Unfortunately, the absorbers traversed by the muons would result in multiple scattering, worsening the eventual di-lepton mass resolution (*e.g.*, Leon's Brookhaven dimuon spectrum, and his joke – if memory serves – that "anything that could flatten the [J/ψ] skyscraper into the mound of rubble observed by us at BNL in 1968 should be proscribed by SALT [the anti-nuclear treaty]").

A detailed analysis of this problem was undertaken by Leon, Steve Herb, myself, and others. The trick is to put the densest absorber near the interaction point, and only low-Z absorber afterwards. This leads to a smearing of the production-angle measurement, but not to a large error in momentum determination. The resultant mass resolution would be about 2% near 10 GeV mass, in contrast to the 30% or so mass resolution for Leon's BNL dimuon spectrum.

Initial work on this optimized dimuon phase (called $\mu\mu$II, since $\mu\mu$I was the dimuon phase using the apparatus optimized for dielectrons modified with absorbers, but not optimized for dimuons) began with:

- Leon's 2/12/75 memo starting with the words "We propose to do dimuons without a movable filter using fixed beryllium filter to attenuate hadrons."
- The "Super 288 White Paper," signed by Leon and Taiji, dated January 28, 1976.

Memos flew by with increasing frequency. For example,

- I wrote a note dated 2/17/76 entitled "I: expected E288 I/II signal and backgrounds, II: options for improving E288 I/II signal/background," projecting the two orders of magnitude increase in sensitivity with $\mu\mu$II over dielectrons.
- Bruce Brown wrote a note dated 5/10/76 proposing "Muon momentum confirmation with a steel magnet" (remeasurement), a proposal that was adopted.
- A note by Leon, Walt, and Steve dated 6/22/76 on a proposed PWC system for $\mu\mu$II.
- Steve Herb, in a note dated 7/3/76, gave a detailed PWC proposal; the chambers are much closer to the magnet and the acceptance is much higher than in $\mu\mu$I.
- — etc...

Leon, Steve, and others thus worked hard to design a target box with mostly Be absorber in the aperture, but with an option to place interchangeable Be, Cu, or W absorbers immediately downstreams of the target. Extreme care was taken to avoid cracks, and to angle the possible interfaces to avoid even hairline