



COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION

DIVISION OF RADIOPHYSICS

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A.1/3/1(a)

21st March, 1950.

Dr. G. Reber,
Officer in Charge of Radio Astronomy,
National Bureau of Standards,
Washington. 25. D.C. U.S.A.

Dear Sir,

In reply to your queries about the work we are conducting at this laboratory I am enclosing a paper by Slee and myself which is at present in the press. I think this will help to clarify our techniques and give a better overall picture of the results obtained. However, some important questions you ask are not mentioned in this paper.


There is an apparent decrease in sea reflection coefficient at angles below 2° due to the effect of earth curvature. The actual reflection coefficient is close enough to unity to measure very small angular widths. This matter is treated in detail in Appendix B of the enclosed paper. A qualitative comparison between the theoretical graph given and Fig. 2 of the "Taurus" paper will prove interesting. Sea waves also effect the minima of the interference pattern but, for the initial lobes at 100 Mc/s., the effect can almost be neglected.

Your second question is difficult to answer satisfactorily as the nature of these variations is not fully understood. The phenomena, if present at all, does not show to anything like the same degree on the Taurus A source. The records given on page 140 of the "Taurus" paper may have confused you here as these were taken at Sydney where the electrical interference level is high and at a time when our techniques were poorer. A summary of our present knowledge of the fluctuation phenomena is in the enclosed paper.

Duct phenomena has not been very troublesome at either the N.Z. or Australian sites. We do suspect it of completely destroying lobe patterns by multiple reflections, on about a dozen occasions during the summer months. Abnormal refraction effects also complicate lobe patterns occasionally.

I have forwarded your letter to Mr. Bolton who is at present in England. He will possibly be visiting America in about five months' time and will be able to discuss these matters with you further.

Yours faithfully,


(G. Stanley)