7-9-50

Quiet Sun.

1. Te versus distance (know Te versus freq.)
2. Ne versus distance (very important)
3. Measure surface brightness versus radial distance
   (a) Eclipse good up to 1 meter
   (b) Visibility curves at various spacings of interferometer
   200 mc using SCR 268 Antennas
   100 mc using SCR 270 Antennas
   50 mc + 20 mc using special antennas
   } mobile by mounting on a large trailer
4. Polarization due to general magnetic field, if any.
   Need shutter to obscure upper or lower solar hemisphere
   (a) Proper type of eclipse using stations on each side of path to measure opposite hemispheres of sun
   (b) Horizon poor because edge of sun not vertical except at very high latitude. Interference reflections from earth bad.

Disturbed Sun.

1. Bulbs over spots, 10 cm best, 3 cm above 2000 gauss and 60 cm during very large spots of spring of 1947.
2. Polarization of radiation from bulbs confused because of many spots with opposite polarities 3% out at times.
3. 60 cm from large bulbs focused by gradient of Ne in sun.
4. Transients composed of
   (a) Pips as elementary unit.
   (b) Several pips make a cluster
   (c) Strong pips in a long cluster make a burst
   (d) Very strong pips in a sustained burst makes an outburst.
5. Duration of pip roughly 1.0 sec per meter of center wavelength
6. Spectral width of pips roughly 5 mc at 160 mc & probably is a function of intensity.
7. No coherence outside of spectral width.

8. Ratio of pips to quiet sun strength greater at low freqs.
9. Duration of activity longest near 160 mc.
10. Transients associated with birth and growth of spots. Large spot quiescent after reaching full size.
11. Most activity outside of region visible by optical methods. 200 mc about 5' of arc out from photosphere. Optical methods up to 3' for large prominence.
12. Pips may be studied by multifrequency technique or by high speed (1000 cps) frequency scanning and photography of Cathode Ray picture.
13. Polarization of single pips possible but difficult due to short time. Polarization of clusters, bursts and outbursts impossible due to many sources.
14. On very disturbed days the transients may be observed in clusters all the way from 51 mc to 9500 mc. Time lag, if any, less than a second. Primary source of energy is probably ultraviolet light as velocity of transmission very high.
15. Pips probably due to turbulence in solar atmosphere. Energy produced only when Ne of moving charges in consonance with Ne of surroundings.