

Interoffice

National Radio Astronomy Observatory

Charlottesville, Virginia

July 17, 1980

To: Bill Horne

From: Woon-Yin Wong

Subject: Balsa-wood-core Test Plates

VLB ARRAY MEMO No. 9

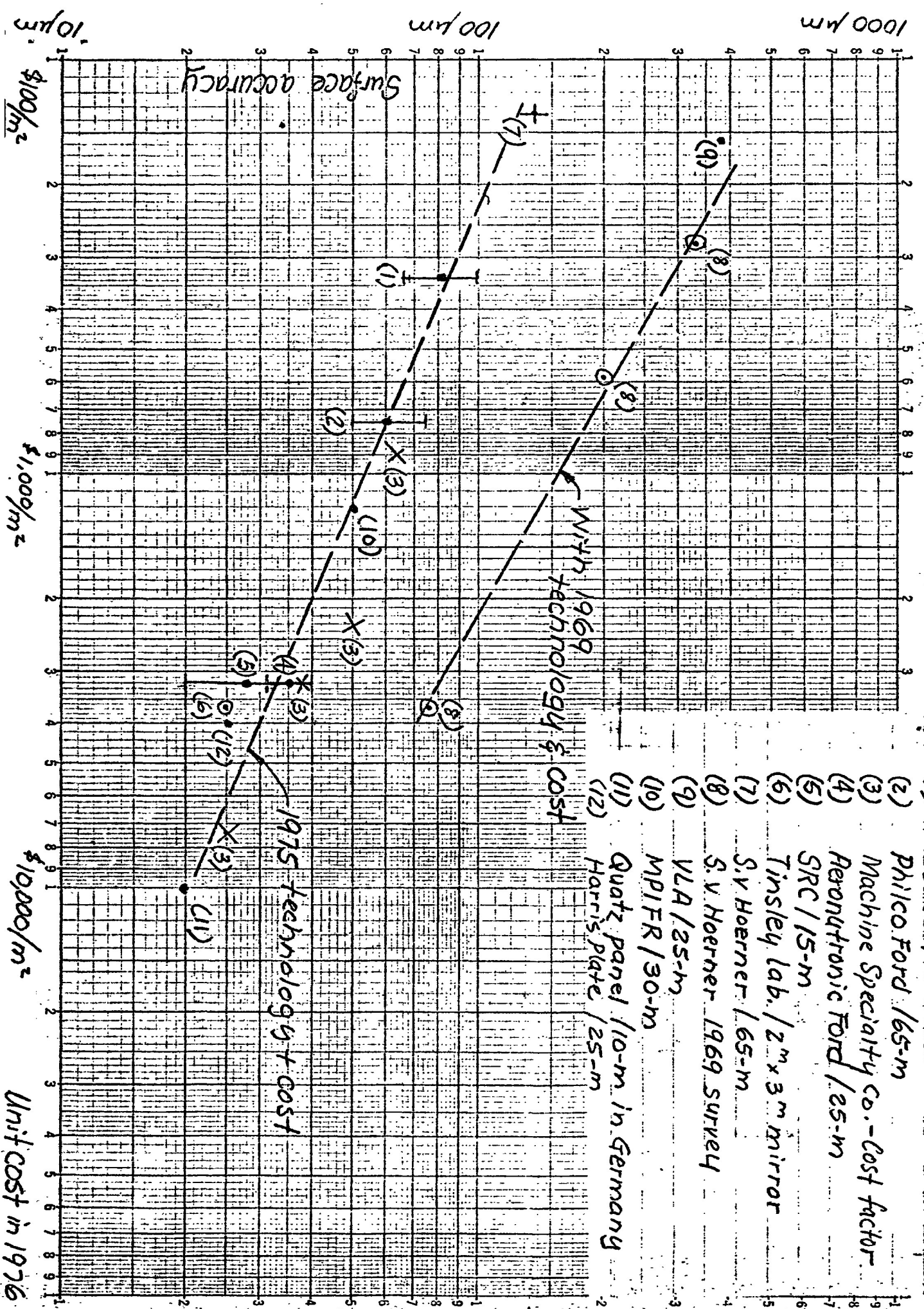
Fiberglass-epoxy-balsa-wood-core sandwich construction might be an inexpensive way to build the proposed VLBI antennas' surface. The demanded accuracy of 0.007 inch rms is within the working tolerance of firms producing reflectors. The approach of using balsa wood core has been proven economical (it is about 10 times less than the al. honeycomb core, better in bonding, and more plentiful in supply). If it's also proven thermally well behaved and structurally stable, then it might be a good alternative to the stretch-formed al. plate. It would be reassuring if this approach replicates the mold. It is important to evaluate its behavior under various environmental conditions. I suggest we order two or more plates for our evaluations in Green Bank.

ASI of California would like to give it a trial. They will use one of their existing molds and fabricate the plates with a nominal cost of \$300 each. They agreed to provide a realistic cost estimate for the 25-M VLBI antenna surface after the experiments. They will allow NRAO people to make measurements of the mold in the shop to evaluate the replication. Then the plates will be sent to Green Bank for further studies. The test plates would be 10' X 4', elliptical in shape. The core is about 2 inches thick. There will be 6 tie-down points on the back.

Please review my suggestion and please inform me as to what should be the next step.

W-YW/lc

cc: M. Balister
J. Findlay
H. Hvatum
K. Kellermann
B. Peery



- (1) ESSCO / U. mass
- (2) Philco Ford / 65-m
- (3) Machine Speciality Co. - cost factor
- (4) Reonutronic Ford / 25-m
- (5) SRC / 15-m
- (6) Tinsley lab. / 2 m x 3 m mirror
- (7) S. V. Hoerner - / 65-m
- (8) S. V. Hoerner - 1969 survey
- (9) VLA / 25-m
- (10) MPIFR / 30-m
- (11) Quartz panel / 10-m in Germany
- (12) Harris plate / 25-m