METEOR SHOWER ORIGINS

There are other occasional peaks caused by perturbations or by the period of the comet which originally formed the showers but they can be many years or even decades apart due to the very long orbital period.

Some of the showers and their associated comets with orbital periods are listed below.

ETA-AQUARIDS: May 6th. Associated with Halley's Comet. Period 76 years. Next return 1986

PERSEIDS: August 12th. Associated with Tuttle's Comet of 1862. Period 121 years.

GIACOBINIDS: October 10th. Associated with Giacobini's Comet. Discovered in 1926 with return of sub storm level in 1952.

LEONIDS: November 16th. Associated with Tempel's Comet first noted in 1799 and has a period of 33 years.

URSIDS: December 22nd. Most likely to be associated with the Comet Mechain-Tuttle. Discovered in 1945 and returns with useable rates of 10-20 per hour each year.

Fig. 9 shows the orbit of Halley's Comet which is believed to produce the Eta-Aquarids shower on May 6th. This gives an insight into the path of a meteor shower although the orbit is steeply inclinded to that of the major planets.

If a particular meteor shower radiant goes below the horizon it is possible that the peak may occur at this time and deny meteor scatter operators at our latitude the advantage of maximum activity.

EQUIPMENT REQUIRED

ANTENNA: When attempting meteor scatter QSO's towards maximum theoretical distances it would be true to say that the bigger the antenna system the better the

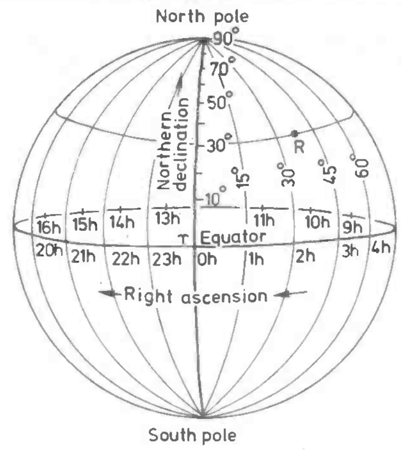

FIG. 7.
Celestial latitude and longitude to fix the position of a meteor shower radiant is termed right ascension (R.A.) and declination
The radiant R shown is R.A. 2h30m and declination +30°. Declination angles below the equator are given negative values.

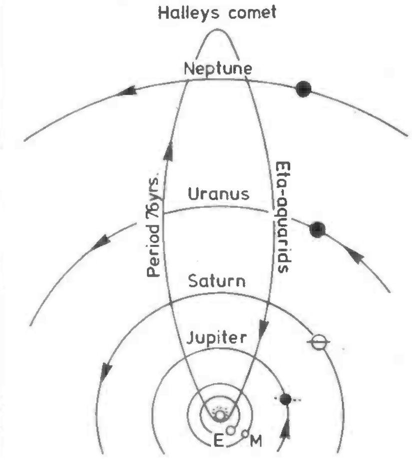

FIG.9. The orbit of eta-aquarids goes beyond Neptune and the comet has a period of 76 years.

results. However big arrays do have certain shortcomings for the ms operator unless elevation is possible. This is due to the reduced vertical and horizontal beamwidths which will reduce signal levels at the lower and intermediate ranges as the height of the meteor radiant at the mid longitude point requires a certain degree of antenna elevation. The amount of elevation required for optimum performance at various distances in shown graphically in **Fig. 10**. A single yagi mounted as high as possible above the ground will provide excellent results with distances in excess of 2000km and will also show a marked improvement over larger arrays at shorter distances due to the larger vertical beamwidth.

For longer distances the large array is without doubt superior but a long yagi with between 10 and 16 elements well above ground is quite adequate.

Continued next month

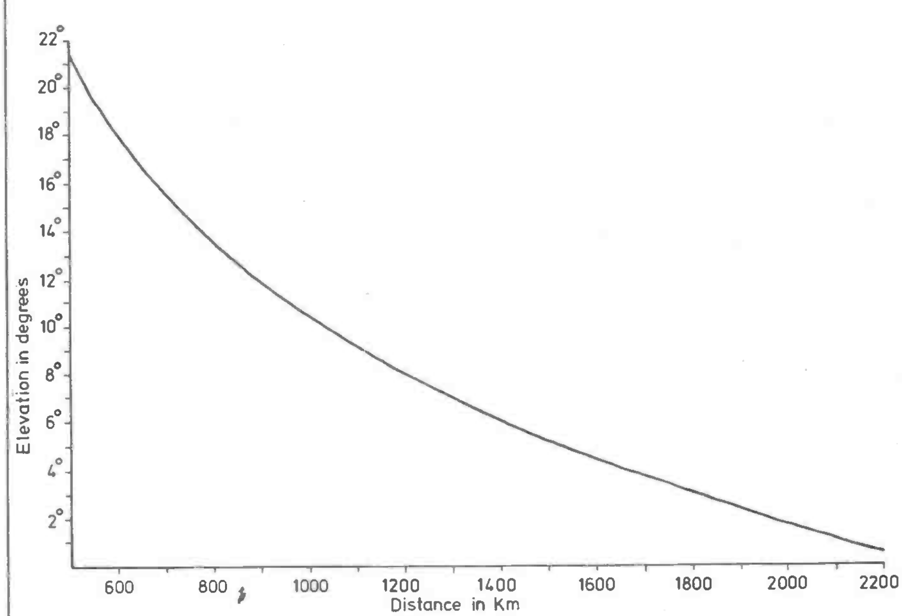

FIG.10. Graph of aerial elevation for various distances.