FERMINEWS

Fermi National Accelerator Laboratory

Operated by Universities Research Association Inc.
Under Contract with the United States Department of Energy

Vol. 2, No. 37

September 20, 1979

NEUTRINO DEPARTMENT BEGINS VAST CONSTRUCTION CHANGES

The Neutrino Department has begun extensive preparations that will upgrade its facilities to Tevatron (1,000 GeV) era capability.

(Drawings on pages 2 and 3 of this Fermi-news issue show the present Neutrino Area and the proposed Tevatron era Neutrino Area.)

The bulk of the construction--expected to start this fall--will take at least several years, said Dennis Theriot, associate head of Neutrino Department construction. Theriot also said timetables are flexible and that work on two or more aspects of the construction may be going on simultaneously. Overall, the construction is divided into three major phases: I--Installing 23,000 tons of iron shielding; II--Lengthening the target tube and shortening the decay pipe; III--Constructing a completely new muon beam line.

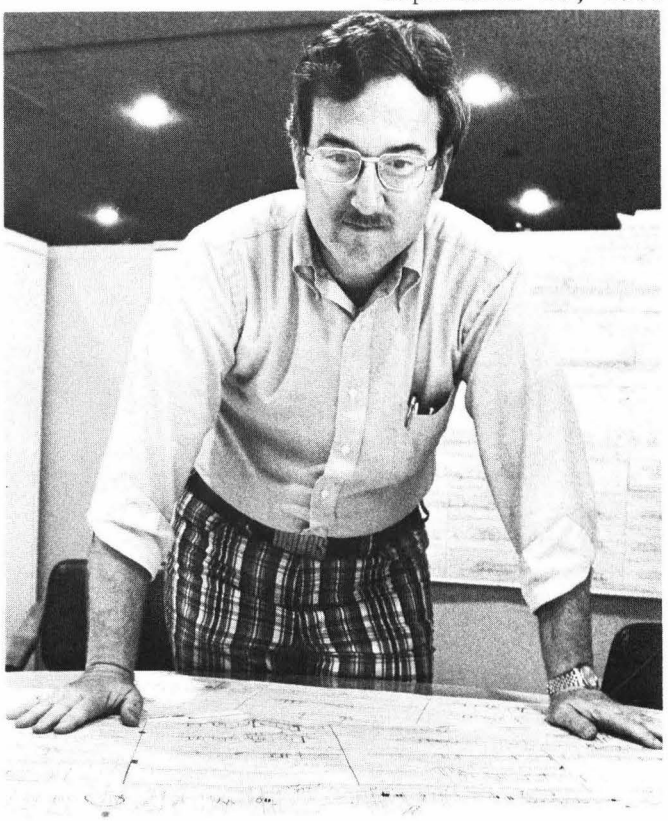
I

The present Neutrino Area contains a 3,000-foot earth berm that ranges out (stops) 500 GeV muons. However, the shielding needs to be hardened to range out 1,000 GeV muons. To accomplish this, the earth berm will be shortened to around 2,200 feet, and 750 feet (23,000 tons) of iron shielding will be installed at the upstream end of the remaining berm.

Installation of the iron most probably will begin this fall, said Theriot. The major portion of the initial installation, though, will come in the summer of 1980. When finished, the installation will allow neutrino scientists to range out 750 GeV muons. At a later date, the full installation of iron will be completed, thus ranging out 1,000 GeV muons.

II

To handle the new target systems, the target tube at the downstream end of the target hall will be lengthened to 400 feet. It presently is 200 feet long. To accommodate this extra length, the decay pipe, now 1,100 feet long, will be shortened to 900 feet.



...Dennis Theriot...

III

In the Tevatron era Neutrino Area, a fraction of the proton beam from the Main Ring will be split off before the beam gets to the neutrino target hall (see lower drawing on pages 2 and 3), bent to the east of the neutrino line and sent into a muon target hall, an entirely new facility that does not exist in the present Neutrino Area.

An intense beam of muons will be channeled to a new muon laboratory 5,000 feet downstream from the muon target hall. This new muon laboratory will replace the existing muon laboratory, now west and south of the existing neutrino experimental laboratories. The new muon laboratory will be built on the east side of the neutrino

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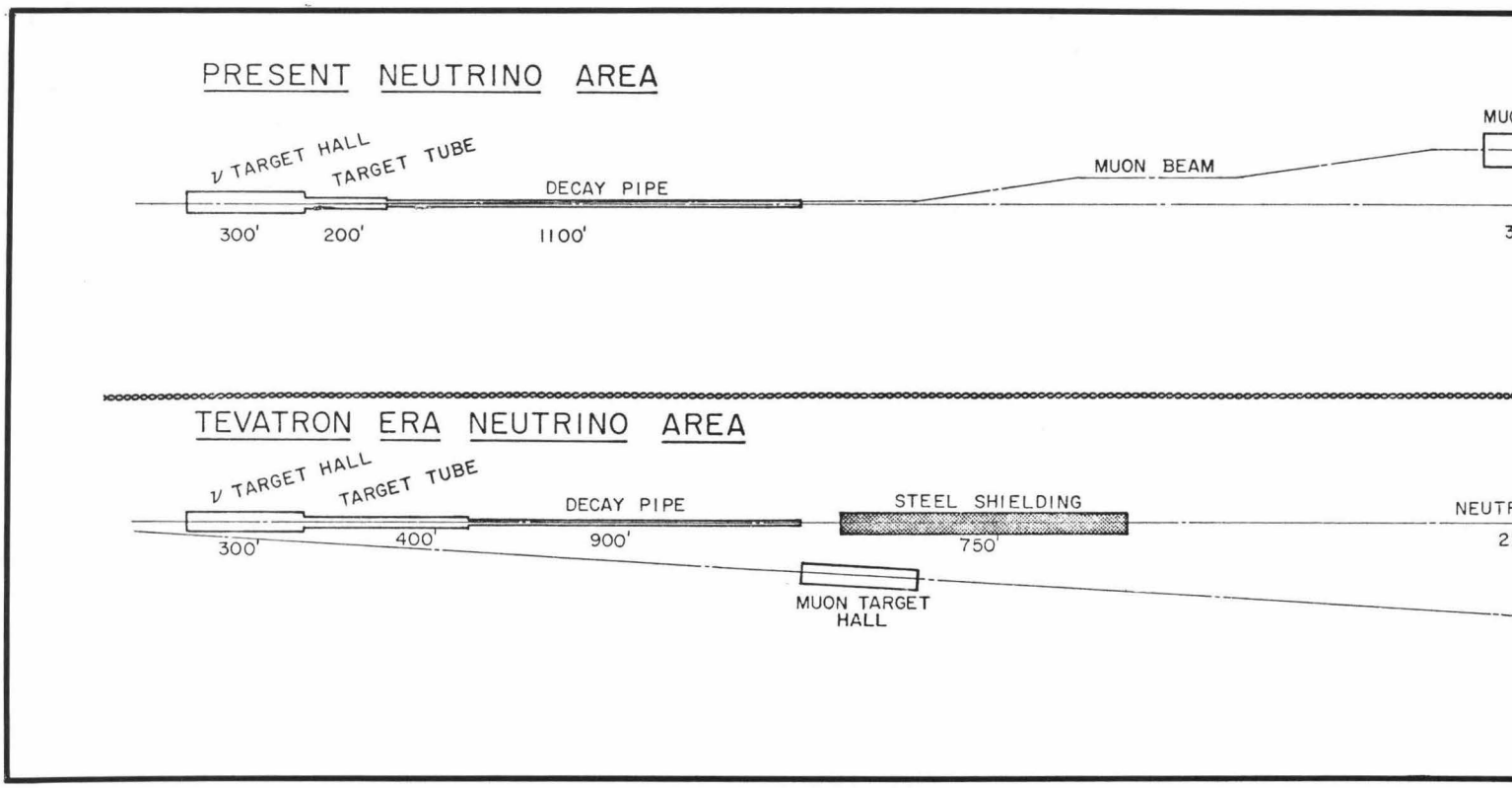

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line and north of Wilson Road.

Theriot said the timetable for this phase is less definite at this time than for the other two phases.

Advantages

When the Tevatron era Neutrino Area has been completed, its facilities--many of them underground--will be able to handle double the energy of the existing systems as well as generate a muon beam with intensities 100 times those that are now available at Fermilab.

Another advantage is that separate beryllium targets will be in place, one for the neutrino beam and one for the muon beam. This will allow considerable more flexibility in scheduling experiments, said Theriot.

The existing Neutrino Area can handle either a muon or a neutrino experiment. But in the proposed new Neutrino Area, both types of experiments can run simultaneously.

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...Sitting on a gravel road near Industrial 3, 3,500 tons of iron wait for fall. At that time, the iron will begin to be installed in the Neutrino Area, the opening stage of an extensive upgrading of the line. The iron is from the zero gradient synchrotron at the Argonne National Laboratory. The Argonne unit was shut down in October,1978. By the time 750 feet of iron shielding has been fully installed downstream from the decay pipe in the Tevatron era Neutrino Area, some 23,000 tons of iron will have been used...

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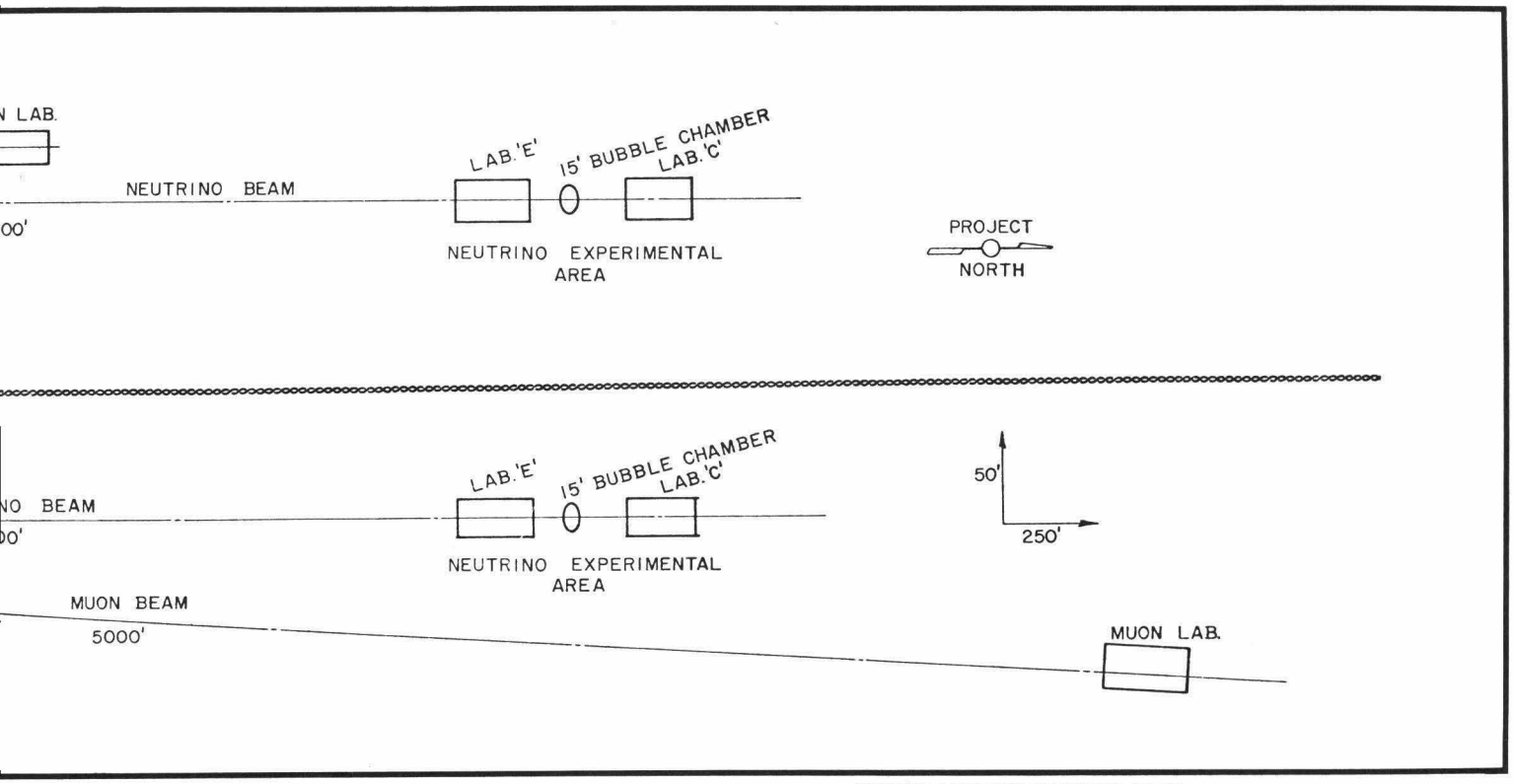

TWO SWANS JOIN FERMILAB FAMILY

Now there's seven.

Swans, that is. About 4:30 the afternoon of Sept. 11, two European mute swans were turned loose--their wings carefully clipped, of course--in Swan Lake, west of the Central Laboratory.

A young male and female born this year, they are the gift of the Oak Ridge National Laboratory in Tennessee which has a breeding flock. The two youngsters were carefully packed and flown to O'Hare Field, where they were picked up and brought here. The first thing done to them was to clip their wings to prevent them from flying away, said Jim Kalina, senior groundsman and Fermilab's acknowledged swan expert. He's been with Fermilab for three years.

And it's a good life the swans enjoy, even in Chicagoland's brutal winters. The seven birds are closely watched, cared for and fed an abundant diet, said Kalina. "We make sure there's plenty of fat on them to keep them warm," he added.

With proper care, there's nothing to worry about, he also said. The water on the ponds doesn't freeze over, so they always have swimming room. Even the Brookfield Zoo keeps many of its birds out during winter, Kalina said.

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SUPERCONDUCTIVITY NEW WHEEL FOR CIVILIZATION

"Superconductivity represents the most disgraceful episode in the history of science," Prof. Henry H. Kolm told his listeners at the first Fermilab colloquium following the vacation recess. Senior scientist and one of the founders of the Francis Bitter National Magnet Laboratory at the Massachusetts Institute of Technology, he had come here to talk about "The Prolonged Adolescence of Superconductivity." He was particularly chagrined that this seemingly advanced country has failed to recognize the enormous value and potential of superconductivity to practically every field of technology.

With an enthusiasm that caught his audience, he compared superconductivity to the discovery of the wheel with its vast impact on the development of civilization. Toward the end of his lecture, however, he said for a modern society, "superconductivity is better than the wheel."

A few moments later he said,"The technology exists. There is no excuse for not having superconductivity." He attributed this long adolescence to a "credibility gap" between the scientists who know about superconductivity and the decision makers in government who apparently remain unconvinced of the new dynamism it holds for this country.

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RESEARCH SERVICES TAKES NEW APPROACH TO HYDROGEN TARGETS

Research Services is proud of its latest hydrogen target.

The target will be used in experiment 516 and will be filled with three liters of liquid hydrogen at 20.4 degrees Kelvin. What is distinguishing about this target is that it is two meters long, 50 millimeters in diameter and is made of Mylar film 0.127 mm thick. It is the longest target made of this delicate yet sturdy material Research Services has ever built, and quite possibly one of the longest targets of this material ever built anywhere. Research Services has built longer targets, but they have been of metal.

The second distinguishing feature about the target is that it is encased in a foam vacuum jacket: and Fermilab is the only high energy physics laboratory that uses foam for vacuum jackets. Traditionally they are constructed of metal. The low density foam--0.05 grams per cubic centimeter--is made from acrylic resin. Not only is the foam vacuum jacket easier to fabricate than metal, but it is easier to handle, less prone to accidental damage and saves money for Fermilab, explained Jim Peifer, technical specialist in charge of design and fabrication of hydrogen targets. The foam is roughly the same density as the liquid hydrogen, he added.

The third distinguishing feature about the target is that it is time saving and reliable. Two refrigeration units fill it up with liquid hydrogen in 9-1/2 hours. One would take 30 hours. The duo refrigeration system allows Research Services personnel to work on one unit without having to shut down the experiment. "Beam time is precious to experimenters," said Peifer.

The target will be installed in the tagged photon hall. But before any target is installed, it is tested for about three weeks to evaluate its safety, mechanical integrity and refrigeration system.

Research Services staff members maintain the target throughout the experimental run.

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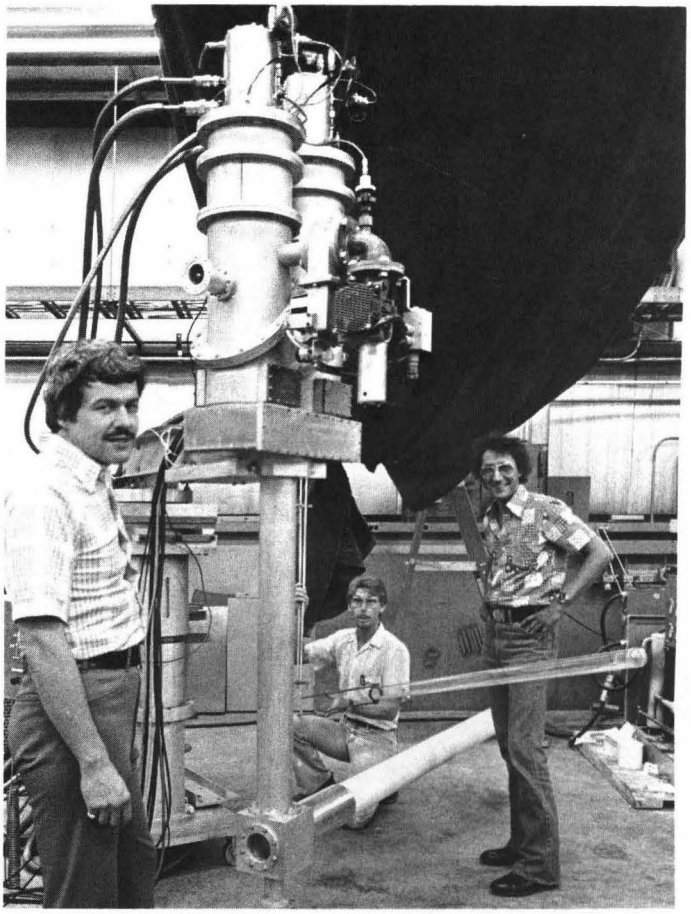

...Mike McKenna (center) holds an empty two-meter hydrogen target. A similar one is enclosed in the white foam tube just below it. Between Jim Peifer (left) and Joe Davids and McKenna, both senior technicians, stands the dual refrigeration unit that fills the target and keeps it cold. The entire unit and target are taken to the experimental site and installed in the beam line. Their facility is in Laboratory 3 in the Village...

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ANNUAL CANOE RACE PADDLES NEARER

Fermilab's popular canoe race--the fifth annual one--will be held Sept.30. The race will begin at 1 p.m. in sector F-4 of the Main Ring and will end there. Contestants have been asked to remember that there are 16 portages around the dams. Participants can use their own canoes or they can rent a laboratory canoe for the day at $5.

Because of the nature of the race, volunteers are being sought to help with the details. Call Larry Allen, Ext. 3721, or Helen McCulloch, Ext. 3126.

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FERMILAB SOFTBALL TEAM FINISHES SEASON

Fermilab's softball team ended the regular season with a 15-14 record, taking fourth place in the Geneva Men's Recreational (slow pitch) League.

In the playoffs, the team captured third behind the performance of Chuck "Iron Arm" Brown, star pitcher, and first baseman Brad Cox, leading hitter. Eight teams competed in the league, established for players over 30 years of age.

John Cumalat led the team as its manager and shortstop.

Other players and their positions are Jim Krebs, catcher and first base; Irwin Gaines, second base and pitcher; Peter Garbincius, third base; Bob Loveless, left field; Jim Russell, center field; Dick Gustafson, right field; Ron Sidwell, short center field; Ron Lipton, shortstop, second base and short center field; Bob Dosen, outfield; Bill Francis, catcher; Dan Spelbring, utility infielder; Dave Bintinger, short center field; and Ken Gray, infield and outfield.

It was the team's third season of play in the league.

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CALL FOR SCRAP MATERIALS

Have scrap materials?

Then the Property Management Branch of Support Services, Ext. 3585, is the place to call to get rid of them.

These materials can be metal, computer printout paper, tab cards or other materials. "Give us a call and we'll pick them up within 24 hours," said Al Lindner, property manager.

The items are sold to commercial firms that process and recycle them. However, a word of caution. Before calling Ext. 3585, make sure the items have first been surveyed by someone from Radiation Safety to assure there is no hazard, said Lindner. This applies particularly to scrap metal.

For additional information, Lindner suggests persons call his group at Ext. 3585.

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...Camera catches liquid sculpture of water vent pipe west of the Central Utility Building...

TRANSPORTATION OF INJURED OR ILL PERSONNEL: AN UPDATE

In all cases of injury or serious illness, immediate first aid is available through the Fermilab Fire Department ambulance service, according to the latest Laboratory policy statement on the transportation of injured personnel. This service is available through the emergency operator--on duty 24 hours each day--by dialing Ext. 3131.

Members of the Fermilab Fire Department who respond to the call have been highly trained in rescue and first aid procedures. They will evaluate the situation and provide the required aid including transportation to a hospital emergency room if necessary, says the policy statement. Backup ambulance service is available and will be called if the emergency coordinator determines it is needed.

In cases of minor injury or illness, the first aid station in the medical department, CL1-W, is the preferred place to help the patient. A staff member in the medical department may recommend that the patient be examined by a physician at a hospital. A personal vehicle, Fermilab cab, government vehicle or area taxi (after 5 p.m.) can be used to transport persons with minor injuries from the site to the medical department.

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FIRE PREVENTION WEEK COMING

National Fire Prevention Week will be observed Oct. 7-13.

The week coincides with the anniversary of the great Chicago fire. And Fermilab fire chief Ralph Kramp reminds employees to pay close attention to fire safety measures. "They will cut the annual losses of life and property due to fire," he said.

"Every employee bears responsibility for identifying and correcting fire hazards, not only on the job, but also at home. Do your part for yourself, your family and your fellow employees."

During the week of Oct. 8-12, the Laboratory will show a special film on fire hazards at 1 p.m. in Curia II on the southwest side of the second floor, Central Laboratory.

The Fermilab Fire Department also has available four free booklets. They are: "On-the-Job Fire Safety"; "Fire--What Would You Do?"; "What Everyone Should Know About Smoke Detectors"; and "Are Your Children Safe from Fire?". The booklets will be available in the conference room or copies may be obtained by calling the fire station, Ext. 3428.

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CANCER FUN RUN FOR GOOD CAUSE

It's a challenge for a good cause.

Runners of all ages and both sexes will run for fun around the Main Ring Sept. 22-6,000 meters to benefit cancer.

Registration at the Central Laboratory will open at 7:30 a.m. and continue until 8:45 a.m. The run will begin at 9 a.m. The fastest runners are expected to come in 20 minutes later, with those at the other end crossing the finish line in about an hour. Registration fee for each runner is a donation of $5.

In addition, many of the runners will have sponsors who will donate anywhere from 10 cents on up for each mile completed. The distance around the Main Ring is about four miles. The money raised will be used by the American Cancer Society units of northern Kane and south Kane/Kendall counties.

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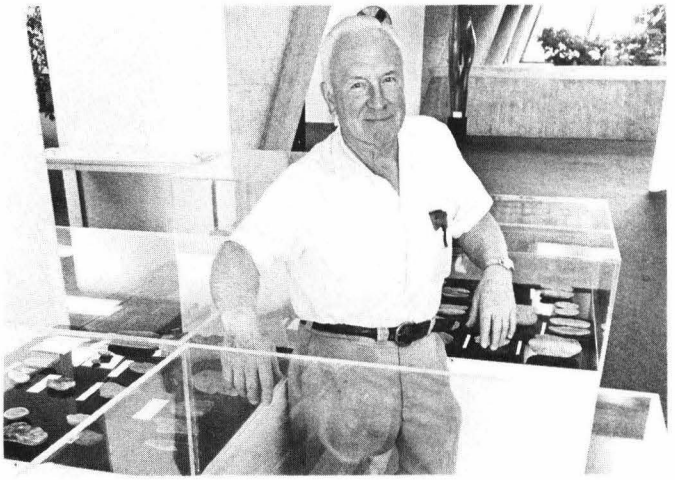

...Jerry Latshaw...

NEW EXHIBIT OPENS AT FERMILAB

Millions of years of history have come to Fermilab.

They come in the form of fossil remains of animals and plants that lived in the Pennsylvanian Period of the Palaeozoic Era--about 300 million years ago. Ten exhibit cases on the second floor of the Central Laboratory are filled with such enticing things as a small jelly fish, worms, fish scales, fish egg mass, baby longfish, insects, seed ferns, a cone with leaves and many, many other remains permanently caught by a quirk of nature.

The exhibit will be shown through the end of October. Jerry Latshaw, an energetic, silver-haired gentleman, personally collected each item shown in the exhibit--none were purchased or traded for. He describes them as his "pure collection," of which only a portion is here. Most of the fossils on display were collected in the area generally south of Joliet.

He lives in Forest Park and runs what he calls "just a crazy store"--West Suburban Coins in Oak Park. His inventory there is "basically stamps, coins, minerals, fossils and all kinds of collector items," he said.

He's an expert on fossils and their chemistry, having collected them since "I was five years old." So if a person wants to see a Lepidostrobophyllum majus or an Annulara radiata....

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FERMINEWS is published weekly by the Public Information Office of the Fermi National Accelerator Laboratory — P.O. Box 500 — Batavia, Illinois 60510 — Phone: 312-840-3351. ☆ U.S. GOVERNMENT PRINTING OFFICE: 1979—650-054/16