

September 17, 1945
212 W. Seminary Ave.
Wheaton, Illinois, USA

Dr. J. H. Coort, director
Leiden Observatory
Leiden, Holland

Dear Dr. Coort:

Thank you for your letter of August 30th. My location here is quite poor for the type of work I am doing. Some of the automobiles may pass about 100 feet from the machine as it is near the street. The severity of this difficulty differs with various types of cars and the speed at which they are driven. It is possible for me to detect some at a distance of one half mile. If you are expecting to choose a location I would suggest you get at least a mile from all automobiles.

My mirror is made of galvanized iron .020 inches thick and the frame or carrier is of wood fastened together by gusset plates and machine bolts. The cost of the structure is as follows.

Foundations	73.15
Steel Stock	181.73
Wood	127.92
Hardware	150.24
Paint carriage	109.80
Paint mirror	<u>34.12</u>
total	676.96

To this must be added the labor of one man for four months as it took me this long to build the machine. Perhaps two men could have done it in less than half as long but I did not wish to spend a lot of money on an unknown gamble at that time. The necessary electrical apparatus to get the results published in 1940 cost about 500 dollars plus several more months labor to make it work.

With this much success in hand and the correctness of the general system proven it was decided to go ahead on a more grand scale. Thus the following equipment was purchased.

General Radio D.C. Amplifier	225.00
Esterline Angus recorder	292.81
Cabinet for housing these	<u>36.17</u>
total	553.98

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This expenditure in conjunction with the 676.96 above gave equipment necessary for the backbone of this work.

About 250.00 more plus word was spent on improved power supplies and a signal generator to get the data published in 1942.

By this time it became evident the main investigation was going to be electrical and not astronomical. Accordingly a comprehensive investigation was started on several phases of the radio work. While not all the funds were used on the finished product, another 1000.00 and a very large amount of labor was spent developing the electrical equipment to get the results published in 1944.

From here on the complexity and expense of the electrical apparatus has increased by leaps and bounds. Another 2000.00 has been spent on development work at a frequency of 480 megacycles. So far the results are disappointing as only radiation from the sun has been detected. Cosmic Static from the milky way has so far eluded me at this higher frequency.

If you decide to embark on this type of investigation I highly recommend that you obtain the services of first class radio engineers. The main problems are amplifiers that will amplify at the chosen high frequency; and the reduction of internal noise in the apparatus.

In case you haven't seen the paper on "Solar Radiation" by G.C. Southworth, I suggest that you look it up in the Journal of the Franklin Institute, April 1945, pp 285-297.

Your interest in this work is greatly appreciated by me because for a very long time now, it seems that I have been the only enthusiast and it has been rather lonesome. Please keep me informed of your progress and if I can be of any aid please write.

Very truly yours,

Grote Reber