

ASSOCIATED UNIVERSITIES, INC.

350 Fifth Avenue  
New York 1, New York

October 31, 1956

MEMO TO: Ad Hoc Committee on a 140-foot  
Equatorial Telescope Design

FROM: Richard M. Emberson

SUBJECT: Organization; First Meeting to Discuss  
the General Characteristics

1. Following the September 25-27 meeting of consulting engineers and an October 16-17 meeting of the AUI Advisory Committee on Radio Astronomy, arrangements have been made with Prof. Ned L. Ashton to undertake an equatorial design for the 140-foot telescope, with the advice and assistance of a special ad hoc committee. Dr. Thomas C. Kavanagh has agreed to serve as chairman of the committee, which is kept small in order to be of manageable size and yet is believed to have expert representation for the major problems involved in the design. The following are being asked to serve on the committee and are listed here in three groups having general structural, drive and control, and observational interests, respectively:

P.P. Bijlaard  
N.A. Christensen  
A.M. Freudenthal

J.O. Silvey  
D.P. Lindorff  
E.J. Poitras  
B.H. Rule

J.G. Bolton  
F.T. Haddock  
E.F. McClain  
H.E. Tatel

In addition, Dr. Heeschen and Mr. Karelitz may be counted on to work closely with the Committee, and other consultants can be called in if special problems arise.

2. The general specifications for the telescope, as proposed at the September meeting and reviewed in October are as follows:

Equatorial mount to provide limited sky coverage as a minimum, bounded by a great circle from the pole to the east point of the horizon, along the horizon through the south point to the west point, and along a great circle from the west point to the pole.

A minimum radius of fifty feet shall be provided for the application of the drive and controls for motions about the polar and declination axes. An oil pad bearing system shall be provided for the polar axis.



Other specifications are given in the table below:

<u>Wind Condition</u>	<u>Zero Wind</u>	<u>16 mph Wind</u>
Paraboloid surface	$\pm 1/4''$	$\pm 1/4''$
Absolute pointing accuracy	$\pm 30''$	$\pm 40''$
Relative pointing accuracy*	$\pm 10''$	$\pm 20''$
Tracking accuracy over 15 min. time	$\pm 10''$	$\pm 20''$
Tracking accuracy over 1 hr. or more	$\pm 20''$	$\pm 40''$

\*Relative pointing accuracy is defined as the accuracy with which the telescope can be moved from one point to another point, assuming the subtended angle between points is under 30 deg and that both points are 30 deg or more above the horizon.

Although the Advisory Committee at the October meeting expressed an interest in a surface tolerance for the paraboloid of 1/8 inch, unless it is clear that such a tolerance can be obtained with no significant increase in cost, we must retain the original specifications of 1/4 inch.

- The first meeting of the ad hoc committee has been scheduled for 9:30 a.m., Wednesday, November 14, 1956 in the AUI Office Room 6920, Empire State Building. It is anticipated that a one-day meeting will be adequate. Please advise at once if you wish hotel reservations, assistance with transportation, or a travel advance. A form is enclosed for your convenience.
- The purpose of the first meeting is to review all available design information in order to select the most promising characteristics for incorporation in the AUI equatorial design. Should anyone wish to have material duplicated by us for distribution at the meeting, please have the material in our hands as early as possible the preceding week. Sketches should be in carbon ink or black pencil; most blue inks and some non-carbon black inks do not copy well, if at all.

copies to ad hoc committee  
 Ashton, N.L.  
 Dunbar, C.F.  
 Heeschen, D.S.  
 Karelitz, M.B.

enc. Reservation Form