

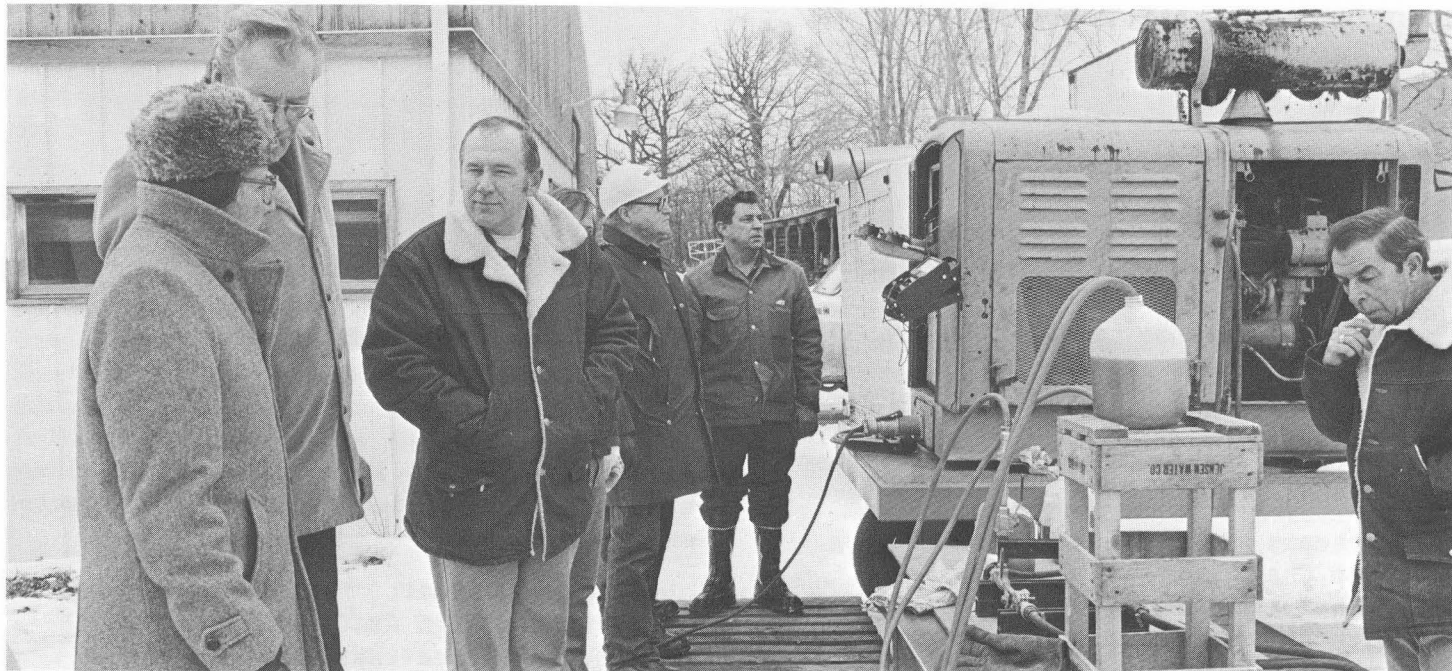
FERMINES

 **Fermi National Accelerator Laboratory**

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...Diesel engine at Site 38 with test equipment attached and jugs of different fuel mixtures feeding it. From left, Hank Hinterberger, Bill Riches, plant

manager, Dick Graff, Harold Scheppman, Jim Hayes and Jack Mills. Photograph was taken the morning of February 19, the day testing began...

DIESEL ENGINE GULPS SOMETHING UNUSUAL

Anyone with keen hearing driving by Site 38 during the latter part of last month would have heard a diesel engine running.

Nothing unusual, except...

This one was running on a mixture of sunflower seed oil and diesel oil and a mixture of cotton seed oil and diesel oil. Overall, the test run was quite successful, said Hank Hinterberger, head of Technical Services. "We determined that sunflower seed oil and cotton seed oil are usable fuels when mixed with diesel oil. Our data is sufficiently encouraging to warrant long range tests."

Sunflower seed oil is probably the more practical oil because it is cheaper than cotton seed oil, said Hinterberger. If the long range tests to determine miles per gallon, wear and other characteristics are satisfactory, then it's quite possible that

the Laboratory will set aside some acreage for us to grow sunflowers for their seeds, he added.

Hinterberger, who also is energy conservation coordinator for the Laboratory, said the two oils are alternative sources of energy and worthy of study.

"Furthermore, this is part of Fermi-lab's continuing effort to study ways of conserving our already scarce fossil fuels," he added. (He had been told by Dr. Miguel Awshalom of the Cancer Therapy Facility that scientists in other countries were evaluating the use of these oils as fuel.)

Hinterberger asked Bill Riches, plant manager, and his staff to design and conduct the tests. Jack Mills and Dick Graff were primarily responsible for putting the test gear together and running it, said Riches. They were assisted by other members of the Plant Management Group. The percentage of volume of the seed oil in each mix was 25, 50, 75 and 100.

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...Gathered around a spool piece in Lab A are (L-R) George Simon, Chander Sood, Paul Thorkelsen, John Ramus, Bruce Lambin, Harry Carter, Mike Urso, Don Fisher, Mark Kruger and Glen Gasior...

BUBBLE CHAMBER PEOPLE SHARE EXPERTISE

Two teams of cryogenics experts with the Bubble Chamber Operations Group are sharing their knowledge and extensive experience with scientists from the Energy Saver Division.

This is an outstanding example of how teamwork is helping keep construction of the superconducting accelerator on schedule, said Dick Lundy, head of the Magnet Section. It also exemplifies the cooperation that Leon Lederman, Fermilab director, talked about in his director's meeting last month, Lundy added.

The bubble chamber people have the experience and expertise the Magnet Section needed, and rather than train people inexperienced in cryogenics, the Section sought the help of the bubble chamber group. "We are impressed with the quality of their work and their spirit of cooperation," said Lundy. "They are meeting a difficult schedule."

One team, headed by Harry Carter, is working in Lab A adjacent to the site of the 15 ft. Bubble Chamber. Its members are fabricating spool pieces. This is an assembly that fits between the quadrupole and the next magnet and will contain most of the correction elements.

Joe Savignano heads the other team. Its members worked in Lab 2 in the Village on feed cans and double turn-



...Working on a double turn-around box in Lab 2 are (L-R) John Worster, Joe Savignano, Bob Noe and George Letrich...

around boxes. This is equipment that distributes liquid helium to the superconducting magnets.

Wesley M. Smart, head of the Research and Systems Design Group with the Bubble Chamber, explained that bubble chamber teams have nine years' experience in low temperature technology. "A bubble chamber is a large, complicated cryogenic device," he explained.

The 15 ft. Bubble Chamber is expected to be operating again around Nov. 1980, said Smart. In the meantime, it and its associated equipment are being upgraded. For example, two new sophisticated hydrogen compressors have been installed and a refrigeration system that is used primarily during periods of shutdown soon will be installed.

SPECIAL NOTE

George T. Mulholland, who had been the overall head of the 15 ft. Bubble Chamber, joined the Energy Saver Cryogenics Department Feb. 4. He had been with the Bubble Chamber since he came to Fermilab in October 1970.

James R. Kilmer is serving as head of the 15 ft. Bubble Chamber Operations Group. He has been with the chamber since February 1972, when he joined the Fermilab scientific community. Prior to his appointment as group head, he was operations manager.

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AUDIENCE TAKES FANTASTIC VOYAGE TO SATURN AND BEYOND

An audience at Fermilab joined science's mightiest leap into space as its members took the most fantastic voyage of their lives--a journey that took them to Saturn and beyond.

They found themselves aboard a spaceship that hurtled toward Saturn, plunged through its rings, dipped close to this solar system's second largest planet, then swooped back through the rings and swung into a trajectory that took them into deeper space. And all in living color.

The movie that flashed on the screen in the Central Laboratory auditorium was the window through which they watched that banded planet in the outer solar system come so close they could almost touch it. The film was generated by a computer from data that Pioneer 11 had gathered when it followed precisely the same path the mythical spaceship took in recounting that historic four-hour flyby in September 1979.

Packed into a payload of 35 pounds powered by 40 watts are nearly 15 sophisticated instruments that measure and send back to earth a variety of data about magnetic and plasma fields, charged particles, cosmic rays, deep space radio transmissions, and so on. Pioneer 11, launched in April 1973, like its predecessor, Pioneer 10, launched March 1972, is still alive and thriving as it continues its mission to the edges of this solar system, Dr. John Simpson told his audience.

Arthur H. Compton distinguished service professor of physics at the University of Chicago, Simpson spoke about the two Pioneer missions as the guest of the Fermilab Physics Colloquium Committee. Although he was enthusiastic about Pioneer and the new horizons it opened to astrophysicists, he was even more so about the "much more sophisticated" Voyager that is scheduled to arrive at Saturn late this year. Dr. Simpson said more exciting discoveries will come as science extends its knowledge and understanding of the dynamics of the outer solar system.

And he can hardly wait for Feb. 16, 1983, the tentative launch date for two probes--one flying the American flag and one the European flag--that will take man over the poles of the solar system.

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...Working together to set up exhibit are (L-R) Julie Fitzgerald, exhibition assistant, and Dr. Louise Berge, assistant curator, with the Department of Classical Art at The Art Institute of Chicago, Angela Gonzales, Jose Poces and Saundra Cox...

NEW EXHIBIT DIPS INTO GREEK HISTORY

Vases and fragments of pottery from Athens, Greece, around 450 B.C., are now on exhibit in the Fermilab gallery, CL2-S.

The 19 vases are on loan from the Art Institute of Chicago. The six fragments come from the David and Alfred Smart Gallery at the University of Chicago. These items were part of the midwest collection sponsored by the Art Institute and featured pottery from collectors and galleries throughout the midwest.

The exhibit at Fermilab will be here for about six weeks, said Saundra Cox, art consultant who, with Jose Poces and Angela Gonzales, arranged the overall exhibit.

Also an integral part of this new exhibit and showing design patterns remarkably similar to some of those in the pottery are a series of panels recreated by Cox, Poces and Gonzales. They are made from laminations once used for experimental magnets.

Frequently a vase was made by one person and another created its surface design, explained Cox. In this collection, the paintings are more important than the vases because they tell stories, she said. For example, one vase is a donkey head and the painting shows a satyr pursuing a maenad holding a thyrsus. On the surface of another vase, Boreas, the North Wind, pursues Oreithyia and two fleeing companions running toward her father.

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MUSIC CLUB TO HOLD SPRING DANCE

The Fermilab Music Club will hold its seventh annual spring dance March 22.

The event will run from 9 p.m. to 1 a.m. in the Village Barn. B. J. the D. J. will spin the platters. Admission will be by a \$3 donation.

Advance tickets may be obtained from Johnny Gerald, Ext. 3259; Marilyn Bailey, 3282; Ron David, 3074; Joyce Curry, 3415; Ed Justice, 4284; Larry Tate, 3141; and Theo Gordon, 4455.

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DEADLINE NEARS FOR SUMMER HOUSING

March 28 is the deadline for submitting reservations to the Housing Office for summer on-site housing.

Housing assignments for summer experimenters will be made early next month. Assignments will be based on the expected accelerator running schedule. Responses to the reservations will be mailed April 17. Houses may then be occupied during the week of May 29.

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CHEZ LEON MENUS

Tuesday, March 25, 7:00 p.m. - \$8.00

Stuffed Zucchini
Veal Cordon bleu
Braised Leeks
Fresh green salad
Strawberries in Grand Manier

Wednesday, March 26, 12:30 p.m. - \$4.50

Puree of Cauliflower
Saute fresh Trout
Potatoes Parisienne
Fresh Salad
Fresh pineapple in Rum

Thursday, March 27, 7:00 p.m. - \$8.00

Asparagus w/Maltaise Sauce
Steak Diane
Mustard Mushrooms
Baby carrots w/Brandy Glaze
Fresh Salad
Pear Tart

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SOLAR ENERGY NEXT SIGMA XI TOPIC

Dr. Kenell J. Touryan will give the next Sigma Xi lecture March 20.

Associate director of research and development for the Solar Energy Research Institute at Golden, Colo., Touryan will speak on "Solar Energy: 20 Percent in the Year 2,000. Are You Kidding?" Free and open to the public, the lecture will begin at 8:15 p.m. in the Kresge Room of Edman Chapel, Wheaton College.

His lecture is being presented in connection with a symposium on March 20 and 21 at the College on energy futures. Subjects in that symposium will cover conventional and alternative energy sources. The symposium will consist of six lectures and will end with a panel discussion at 2 p.m. March 21. Touryan will give a more technical talk at 4:15 p.m. March 20.

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BIG BANG COSMOLOGY SUBJECT OF LECTURES

"The History of Cosmology--Emuna Elish to the Big Bang" will be the subject of the first Arthur H. Compton lecture April 5.

The lecture by Michael S. Turner of The Enrico Fermi Institute will begin at 11 a.m. in Eckhart Hall, Room 133, 1118 E. 58th St., University of Chicago. It is the first of 10 lectures on the general subject of "Big Bang Cosmology: From Primordial Soup to the Expanding Universe." They will be held on consecutive Saturdays from April 5 through June 7.

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NEXT PHYSICS COLLOQUIUM SPEAKER

Dr. I. Halpern of the University of Washington will speak about nuclear physics at the Physics Colloquium March 26. Free and open to the public, his talk will begin at 4 p.m. in the Central Laboratory auditorium

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BIRTH



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