

ANNUAL USERS MEETING

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The Annual Meeting of the Users Organization was held on Friday, April 30, and Saturday, May 1, in Ramsey Auditorium. Because 1982 is a year of change for Fermilab, with a new accelerator in sight, the Users Executive Committee had stressed the importance of users attending the meeting. More than 300 users from the U. S. and abroad were present. They were drawn by an excellent group of speakers coupled with the opportunity for discussions with the Laboratory management.

Leon Lederman welcomed the users with a briefing on the State of the Laboratory and its future program possibilities that ranged to the year 2001. He gave a set of vigorous imperatives: operate the 400-GeV program, complete the Energy Saver, produce an intense source of antiprotons for colliding-beam experiments, construct the fixed-target areas for the Tevatron and still work toward a long-range future with advanced research on such projects as high-field superconducting magnets. In the course of his review, he announced the achievement of a 900-GeV ramp in the 120 magnet string in A sector the previous night. He noted the publication list from the Laboratory for last year was long, varied, and included many Ph.D. theses. Still, there is a problem with available accelerator time. There has been a steady drop over the years, due principally to budget strictures. He indicated that the President's budget proposal for 1983 holds promise for the first real growth in the operating budget in nearly five years. Lederman also noted the Laboratory's extra-curricular activities: technology transfer, including new contacts with Latin America, high school science lectures, and the Neutron Therapy Facility.

High on this year's list of user concerns was the basic planning process in particle physics. Although the users and the Laboratory have many common interests and attitudes, there is also a built-in divergence of views. Whereas the Laboratory's future depends strongly on large-scale efforts to build new facilities such as the ambitious Tevatron plan, the user's future depends strongly on current operation; the personal rewards of intellectual discovery and recognition motivate the user. This divergence has necessarily become more evident and more painful as our high-energy facilities run less of the time for ever-larger experiments. The Users Meeting is a forum for open candid discussion and reconciliation of or to this divergence.

Several of the distinguished speakers at the meeting helped to shed more light on the science policy process. Representative Don Fuqua, chairman of the U. S. House of Representatives Committee on Science and Technology, stressed the importance of good science education. He observed at one point his concern that

industry is attracting potential graduate students from the engineering and scientific field. He stressed that this was "like eating one's seed corn." He also judged the Reagan administration as enlightened in the area of basic scientific research.

Hugh Loweth, Deputy Director for Energy and Science of the OMB, gave an insightful discussion of the Washington budget process. Loweth noted that the President's proposed budget for particle physics in DOE for FY 1983 is up by almost 18% over FY 1982 and represents an increase as great as that proposed for DOD. Following his informal talk, he was joined by Martha Krebs, Staff Director of the Subcommittee on Energy Development and Application, in a lively and informative discussion with the audience.

There were the canonical reviews of Laboratory programs. Taiji Yamanouchi and Norman Gelfand reviewed the present experimental program and the proposals that have been received. Peter Koehler outlined the extensive program of improvements that had been carried out in the research areas over the last year. Rich Orr, John Peoples, and Tom Kirk reported on the progress on the large new projects now underway at Fermilab. With a fair fraction of the Saver installation complete, Orr anticipates commissioning of the Saver in the spring of 1983. He also summarized the initial conditions expected for Saver operation. Three new beams are planned, a polarized-proton beam in the Meson Laboratory, a high-intensity muon beam in the Neutrino Laboratory, and a new broad-band photon beam in the Proton Laboratory. A new plan has been devised for the Meson Laboratory beams that should considerably facilitate targeting and target handling (discussed below).

John Peoples presented the plans for the $\bar{p}p$ Collider as revised and presented in February 1982, including the new 8-GeV debuncher-accumulator rings. He announced that invitations to bid on B0 construction would go out Monday, May 3.

An interesting new proposal for an ep colliding-beam facility was aired by a U. S.-Canadian group represented by Nathan Isgur and Steve Holmes. The project would use a 5-GeV electron ring, nearly 500 meters in circumference. It would be tangent to the Saver ring at D0 and would reach a luminosity of $4 \times 10^{31} \text{cm}^{-2} \text{sec}^{-1}$. It could function as a booster for a larger more ambitious project.

John Cumalat, head of the Laboratory Computer Advisory Committee, and Al Brenner, head of the Computing Department, discussed the present and future computer situation at the Laboratory. Several roads are available for relieving the present problems of saturation of computing capability, but Brenner stressed that a substantial increase in capacity is not now budgeted until 1984.

A discussion was given of a Summer Study in Aspen, Colorado, sponsored by the Division of Particles and Fields of the American Physical Society, to look at intermediate and long-range national needs in particle physics. The study will be held from June 28 to July 16.

In the next talk Martinus Veltman of Michigan gave a perspective on the state of particle physics. After summarizing the predicted but as yet undiscovered particles, he cautioned that experimenters should not let themselves be dazzled by theoretical chimeras, but must concentrate on careful work to explore particle spectra to give a solid base for physics, and be sensitive to the unexpected.

On Saturday morning, H. Guyford Stever, the new president of Universities Research Association, was introduced. Stever reviewed the history of science advice in Washington, including his experience as Director of the National Science Foundation and Presidents' Science Advisor. He also reviewed the history of URA, of which he was one of the founders, and emphasized URA's dedication to the success of Fermilab and the users program.

There was a special Saturday afternoon session on Tevatron II beams, particularly in the Meson Laboratory. The original Tevatron II plan of 1980 included upgrades of all the meson beams. In February 1982 a new plan was outlined for the Meson Area in the Tevatron. It had only M1, M2, and M6 beams, with provisions for a switchable proton beam down M3 by 1985. This plan caused concern among the users and discussion between users and Fermilab staff because of the short time between the decision to change to this plan and the start of construction in summer 1982, and because it did not explicitly contain provisions for test beams such as M4 and M5 and for neutral beams such as M3 and M4.

Dave Carey presented a new design for an M6 East M6 West beam and a feasibility design for the first arm of an M5 test beam. The new M6 West beam will cross the access road near the current Multiparticle Spectrometer (MPS). It is possible to have the east branch also cross the road, necessitating the moving of the MPS into a new counting building currently being designed, an M6 East may connect to the old MPS, with some loss of beam quality. These two alternatives are being studied. Great interest was expressed in the M5 test beam. More design work is needed, but the preliminary stage looks good. Another test beam may be located in the Neutrino Area. The Collider Detector Facility envisions using one full test beam for calibrating and debugging, so two test beams are certainly necessary. The question of a Tevatron neutral M3 beam remains open until definite experimental proposals are submitted with beam type, beam size, and beam quality justified.

Interim Meson Area beams will be brought up for the Energy Saver run at 500 to 800 GeV, scheduled for the summer or fall 1983. The old target train will be removed and independent targets will be installed in the M1 and M6 beam lines 450 feet downstream of the current target box. A single target on a train will be placed in the old box for a neutral M3 beam. Some new magnets will have to be added to M6 to get a 400-GeV secondary beam from the new target down the old M6 channel and the beam is expected to be worse in intensity and momentum spread than the old beam, but M1, M3, and M6 should be operational for the next running period. An M4 test beam may be set up.

The new Tevatron M2, M5, and M6 beams should be constructed in time for the first TeV run, scheduled for fall 1984, if currently budgeted construction funds are provided. A neutral M3 beam is contingent on user need. Users are encouraged to discuss all these matters with Tom Kirk, head of the Tevatron II project, and ask questions, give opinions, and even offer their help to insure that the Meson Area can continue to do outstanding physics in the Tevatron era.

With new Laboratory projects coming to fruition, the interaction among users and Fermilab staff was especially valuable. It is through events like the Annual Users Meeting that users have a strong impact on Fermilab programs.
