

ASSOCIATED UNIVERSITIES, INC.

350 FIFTH AVENUE
NEW YORK 1, NEW YORK
LONGACRE 5-0460

31 August 1956

Mr. Walter W. Bird, President
Birdair Structures, Inc.
290 Larkin Street
Buffalo 10, New York

Dear Mr. Bird:

The date for the September meeting on radio astronomy telescopes has not yet been set, but I will keep you advised.

Last year, starting with my visit to CAL, I accumulated material on large radomes and we carefully considered the question contained in the third paragraph of your August 21 letter. The technical feasibility of such large radomes seemed to be reasonably certain, but the expected life of the material was estimated to be too short for astronomy installations and the decision was made to put any saving from the radome into the telescope structure. (For the large size telescopes, a design that will hold gravity deformations to less than the desired tolerances will also be adequate for any anticipated wind loads.)

On the other hand, I did suspect that an air supported reflector would require the protection of a radome. I am sure that the engineers would be interested in your ideas. But I must be frank and caution you that they are thinking quite seriously of deformations less than 1/4 inch for a 140-foot reflector of all-metal design. For this specific instrument, your design should come within this same tolerance, or your time at the meeting would be largely wasted. As background information, I am enclosing a copy of the specifications that have guided the 140-foot telescope design developments.

If the above paragraph seems discouraging, I should point out that other radio telescopes being planned in the U.S. have varying specifications. Some people are interested in work at 21 cm (the hydrogen 1420 mc/s line) that requires about an inch tolerance, whether the reflector be 25, 50, or 75 feet in diameter. Others are interested in work at less than 1 cm, which requires the surface tolerance to be about 1 mm., again in sizes from 25 feet up. I do not know any-

Mr. Bird

-2-

31 August 1956

thing about the transparency of your fabric at wavelengths as short as 1 cm, but assume it would be satisfactory. Hence, if the 140-foot size makes your design very difficult, you still might be able to offer something very interesting in the smaller diameters.

mI am now receiving replies from our consultants as to available dates and I hope soon to be able to set the date of the meeting. Meanwhile, please call on me if I can be of any further assistance to you in considering radio astronomy problems.

Sincerely yours,

Richard M. Emberson
Assistant to the President

enclosure

cc: Dr. Heeschen
Mr. Karelitz

← THIS COPY FOR