

14.1/904

January 20, 1950

Dr. Donald Menzel
Harvard College Observatory
Cambridge 38, Massachusetts

Dear Dr. Menzel:

Enclosed are 9 reprints of various papers on radio astronomy. I hope they will be of aid in preparing your article for Reviews of Modern Physics.

It may be interesting to note that the Cygnus source of Hey can be seen at RA2000 and dec. $+40^\circ$ on my contour charts. Likewise the Cassiopeia source of Ryle can be seen at RA2315 and dec. $+60^\circ$; the Taurus source of Stanley and Bolton can be seen at RA0530 and dec. $+22^\circ$. Furthermore, it seems likely that the source designated as 8.48 by Stanley and Bolton will ultimately be identified as the one I show at RA0600 and dec. $+15^\circ$, and it may be a double.

The variability of Cygnus source has been shown by workers at Manchester and Cambridge to be modulations introduced in the earth's atmosphere. This is because the coherence of the variations extends over a distance of only a few hundred feet at the earth's surface. The variations are greater at low altitude. Inspection of the charts taken on 205 mc at Cornell show much greater variability than seems to be encountered by the Australians. Perhaps this is because the former are observing over land, while the latter are observing over water. In view of this, it seems as if the variations were caused by twinkling in the troposphere and not in the ionosphere. The country around Ithaca is quite rough and much turbulence undoubtedly exists.

The literature upon solar radio waves is voluminous. From a historical point of view it is interesting to note that Jansky attributed his celestial radio waves to the sun in his first paper. This was because the original measurements were made in December. A glance at the data in my original publication of the discovery of solar radio waves

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clearly demonstrates how this confusion occurred.

I expect to get out a paper upon the "Fine Structure of Solar Radio Waves" for the spring URSI meeting. Unfortunately, I am unable to determine from the many papers you sent whether commission 5 meets in San Diego or here.

Sincerely yours,

G. R.

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GR:mld

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