

2nd April 1965

TASMANIAN REGIONAL LABORATORY

Ref: LFSP/JWF/4

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Greetings. John:

The past couple of weeks I've been doing paleolithic archeology. Hence the delay in my comments.

Page 1, paragraph 1: Gravity deformations are fixed and may be taken care of in design. Windage deformations are variable and may exceed gravity deformations. Consequently a stiff structure is still necessary.

Page 2, paragraph 3: If observer is at a latitude  $l < h$ , a circumpolar region of radius  $h - l$  will appear where no observations are possible.

Page 4, paragraph (d): I worked nearly four years in Hawaii and know considerable about the practical problems. My ignorance of circumstances in Texas and Florida makes them much more enticing.

Page 5, Table 2: If  $s$  is large much more reflector surface must be provided than is used. A reasonable economic compromise probably is  $L \ll 1.5W$

Page 5, paragraph 1: Short direct supports from mirror to ground are very desirable. This design is good. Other designs are even better. Concrete is a fine structural material for compression provided it can remain stationary. Its ratio of elastic modulus to density is  $E/\rho = 4 \times 10^6 / 2.8 = 1.4 \times 10^6$ . This is only 36% of  $E/\rho = 30 \times 10^6 / 7.7 = 3.9 \times 10^6$  for steel. Flotation is very nice for taking up gravity loads. The 100 inch Hooker telescope at Mount Wilson uses air filled drums in round troughs of mercury. This is a 1916 design. The real problem is windage. Positive non-resilient support is needed in all horizontal directions.

Page 6, Question 6: This can only be solved by experience. The instrument will be of little use for lunar occultations because the area of visible sky is small compared to a hemisphere. An hours observations may or maynot be adequate for effective hydrogen line spectroscopy. Others can give a better opinion on this. I recommend an 85ft model be constructed and used for a couple of years. It could be another element in the NRAO interferometer.

Bring on the next design. Lets see what can be turned up.

Best regards,

*Grote*  
Grote Reber

(over)

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You are doing what I repeatedly tried to get Emberson to do ten years ago; namely, hold a design contest. I even recommended offering large cash prizes like an architectural contest for cathedral, skyscraper or large bridge. Unfortunately, he wasn't very bright. Also he was being pressed upon by a lot of irresponsible people who wanted quick and flashy showings for publicity purposes. Today everyone can see the expensive monstrosity that kind of incompetence led to. If such an affair had happened during the days of Elizabeth I, there would have been some public hangings. We progress!

I don't know anything about the background of T.P. Wright. However, from except of his letter of 29/1/65 to you, I think he is much closer to practical engineering than the renowned Professor Bracewell.

G.R.

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