



# NATIONAL RADIO ASTRONOMY OBSERVATORY

SUITE 100, 2010 NORTH FORBES BOULEVARD TUCSON, ARIZONA 85705  
TELEPHONE 602 882 8250

February 4, 1982

Philip R. Schwartz  
Department of the Navy  
Naval Research Laboratory  
Washington, DC 20375

12 METER MILLIMETER WAVE TELESCOPE

MEMO No. 130

Dear Phil:

Dr. Roberts passed on your recent letter on the subject of bolometers.

Let me first tell you about the present performance of the NRAO bolometer system. On the present 11 M telescope it has a sensitivity of 8 JY in one second at 1.1 mm and 5 JY in one second at 2 mm and these performance figures are close to what we hoped for at the beginning of the project. We have learned a great deal from this system and we now believe that further improvements in sensitivity (factors of three to four) are possible.

For the new surface, we are planning to repackage the bolometer system in order to reduce the helium consumption and at this time, we will add additional filters. We plan to have a filter wheel with nine filters covering the windows from 2 mm to 0.6 mm. These filters have already been developed in a joint effort between the NRAO and Queen Mary College. It may well be that the telescope performance at the shorter wavelengths is unsatisfactory, but it costs very little to find out. I think this covers the first point in your letter concerning additional filters.

The second point you make concerning arrays of bolometers is certainly a good one. At the present time, we do not have either the manpower or the supply of high quality bolometers to implement an array. I think we should concentrate on producing a truly background limited multifrequency single channel system before becoming involved with arrays.

Yours sincerely,

John Payne

cc: M. Balister  
H. Hvatum