12 METER MILLIMETER WAVE TELESCOPE
MEMO No. 147

NATIONAL RADIO ASTRONOMY OBSERVATORY
TUCSON, ARIZONA

April 5, 1982

MEMORANDUM

TO: H. Hvatum

FROM: M. A. Gordon

SUBJECT: Design of the Feed Support Legs

Memorandum 73 deals with the design of the Feed Support System for the 12-m Telescope. It shows that little increase in efficiency is to be gained by attaching the feed support legs to the outer edge of the reflector. It also mentions the need to reduce the diameter of the struts.

I've just learned (to my surprise) that a support system has actually been fabricated. My impression was that the feed leg problem was going to be re-analyzed and then brought to the committee for review.

As the committee's astronomer-gadfly (unless John Findlay also wants to don that hat), I remain concerned about the geometric blockage, especially in the light of the excellent quality of the surface plates, the promising data vis-a-vis the surface setting, and the improbability of additional funds going into an NRAO millimeter-wave telescope in the forseeable future. The 8% blockage of the Memo 73 design is not state-of-the-art. The 36-ft telescope has an 8.7% blockage. I urge that our design group makes certain that (1) the blockage is as small as possible by using the smallest possible strut widths, and (2) that round, oval, or ogival strut cross-sections are used to eliminate any flat surfaces toward the reflector surface. Multiple reflections are inimical to spectroscopists.

If I can help, please ask. Lee King tells me that he is now reviewing this problem.