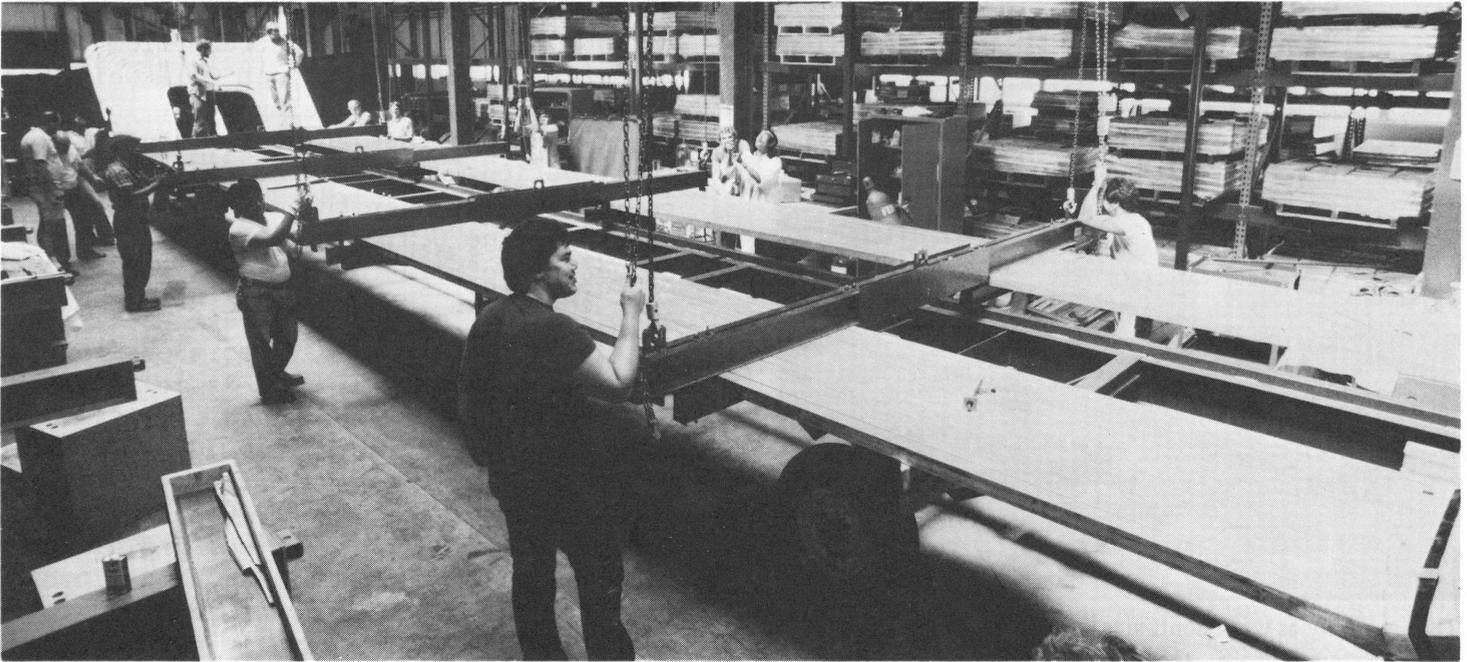


Huge Magnet Being Assembled Here



The first coil layer arrived at Fermilab on June 13 and is moved into the Industrial 4 Building where additional work will be done on it. It's 60 feet long from tip to tip.

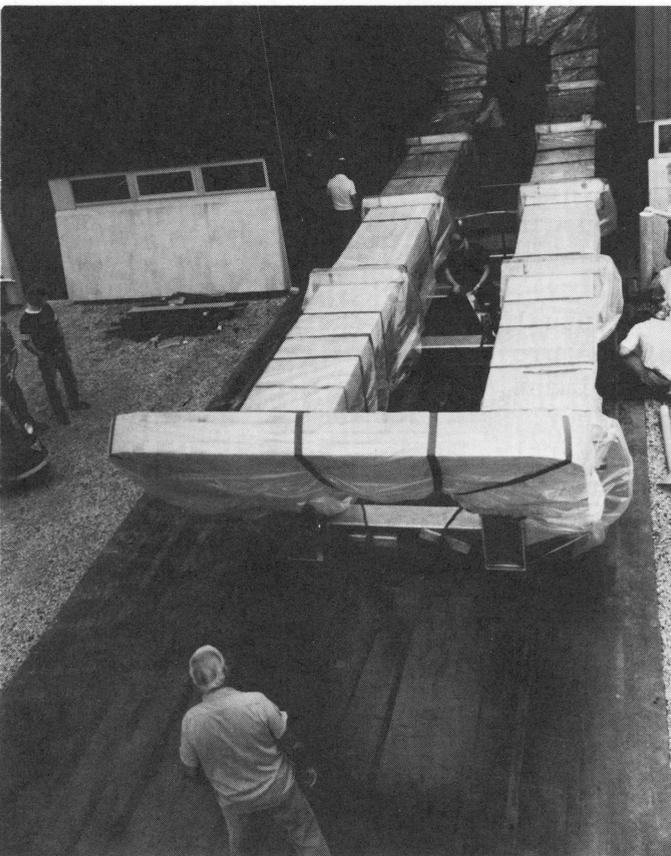
One of the world's largest magnets -- and by far the largest ever at Fermilab -- is now being constructed here.

The gigantic magnet will be used in Experiment 605 as the basis of a focusing spectrometer. E-605 will study leptons and hadrons near the kinematic limits of production. This experiment is located in the M-1 line of the Meson Area.

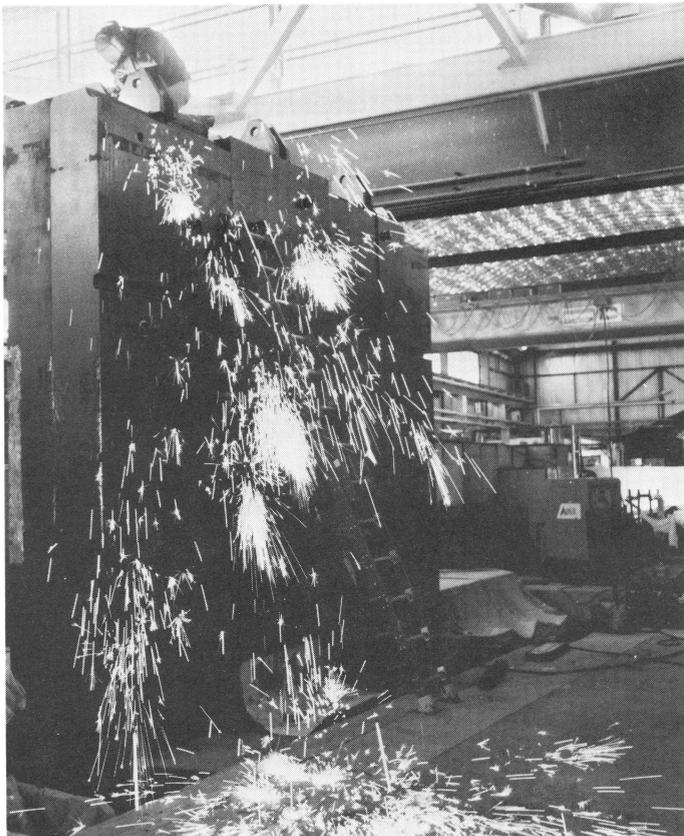
Colossal in its dimensions, the magnet will weigh around 1,500 tons when it is finished. The steel yoke that will surround the coils is 18 feet from top to bottom and 47 feet from front to back. The magnet will be nine feet wide. The steel in this yoke comes from the dismantled cyclotron that was used for many years at the Nevis Laboratory at Columbia University. It was the same sort of machine as the Chicago Cyclotron now in Fermilab's Muon Laboratory. The yoke pieces were cut at Nevis before being shipped here.

The coils, themselves a marvelous technological achievement, are 60 feet long from curved tip to curved tip. They are

Continued on page 2



The delicate job of moving a giant. Riggers expertly guide the bound and wrapped finished four-layer module--the first one--out of Industrial 4 Building to take it to the Meson Detector Building where it will be installed on the magnet yoke. The change of location was made Aug. 27.



The sparks fly as work continues on the huge iron yoke that will surround the coils. This photograph was taken in the Meson Detector Building. The welder on top gives you a good idea of the yoke's size. And this is only half of one side of the yoke. Notice that the magnet is in a specially constructed pit.

HUGE MAGNET

Continued from page 1

made out of aluminum conductor, square in cross section and about 2½ inches along an edge. Running through the center of the conductor is a half-inch hole for water to circulate through and cool the aluminum. (One thousand liters of water is required to circulate through the entire magnet each minute to cool it. The magnet consumes 1.5 megawatts of power.) The total weight of the aluminum in the coils is 84 tons. A single layer weighs about six tons.

The first layer of aluminum coils arrived at Fermilab June 13 (a Saturday), and then was moved into the Industrial 4 Building. There the staff of the conventional Magnet Facility will continue to work on the coil layers as they come in from a private contractor in Chicago who is fabricating the coil layers to the specifications determined by Fermilab scientists.

The coil layers will be insulated and stacked together into two four-layer modules and two three-layer modules. The insulation will weigh about 10 tons.

The great size of the magnet is necessary to meet the physics requirements of the experiment. Originally, physicists had thought about using two smaller magnets, each one around 25 feet long, but determined that it would be more convenient and economical to build one supersize magnet.

Another magnet -- smaller though -- will be constructed downstream from this magnet. The smaller magnet will weigh 600 tons. Its coils are being built in Japan and is part of the Japanese scientists' contribution to Experiment 605. That, of course, comes under the much broader manifesto of the U.S.-Japanese collaboration signed at Fermilab by national leaders of both countries in early June.

But let's come back to the giant magnet. It's primary mission is to act as a shield and stop many unwanted particles. Only the desired particles will make it all the way through the magnet. In the very center of the magnet, with coils above and below it and iron surrounding it, is a large aperture that will contain tapered pole tips and a beam dump. The target, most likely beryllium, will be a short distance upstream from the aperture.

Al Jonckheere, associate head of the Meson Department, had praise for the many people who have worked and are still working on the magnet. While it is not possible to name them all in FERMINES, a few of those he credited with outstanding contributions include Ron Fast, coil design; Jack Jagger, coils (conventional Magnet Facility); Chuck Brown and Dave Finley, conceptual designs and general overseeing of the project (Brown is spokesman for Experiment 605); Tony Glowacki, chief engineer; Stan Sobczynski, magnet steel; Dave Eartly, magnet inserts; and Dwaine Johnson, designer on the magnet steel.

Fast, who is with Research Services, and Jagger, added their praise to the work done by Ward Bosworth (Research Services) for coil design; and by Les Bradstreet, coil design; Paul Tomell, tooling design; Randy Lenz, supervising the vendor fabrication; and Jim Humbert, supervising the in-house assembly. The last four men are with the conventional Magnet Facility.

(Ferminews plans to publish another story about this impressive magnet near the end of November when much of the work on the modules will have been completed. At that time, you'll see many of the people who have helped assemble this great magnet.)

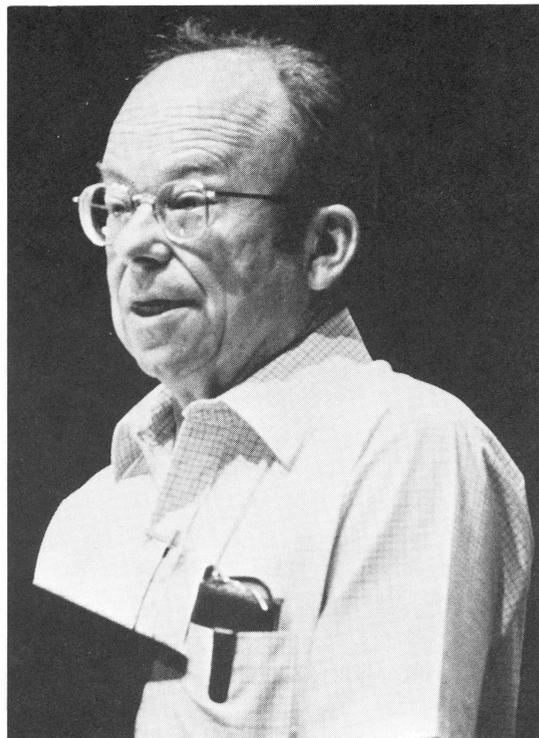
PANOFSKY TO GIVE FIRST ARMS CONTROL SEMINAR

Wolfgang K. H. Panofsky, director of the Stanford Linear Accelerator Center, will speak at Fermilab on "Arms Control: Success and Failures (Dynamics and History of the Arms Control Movement)."

His lecture on Sept. 28 is free and open to the public. It will begin at 8 p.m. in Wilson Hall auditorium. Following the lecture, Panofsky will hold an informal technical discussion with those who choose to participate. It will be held in the Comitium, southeast corner of Wilson Hall's second floor. The lecture is the first of a series on arms control and international security. Organized by scientists from Fermilab and the Argonne National Laboratory, the series also is sponsored by the League of Women Voters.

"Informal discussions among physicists often turn to nuclear arms control topics, especially these days during the increasing split between this country and the USSR," said Ray Brock, Fermilab physicist and one of the organizers of this series. "Because the public debate regarding questions of what some see as an increasing vulnerability rests on many technical judgements, it is inevitable that scientists, especially physicists, will be formally drawn into that discussion.

"In order to help provide a basis for better judging these complex topics, a group of physicists and engineers at Fermilab and Argonne have organized this 10-month series on arms control that begins with Panofsky's lecture. This series will include scientists and public figures who have been personally active in arms control or defense policy in the past and who will likely be called upon to do so again. Hopefully, through their formal presentations to the public and their informal discussions with the scientists from the two laboratories, everyone will come away with a better



Wolfgang K. H. Panofsky

understanding of these difficult issues."

Panofsky is an internationally-known physicist who has been recognized throughout the years with many honors and awards. He has conducted research in elementary particle physics and has made impressive contributions to civil defence strategy and toward the halting of nuclear tests.

Improvements in technology have required a continuing sophistication of arms control policies by adversary as well as friendly nations. Panofsky has been closely associated with the growth of this nation's ability, awareness and control of technology affecting international security. In this regard, he has been a consultant to government agencies for more than 20 years, and recently was a member of the General Advisory Committee to the White House.

FREY TO OPEN 1981-82 COLLOQUIUM SERIES

Peter Frey of Northwestern University and editor of "Chess Skill in Man and Machine" will deliver the first lecture in the 1981-82 Fermilab Physics Colloquium Series.

His talk on "Chess Skill in Man and Machine" will begin at 4 p.m. on Sept. 23 in Wilson Hall auditorium. Irwin Gaines, Fermilab, a member of the Physics Colloquium Committee, summarized what Frey plans to talk about. "A fascinating game of endless variations, chess has challenged man's skill and ingenuity for centuries,"

Gaines said. "The game is so complex that even a giant, high-speed computer cannot analyze the multitude of potential move combinations. Frey's lecture will survey our current understanding of human chess skill and discuss the subtleties of coaxing a machine to play chess."

The colloquium series consists of lectures, usually one each Wednesday afternoon, by prominent leaders in a number of disciplines. The objective is to keep Fermilab employees and users up to date in these fields.

DENTAL PLAN IMPROVEMENTS

Effective at the beginning of this month (Sept. 1), the Laboratory has reached an agreement resulting in an improvement of its reimbursement schedule of dental services for employees and their dependents.

The revised program calls for a higher schedule of payments for fillings, root canals and extractions under Class II services and for inlays, crowns and dentures under Class III services. If you are interested in determining the rate of insurance coverage now in effect for a specific dental procedure, please contact Ralph Wagner, ext. 4361. A new dental booklet will be issued in the near future indicating the changes.

INFORMATION ABOUT URA SCHOLARSHIPS

Candidates for Universities Research Association (URA) scholarships are reminded that scholarships are awarded on the basis of ACT scores. Thus, seniors are reminded to sign up for a fall testing date if they have not already taken the tests.

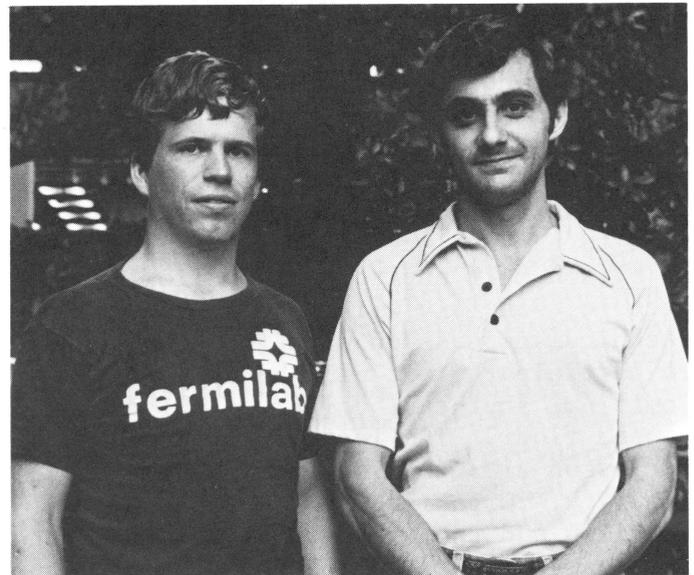
Each year, URA sponsors a number of scholarships for children of full-time employees. The son or daughter must be a high school senior who plans to pursue a four-year college degree. Further details about the scholarships will be published in Ferminews at a later date. Applications will be available in 1982.

REMINDER ABOUT FOLK DANCE CLASSES

Be sure to remind yourself about the English country folk dancing lessons that will begin Sept. 21 at the Village Barn.

They will be taught by Edith Gibson, well-known dancing instructor in this area. Her talents have been written about in the Chicago Tribune. The fee is \$15 for 10 sessions, held on Mondays from 7:30 to 8:30 p.m. If your interest has been whetted, then call Helen McCulloch, WHLE, ext. 3126.

Gibson, who comes from Geneva and has been teaching dancing for more than 30 years, said, "The steps and figures are simple and easily learned. Many of these dances reflect the industry in the region of their origin, such as mining, weaving and farming."



Dave Schumann (left) captured top honors in the B division tennis final championship game with scores of 6-3 and 6-0. Taking second place was John Filaseta (right).

NALREC PREPARES FOR ANNUAL BALL PARTY

Here it comes: NALREC's 1981 ball party featuring all-star baseball and all-star volleyball games and much more.

It'll be held Sept. 18 at the Village Barn sports area with the all-star games beginning at 5:30 p.m. Hot dogs and beverages will be available at 5:15 p.m., the same time that the precision golf driving range competition begins. The fun continues until 10:30 p.m. For additional information, contact your local NALREC representative.

ROY JEFFRIES NEEDS YOUR HELP

Roy Jeffries, who works in the Computing Department, needs help from his fellow employees.

Because of his visual handicap, he is seeking people who will drive him and his seeing-eye dog, Trever, from his home in Aurora to Fermilab and back at the end of the day. Roy lives with his family at 370 Spruce St. He's been with Fermilab for 2½ years.

His phone number is 3146, and he works the day shift from 8:30 a.m. to 5 p.m. But if people who would like to help him have different starting and quitting times, this "should not pose too much of a problem," he said.

CHEZ LEON

This popular restaurant in the Users Center serves lunch on Wednesdays and meals in the evenings on Thursdays and Fridays. For reservations call ext. 3082.