

The Village Crier



fermi national accelerator laboratory

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URA APPROVES NUCLEON THERAPY FACILITY

At its December meeting, the Board of Trustees of Universities Research Association authorized Fermilab to seek operating funds from the National Cancer Institute (NCI) to operate a medical research facility at Fermilab for investigation of the therapeutic value of neutron irradiations of certain types of cancer. A request will be submitted in January to NCI. Other funds will be used to construct the facilities so that treatment of cancer patients could begin as early as the end of 1975.

The planned Nucleon Therapy Facility (NTF) at Fermilab could use approximately five out of every six seconds of available linac time by taking beam when the linac is not needed for injecting protons into the booster accelerator. Protons of about 66 MeV would be extracted from the linac between tanks four and five, carried through the wall to an adjoining room in the linac basement. There the beam would strike a lithium target. The neutrons resulting from those collisions would be the particles that would be used for cancer therapy research.

At the Hammersmith Hospital in England, neutron beam therapy has been found to be useful in some situations against cancerous tumors which resist x-ray and gamma-ray therapy. About 15-25% of all cancers fall into this fatal category. Leaders of the project at Fermilab stress that the project is primarily a research program. The Fermilab experience will provide valuable data on any advantages of neutron therapy over x-ray and gamma-ray therapy. In the United States, neutron therapy facilities now operate at the Naval Research Laboratory, Washington, D. C., at the M.D. Anderson Hospital, Houston, Texas and at the University of Washington, Seattle, Washington. However, at Fermilab for the first time, radiotherapists will have access to a neutron-producing proton beam about 168 hours a week with a reliability approaching 96%. Thus they will be able to plan the treatment of patients in the manner best suited to the affected tissues.

The planned schedule of activities leading up to treatment of patients at Fermilab divides into three phases. The first phase includes construction of the transport line taking the proton beam from the linac to the target, creating neutrons, and studying the physical and radiobiological characteristics of these neutrons as well as comparing results obtained with the Fermilab neutron beam with those of other treatment centers. These studies will provide the information initially needed to plan treatments to be given at Fermilab. This phase is now underway. The first step was successfully accomplished when tank five was moved downstream seven inches with no apparent change in the linac performance.

The second phase involves construction of a facility adequate for receiving and treating patients. The third phase includes hiring additional personnel and commencing the research in cancer therapy using the neutron beam.

Of the seven million people living in the Chicago metropolitan area, some 11,000 are stricken with cancer each year. Of these, several hundred could benefit from this therapy. Valuable data on the efficacy of this type of treatment will be accumulated in a relatively short time because it is estimated that 200-400 patients may be treated in the first year of

(Continued on Page 2)

URA APPROVAL (Continued)

operation of the Fermilab Nucleon Therapy Facility. Twice as many could be treated per year, but the physical plant as planned would not allow the processing of this many patients.

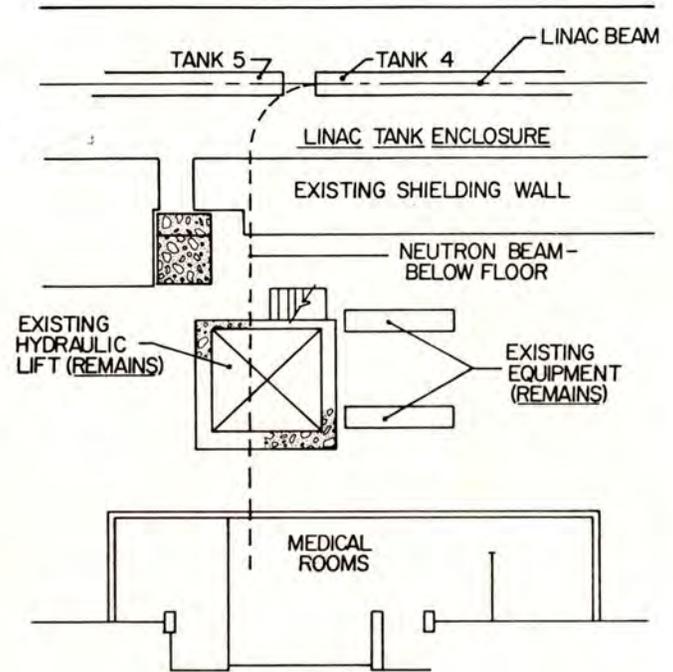
The Fermilab NTF will utilize the linac gallery at the point where a large roll-up door now opens for receiving materials. A reception and examining room would be built on this level, leaving an aisle for linac staff to pass through. The hydraulic lift platform there could lower patients to the level where the neutron beam would be located. A treatment room will be built on this lift.

It is planned that the NTF will be operated by a new organizational unit at Fermilab -- the Medical Division. Lionel Cohen, M.D., chairman of the Department of Radiation Oncology at Michael Reese Hospital, Chicago, will serve as Division Director, and continue his position at Michael Reese. The Medical Division will get logistic support from the rest of the laboratory. Dr. Cohen will report directly to the Laboratory Director on matters of policy and scheduling. The high energy physics program will not be affected by the NTF. The Illinois Cancer Council (ICC), an independent organization of medical schools and major cancer organizations in the State of Illinois, has agreed to provide statistical support and other help. The medical protocols for cancer selection and treatment trials will be developed with the help of the ICC and the high-LET (linear energy transfer) committee of the NCI. Certain preliminary radiobiological measurements may be made by groups from the Argonne National Laboratory, various universities, and at least one hospital.

The Fermilab NTF has been endorsed by radiotherapists and members of the medical profession across the U.S.A. Some area radiotherapists have been very helpful in preparation of the request to NCI. They organized a steering committee and a number of advisory sub-committees. Frank R. Hendrickson, M.D., chairman of the Department of Therapeutic Radiology at Rush-Presbyterian-St. Luke's Medical Center, Chicago, has been the chairman of the steering committee.

The idea of extracting the beam from the middle of the linac and using the linac gallery for the NTF, making the project financially feasible, was proposed by Laboratory Director R. R. Wilson. Development of the plans for the NTF has been spearheaded by Miguel Awschalom of the Research Services Department and Donald E. Young of the Accelerator Division. Giving them a great deal of support have been Cy Curtis, Ed Gray, Glenn Lee, Curt Owen, Max Palmer, Bob Peters, Mike Shea, Bob Shafer, Stan Snowdon, and Gerry Tool. They have been aided by oncologists from various hospitals and medical schools -- Cohen and Hendrickson, Melvin Griem (University of Chicago), R. Perez-Tamayo (Loyola Medical School), Stefano Stefani (Hines Hospital) and Samuel Taylor (Rush Medical School). Other help came from physicists and biologists such as Lester Skaggs (University of Chicago), Warren Sinclair (Argonne National Laboratory), Jacques Ovadia (Michael Reese), and R. G. Alsmiller (Oak Ridge National Laboratory).

Young and Awschalom are optimistic about the prospects lying just ahead for the NTF, inspired by the fact that cancer treatments might start in the foreseeable future. As M. Awschalom expresses it, "We are indeed very happy in being able to add a compatible activity of great humanitarian value to the outstanding, on-going Fermilab high energy physics research program."



...Proposed nucleon therapy facility...

LOOKING BACK ON THE HOLIDAYS...

THE CHILDREN HAD FUN...

AND SO DID THE ADULTS...



DARRELL DRICKEY MEMORIAL FUND

The Darrell Drickey Memorial Fund has been established to help provide a college education for his three young children. Contributions may be sent directly to Harold K. Ticho, UCLA, Los Angeles, California 90024 or forwarded through Helen Peterson, Directors Office, Fermilab.

THIS WEEK AT FERMILAB

- Thursday, January 9 - NALWINGS presents two FAA flight safety movies - 5:30 p.m.
Central Laboratory 1W
- Friday, January 10 - Cafeteria Special - Giant Roasted Round of Beef, Carved to
order - \$1.05 ala carte, \$1.70 dinner
- Friday, January 10 - Cocktail Hour - Users Center, Village - 5-7 p.m. - Special Prices
- Friday, January 10 - International Film Society presents *Miss Julie*, a movie
adaptation of a play by Strindberg. Auditorium - 8 p.m.
Admission \$1.00 adults, 50¢ children
- Sunday, January 12 - NALREC HOCKEY TRIP - Blackhawks vs. N.Y. Rangers
Leave Central Laboratory 6 p.m. Price, \$7.00 includes
ticket, bus, refreshments. Bob Kocanda, Ext. 3736
- Wednesday, Jan. 15 - NALREC HAPPY HOUR - Village Barn 5-7 p.m. Blue Grass Band
- ...Buy your tickets now for the Fine Arts Quartet Concert, January 25...

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SKI TRIPS

Two local ski clubs have announced plans for trips in the next three months. The Argonne Ski Club will go to Winter Park, Colorado and make two trips to Salt Lake City, Utah. Contact Frank Tebo, Building 301, Argonne, for further information. The Fox Valley Snowdrifters Ski club will go to the Boyne area on January 10-12. Kurt Kasules, Ext. 3714, has more information on the Snowdrifters.

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REMEMBER, CREDIT COSTS LESS AT YOUR LOCAL CREDIT UNION

CLASSIFIED ADS

- FREE - Puppies, Mostly Collie, 2 males & 1 female. 8 wks. old, So Cute we're keeping 3rd choice. Will Hanson, Ext. 3555 or 469-0700.
- FREE - English Setter, 3 Yrs., Male. Good hunter, needs love & attention. Call 879-8239.
- HOMES NEEDED - Eight, mixed breed, black puppies, will probably grow to Spaniel size. 4 wks. old & will be ready for new homes in 2 wks. Interested? Call Maggie Conetti, Ext. 4235.
- FOR SALE - Fine Wool Rug from Fields. 12' x 15', gold. \$100. Call Ext. 4059.
- FOR SALE - 42" Gas Range, White perfect cond. Includes center alum. grill, oven broiler, storage. Immaculate. \$50. Call Frank Mehring Ext. 4048 or 424-3429.
- FOR SALE - Electric Typewriter, New fully automatic, many deluxe features, 5 Yr. Mfg. Guar., \$150. Call Frank Mehring, Ext. 4048 or 424-3429.
- ATTENTION VETERANS - You are invited to Open House, Sun., Jan. 26, 2-5 p.m., Batavia V.F.W., Hear advantages of Veterans Organization. Contact John Burdette, Ext. 3521.
- FOR SALE - Silverware - William & Mary Pattern, open stock. Call Ed Brezina, Ext. 3580.
- LOST - Men's small Gold Watch, leather band. Movado Curviplane, Central Laboratory area. Great sentimental value. Call Tom Jorgenson, Ext. 3414.
- FOR SALE - Olympia Precision Typewriter. Port., manual, good cond., \$37. J. M. Weiss, X3910.
- WANTED - Squash partners. Call J. M. Weiss, Ext. 3910.