

November 31st, 1948  
312 W. Seminary Ave.  
Wheaton, Illinois

Dear Greenstein:

Today was quite eventful. Norton and Herbstreit of the Bureau of Standards and Salisbury of Collins Radio were here to look at ~~an~~ equipment. They arrived in the morning and stayed while a trace of the sun was made. As luck would have it the sun chose today to put on a real performance. Things started out quite normal with the usual amount of automobile noise. The first indication that things might be different was about a half hour before solar transit a minor response peak in the curve appeared. This is due to a small side lobe which optical theory predicts to be present but I had never seen before. Since the magnitude of the side lobe is only a percent or so of the main lobe it was evident some peculiar set of events must be underway. The pen went down again as the side lobe passed and started to rise in a more or less normal fashion. After a few minutes of this the pen went up markedly and with a few jumps of a duration approximating 10 seconds it reached the top of the chart and stayed there. From this point on recourse was had to another meter which indicated twenty times the full scale factor of the automatic recorder. We all watched this like a hawk and listened at times. The output on this meter fluctuated around rather wildly and finally it went off scale. At the peak of the disturbance I went out and turned the mirror away from the sun and both meters promptly came back to normal. Thus there was no possibility of the equipment being defective. The mirror was turned back to the sun and gradually the pen came back on scale. There were many very rapid fluctuations before the pen came back to normal. The second side lobe was even higher than the first. Finally the disturbance died out and all was normal as the sun got far away from the acceptance pattern of the mirror.

At the peak the indicated intensity was known to be over four hundred times that which I usually get on a day to day basis. Since my indicating instruments didn't go higher than this I don't know what the true peak was but probably several thousand times. During all this there was a very loud hiss noise quite like thermal agitation noise but varying rapidly from second to second so that it rather sounded like wind whistling thru the trees. No snaps or crackling could be heard which might be interpreted as lightning or sparking discharges of any kind, just a loud rushing sound. It was so loud that the automobile noise was drowned out which is remarkable.

Needless to say, my visitors were quite impressed and I was rather astonished. Nothing like this had ever been witnessed before by any of us. Upon looking over my charts I find that a much more modest version of this phenomenon occurred on Oct 17th. That day the record was made with no one around so no listening tests were conducted and no estimate was made of the peak. The pen did go off scale for several short periods so probably the intensity was some twenty times normal. That day a few small spots were present but nothing other particular unusual happened so I just thought that perhaps severe auto ignition noise sent the pen off scale, altho why this should happen just at noon was rather mystifying. After today I feel certain that Oct 17th was a minor display of the same phenomenon. Today was very cloudy so I don't know the condition of the sun. I'll be pleased to learn of any other peculiar goings on on these two days.

Best regards,

Grote Reber