench, \$175, Call Phil, ext. 4500

SEARS "TED WILLIAMS" OUTBOARD MOTOR, 7-1/2 h.p., forward/reverse, remote fuel tank, used 25 hours, \$300. Call Tom, ext. 3341

FermiNews Publication Schedule

Issue Date	Deadline
July 15	July 7
July 29	July 21
August 12	August 4
August 26	August 18

FermiNews is published by the Fermilab Publications Office, P.O. Box 500, Batavia, IL, 60510 (312) 840-3278 BITNET: TECHPUBS @ FNAL

Editor: R. Fenner Editorial Assist.: C. Kania
Fermilab is operated by Universities Research Association, Inc., under contract with the United States Department of Energy.