

# VLB ARRAY MEMO No. 268

To: VLBA Data Acquisition and Correlator Groups  
From: Martin Ewing  
Re: Minutes of DA & C Meeting 9/13/83

Present: H. Hvatum, J. Benson, R. Escoffier, W. Cannon, A. Yen,  
K. Kellermann, R. LaCasse, A. Whitney, D. Fort

Ewing was substituting for A. Rogers, who was basking somewhere in the South Pacific.

## SIZE OF CORRELATOR

Ewing noted that the "Walker/Bridle" Plan for US/Canadian collaboration called for a large total number of antennas, to wit:

- 10 VLBA basic sites
- 9 Canadian basic antennas
- 4 VLA antennas

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23 antennas, plus possible European/Japanese outriggers.

This puts a rather different cast on the correlator discussions, since we are beginning to talk about a "really big" correlator, 100 Kilolags or more. For the moment, we will continue with the C2S approach; there is no money for anything more. If the antennas go up so much in number, we will simply say that we need to increase the correlator budget. For example, C2F would do it if about \$1M extra were available. This can be handled as a later upgrade, but we must allow hooks for up to 23 or so even in the 10-19 antenna design.

## CASSETTES VS "RECIRCULATING MK III-A"

Ewing also explicitly observed that a tape recording correlator is intrinsically recirculating, since the tapes can be replayed with altered delays and/or field centers (try that at the VLA!). However, there are problems in scheduling the correlator if a significant fraction of observing requires more processing than observing time.

Such problems are overcome for narrowband spectral line work if a longitudinal-type recorder is used. In this case, recording can occur at a slow speed, while playback is at full speed. Several passes are then possible to achieve more frequency resolution. Cassette systems can not be altered more than 10-20%, according to Escoffier; in any case, factors of 2-4 are not available in VCRs.

Thus the Mark III-style recorders offer the possibility of multipass playback for high resolution. Question: Is this capability worth the extra cost (if any)?

