

August 4, 1959

Dr. E. H. Vestine  
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Dear Dr. Vestine:

Recently John Findlay has loaned to me his copy of your report entitled "Conjugate Points of Geomagnetic Field Lines". I have found it very interesting.

Sometime ago I stumbled on a way of getting low frequency cosmic static through the ionosphere. Essential the situation is the same as Whistler made except that the path must be open to receive cosmic static. A closed path produces Whistlers. This is discussed on pages 111 through 117 of the enclosed reprint entitled "Between the Atmospherics". The theory has been improved since the above article was written and a supplementary report is being printed by IRB-NRC, Ottawa shortly.

The direction and height of the magnetic field line is of great importance in determining the direction of arrival of this low frequency cosmic static. Unfortunately I do not have the background or facilities here for such a study. I am wondering if you could undertake to carry out a plot of the field line which rises out of the earth about 30 miles north of Hobart. This is a place called Kempton where the observations were conducted. The maximum height of the line is important. However, the angles the line makes with the celestial equator at distances of 9500 Km and 14600 Km from the center of the earth are also very important. These are respectively the gyro levels for frequencies of 520 KC and 143 KC.

Whether or not any more observations are made at Kempton seems dubious. However, an installation is planned for Sawyer Creek. This is twelve miles south of the ionosphere station on Macquarie Island. An investigation of this magnetic line is also important for future work. Tests will be conducted not only at 520 and 143 KC, but also at 50 KC where the gyro level is 20,700 Km from the center of the earth. If the magnetic line from Macquarie doesn't reach this far, then no cosmic static will likely be found at 50 KC.

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I don't wish to burden you with a lot of exacting work, but wonder if you could undertake some examination of the subject. Your comments and suggestions will be much appreciated by me.

Dr. Findlay thanks you for the preprint and sends his best wishes. I am

Sincerely yours,

Grote Reber