

The Leonid meteors in 2002

Meteors or shooting stars are likely to be seen on any clear night. One's chances are improved by the absence of the Moon and by being well away from the glare of artificial lighting. The appearance of such meteors is generally random occasioned as they are by particles pulled into the Earth's atmosphere by our planets strong gravitational pull. Ignition is caused by friction between the incoming, fast moving particle and the Earth's atmosphere.

At certain times of the year, however, there are circumstances when Earth encounters the debris from comets and the incidence of meteors is then much enhanced. In such cases the geometry of the Earth's motion combined with the motion (orbital movement) of the debris produces a perspective effect to observers on the Earth's surface causing the meteors to appear from a given area of space marked by a given constellation. Thus we have meteor displays associated with the constellations Lyra (April), Perseus (August), Gemini (December) and so on.

The comet **Temple-Tuttle** provides the material we associate with the Leonid (November) meteors. The comet orbits the Sun in 33 years. It was last at its closest to the Sun (and hence to the Earth) in February 1998. The comet itself was nowhere near as spectacular as the great Hale-Bopp and a good deal less prominent than the comet Ikeya-Zhang C2002/C1 (fig. 2), which visited our skies this March.

A comet is by no means a compact body such as a planet or minor planet (asteroid). Material associated with Temple-Tuttle is dispersed over a range of its path such that we may expect to encounter this material at times close to perihelion (the comet's closest approach to the Sun). Thus on the 16-17th November 1998 observers in Britain and other northern hemisphere sites were rewarded with a fine display of very bright meteors and fireballs. (The brightest witnessed by the writer on the morning of the 17th lit the entire sky briefly, being over fifty times brighter than the planet Venus.) Last year similar "storm" displays were observed from North America.

The time of maximum activity is impossible to predict with certainty; likewise the duration. The only thing to do is to be prepared and to keep watch throughout the likely period (weather permitting of course). **This year maximum activity has been assessed for around 04 hrs GMT on the morning of the 19th November.** By then the radiant (see fig. 1) will be well above the horizon indicated by the circle in the constellation Leo, a little above the star Regulus. Unfortunately the Moon will be close to full (in constellation Aries).

It is best to commence observing as soon as it gets dark on evening of the 18th. Depending upon one's dedication to the task, checking the sky throughout the course of the night has to be recommended. Having said this, it is advisable to keep a look out from time to time on the previous two nights - this I would suggest the more since the circumstances for observing a good display of the Leonids is not likely to occur again until the year **2098** (the apparitions in 2031 and 2065 are not expected to be at all favourable).

Next feature: Saturn at opposition, December 17. Aspects of Saturn. JV Nov 02