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FERMI NATIONAL ACCELERATOR LABORATORY

# FermiNews

## TEV I ANTIPROTON SOURCE MOVES AHEAD

The people of the Antiproton Source Section have been very busy and productive in the last several months. Their hard work culminated in a **Design Report** issued just before the beginning of March, a detailed cost estimate of the entire project, and two intensive reviews of the project. Everyone in the section had a hand in these events, under the leadership of John Peoples, Don Young, and Fred Mills. Sue Grommes of the Director's Office and Teri Martin typed endless drafts, giving the CYBER word-processing system one of its tougher workouts.

In addition to the antiproton source, the Tevatron I project includes additional refrigeration, special magnets, and rf systems to make the Energy Saver into a 1-TeV (trillion electron volt) accelerator and storage ring, the Tevatron, as well as building and conventional facilities at B0 for the Collider Detector. But the centerpiece of the project is producing and accumulating antiprotons, then accelerating them to 1 TeV going the

(cont'd. on pg. 2)

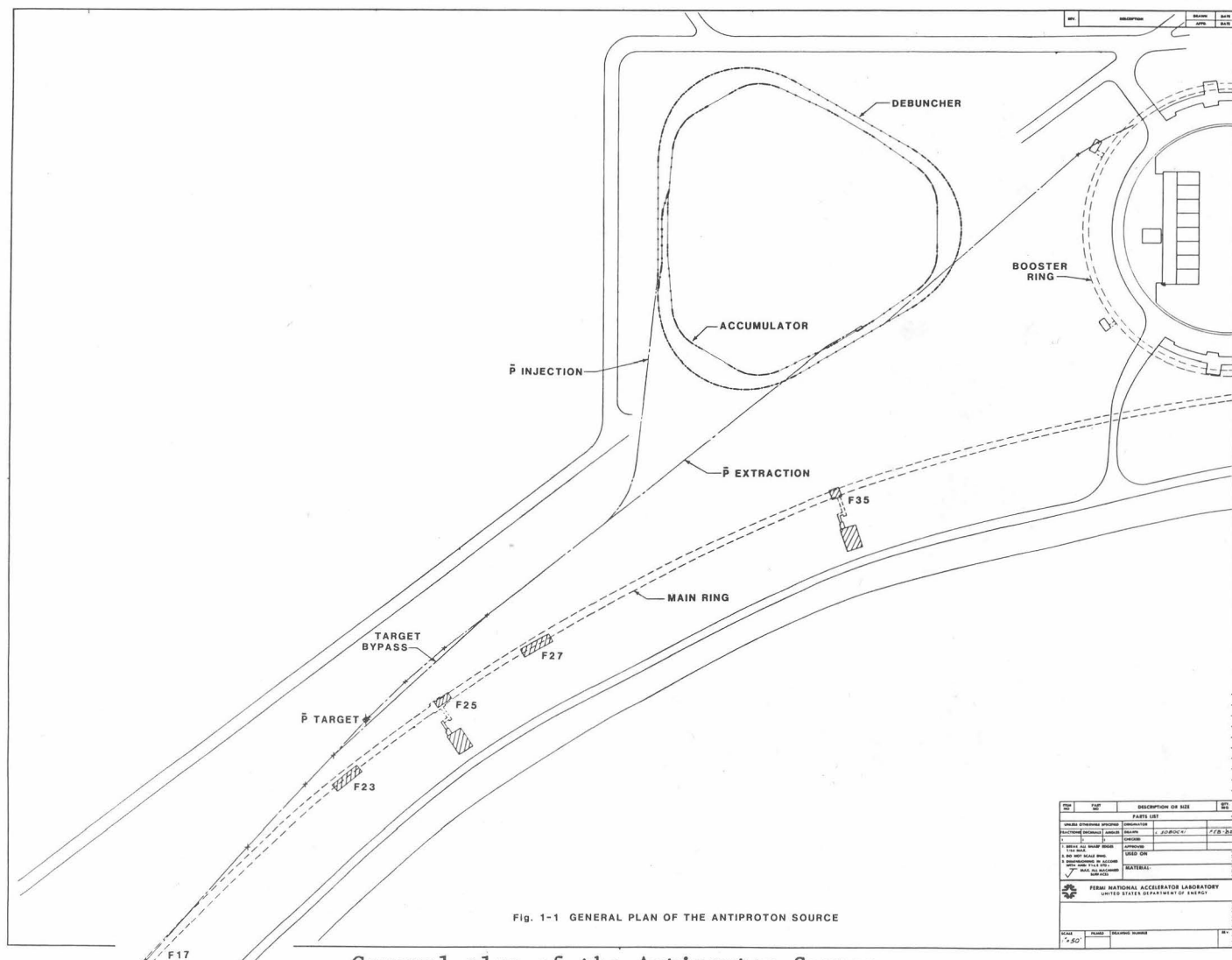


Fig. 1-1 GENERAL PLAN OF THE ANTIPROTON SOURCE

General plan of the Antiproton Source.

# ANTIPROTON SOURCE SETS SIGHTS HIGH

(cont'd. from pg. 1)

other way around the Main Ring and Tevatron, so that bunches of 1-TeV protons and bunches of 1-TeV antiprotons collide in the detector. The goal is to produce and study the elusive "intermediate bosons," the W and Z particles, that will be a large step toward a more complete picture of the elementary particles we study at Fermilab.

What is presented in the new **Design Report** is a completely new design making use of "stochastic" cooling to shrink the antiproton beam to a tighter size so that it will fit in the Main Ring and Saver and to make more collisions. The old design, done a year ago, needed 12 hours to collect enough antiprotons to reach the luminosity goal ( $10^{30} \text{cm}^{-2} \text{sec}^{-1}$ ) the designers set for themselves. The luminosity is a measure of how many events

## LAB BLANKETS RADIATION

A new radiation shield gave technicians Tyrone Thomas, David Tinsley, Phil Adderley, Al Runde, Jeff Meisner, and Greg Meyer help recently with a high-radiation-exposure septum-repair job. The long repair task required eight hours of close exposure to the septum frame, one of the most radioactive places in the accelerator. Using newly acquired lead wool blankets hung on frames, the technicians cut their radiation exposure in half.



Greg Meyer applies silicon rubber to septum wire withdrawal springs while shielded by lead blankets.

collisions will produce. The new design does the job in less than 5 hours. It also has better ways of being expanded to higher luminosities as we learn how to use them.

The new design includes a new target station to produce 8-GeV antiprotons from 125-GeV protons. The antiprotons are injected into a Debuncher ring we will build south of the Booster. In it, the beam will be given some initial cooling, then transferred to an Accumulator ring concentric with the Debuncher. Here we will stack successive batches of antiprotons, cooling them with 6 separate stochastic systems, until there is enough beam cooled to a high enough density. Then the antiprotons will be taken out and accelerated in the Main Ring and Tevatron.

The new better performance doesn't come for nothing. The estimated cost of the Tevatron I project has gone up. But it is a better, more solid project. Two review committees have examined the design in great detail. The first, a group put together by Leon Lederman to advise him, endorsed the project as sound technically. The second, a Department of Energy Committee, met here all last week. Their report is not available as yet, but the Fermilab antiproton people feel we did a good job of defending our work.

The schedule calls for beginning construction work this wummer at B0, to mesh with the Energy Saver schedule, then to begin building the Antiproton Source next fiscal year. It won't be easy--the schedule is tight and there are many technical components to build and assemble, but the goal of proton-antiproton collisions at 2 TeV, the highest energy in the world through at least the 1980's, keeps the Antiproton Source Section working hard to get there.

# LECTURER TO GIVE TALK ON THE VIKING VOYAGES

by Jane Green

Dr. Gwyn Jones, a premier scholar and lecturer on Viking history and literature, will unravel the true tale of the Viking adventure in his presentation on Friday, April 2, 1982 at 8:00 p.m. in Ramsey Auditorium. The legendary Vikings are notorious as "warriors from the mysterious North." In his talk, "The Western Voyages of the Vikings," Dr. Jones will explore the fascinating saga of Viking explorations and discoveries during their many ventures to North America.

Dr. Jones is Professor of English at University College in Cardiff, Wales. A Steward of the Viking Kingdom of York, Dr. Jones has written extensively about Viking history. His books include **The Norse Atlantic Saga, Kings, Beasts and Heroes, A History of the Vikings, Scandinavian Legends and Folktales, and Viking Greenland.** He is past President and an Honorary Fellow of the Viking Society for Northern Research.

Dr. Jones' lecture will be a complement to the spectacular "Viking World" exhibit which is now on display at the Museum of Science and Industry through May 9. Admission to the lecture is \$2.00, \$1.00 for senior citizens. Tickets are now available at the information desk in the Atrium of Wilson Hall.

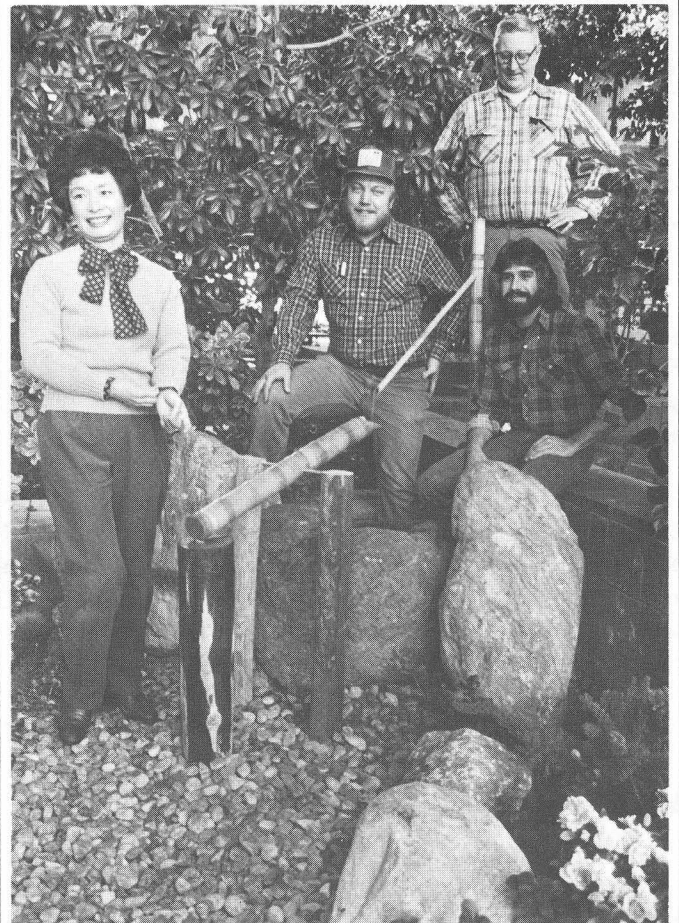
## PHYSICAL PLANT CONSOLIDATES

Bruce Chrisman, Jim Finks, John Paulk, and Chuck Anderson met with electricians and mechanics at Site 38 to welcome them into the Business Section. This followed a recent reorganization under which Utilities Management and Site Services shops were merged. The new organization is called Plant Maintenance.

The group includes electricians, carpenters, mechanics, painters, and locksmiths, about 60 in all, who are responsible for the maintenance of the Laboratory's physical plant. Chuck Anderson, formerly of the Research Division, has been appointed Deputy of Site Services and also will head Plant Maintenance.

As part of this reorganization there will be a strengthening of the Engineering Support group with the addition of Bill Riches, Jack Mills, George Spisak, and Joe Volant. John Hall will be in charge of Work Central, which receives and processes all incoming project or trouble calls for Site Services. The phone number of Work Central will continue to be 3434. It's a good number to keep handy.

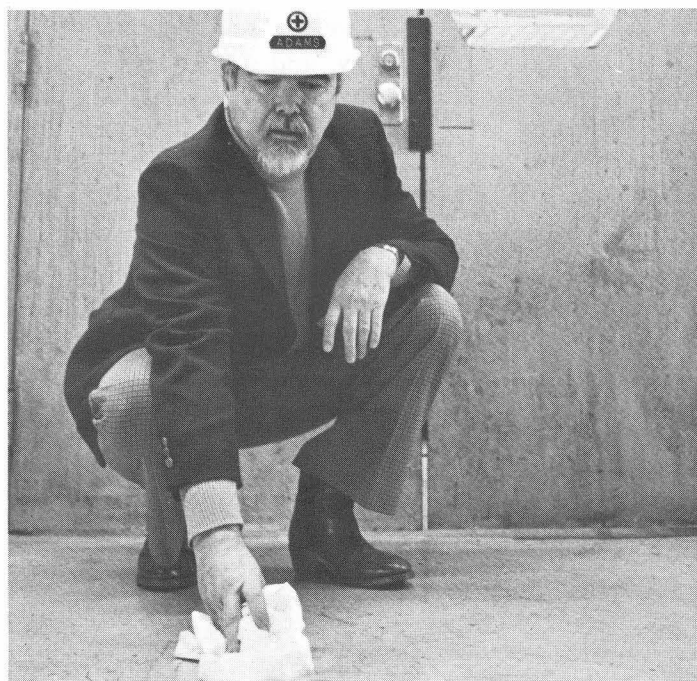
## ARTISTRY ACCENTS ATRIUM



A new addition to the Atrium Japanese Garden is the bamboo fountain designed by Nanako Yamada (left), head of the Fermilab Flower Advisory Committee. With her are Bob Lootens (Roads & Grounds), Don Rapovich (Carpenter Shop), and standing Bill Byrd (Electric Shop), who helped make the fountain a reality. The flowers and displays which she has been responsible for choosing are meant to reflect seasonal changes. The daffodil display a few weeks ago was to be an inspiration to employees and visitors that Spring is truly coming. Mrs. Yamada hopes the new fountain will provide a calm respite in busy Wilson Hall.



# PHYSICAL SAFETY IS MIND OVER MATTER



Senior Safety Officer Bob Adams practices good housekeeping.

Rarely are hazardous conditions such as slick pavements, bent or warped surfaces, potholes, poor footing or debris on stairways, entirely responsible for slipping, tripping, or falling accidents.

About 90 per cent of these hazards are linked to the unsafe actions of "troubled" employees who are trying to adjust to some kind of situation or emotional problem in their lives. According to estimates, people, rather than physical conditions,

cause 88 per cent of industrial mishaps. In contrast, physical conditions contribute to 10 per cent of the accidents and the remaining 2 per cent is uncategorized.

"In a sense, personal actions produce unsafe acts," Adams says. "Causative factors, such as illness, fatigue, and emotional upset or stress, may cause a gradual interference with and distraction from work performance. As a result, the chances of falling are increased," Adams said, and added, "you can help yourself by following some basic preventative measures." Try to follow these five rules:

- Be alert and cautious on walking surfaces; use handrails, and avoid over-reaching while standing on ladders.

- Practice good housekeeping measures such as cleaning up spilled liquids as well as solid materials such as ice and mud.

- Wear proper shoes free of foreign objects on the soles and heels.

- Keep ramps, stairways, and landings properly lighted.

- Properly maintain walking surfaces.

"If individuals keep these simple rules in mind when doing work, they will be much less likely to hurt themselves on the job," Adams concluded.

## BRIEF NOTES

### Amateur Radio Club Tunes In

Informal discussions of a variety of communication systems will continue at the monthly meetings of the Fermilab Amateur Radio Club. All who are interested are invited to join in every first Wednesday at 11:30 a.m. in the 1 West Conference Room.

### Steppin' Out for St. Pat's Day

NALREC presents Shamrock Shenanigan's on Friday, March 19, from 5:15 p.m. to 10:30 p.m. at the Kuhn Barn. Entertainment will be live music; food and beverages will be available. Admission is free. For further information, contact Dave Muniz, ext. 3161, or Jesse Guerra, ext. 4305/3198.

### Quench the Spring Sports Thirst

by Dave Hanabarger

"If you want to play ball in '82, 'Quench' is the name and team for you. To help us make it to number one, Call Dave Hanabarger, ext. 4941."

### Join Fermilab League Ball

It's time to sign up for softball and volleyball. Employees interested in forming a team or playing on a league team should contact Helen McCulloch, ext. 3126.

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