

GR/PS

Dr. Giorgio Abetti,
Osservatorio di Arcetri,
ARCETRI, (Florence)
Italy.

31st May, 1965.

Dear Dr. Abetti,

Recently I have read your article entitled "Sunspots from Galileo to Hale" which was published by the Astronomical Society of the Pacific as leaflet number 432, June, 1965. This subject has more than academic interest to me. Three years ago I constructed an elaborate radio antenna with a pick-up area of 1.1 square kilometers. Much important data has been secured at 2.1 megacycles frequency. Knowledge and experience have been gained and a few questions answered. Many new questions have appeared which were never thought of before. Answers to these might be secured by greatly enlarging the installation. This would be appropriate if the installation can be used; otherwise enlarging it would be a waste of time, money and effort.

The quality of the data is controlled by the transparency and quiescence of the terrestrial ionosphere. These desirable conditions only occur when solar activity is low, I secured fine observations during 1963 and 1964. Now the data is becoming sparse. Apparently we passed through solar activity minimum about 1964.8. Qualitative considerations related to radio astronomy observations suggest that the present solar activity minimum is higher than that of 1954 which was probably higher than 1943. The latter seems to have been higher than 1932.

You state at bottom of page 2 that a solar activity minimum occurred at 1610.8. On page 1 you mention that Galileo observed spots at 1610.6. That minimum must have been a high one; perhaps similar to our present one near 1964.8. On page 3 you describe how Scheiner followed spot counts through the maxima of 1615.5 and 1626. Is it possible to determine if the latter was higher or lower than the former? How does the minimum near 1621 compare with that of 1610.8? Have these old observations been reduced into some form comparable or even similar to modern terminology? At bottom of page 4 you mention that little progress was made until 1769 by Wilson. I suspect this was not due to lack of interest, lack of observers or inadequate equipment. It may have been a long period of low solar activity with very few, small spots of short life. Perhaps by the middle of the 18th century spots began to re-appear in sufficient number to make progress possible again.

Are we living during an epoch of very high solar activity, probably like that during the time of Galileo? Will there be a couple of more declining solar activity cycles followed by a century of very low solar activity? Will the next minimum be higher or lower than 1964.8? The last question has very direct

bearing upon future radio astronomical observations at low frequency. If higher, I had better do something else; if lower, the installation can be developed on a larger scale with more sophisticated equipment.

Your consideration, comments and suggestions will be much appreciated by me.

Yours faithfully,

Grote Reber.

Dr. Grote Reber,
C.S.I.R.O.,
Stowell Avenue,
Hobart,
Tasmania,
Australia.