

November 3rd, 1946  
212 W. Seminary Ave.  
Wheaton, Illinois

Dear Greenstein:

Yesterday and this morning I have been going over the calculations on the calibration of my apparatus. The data on radiation from the milkyway is all in good order; however I have found a rather disconcerting and gross error in the observed intensity from the sun.

The black body intensity from the sun taken at 6000 degrees absolute and  $\frac{1}{2}$  degree in diameter should be  $2.8 \times 10^{-20}$  watt/sq.cm., mc.bd at 160mc and  $2.5 \times 10^{-21}$  watt/sq.cm., mc.bd at 480mc. These are my computed values and agree with Southworths figure 2 when his curve is moved down one half a division (three to one) as he has written to me that it should be.

My actual observed intensities are  $9 \times 10^{-20}$  watt/sq.cm., mc.bd. at 160mc and  $5 \times 10^{-19}$  watt/sq.cm., mc.bd. at 480mc. Thus the observed radiation is about 300 times and 200 times respectively too much. These are not sporadic values but recurrent day to day figures. The 480mc value goes up about 20% or so at times of many spots. This effect was not observed at 160mc. Perhaps the energy of the corona accounts for the excess over the theoretical as I believe it has a temperature of a million degrees or so.

I have gone over everything several times and I am convinced the above is really the case. Apparently Townes noticed there was something the matter with my figures before I did, if you will read the second paragraph page 19 of his paper.

Now I cannot remember what we said about my solar intensities in our paper. If we flatly stated the observed values are correct for a 6000° sun we are wrong and some correction should be made. Please look over our paper and try to think of some graceful way we can straighten it out. I'm very sorry this happened but I feel that as long as we are going on record for some specific figure of intensity it ought to be a figure somewhere near correct.

Best regards,

*Observatory*  
*February 1947*

Grote Reber