

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

STANDING COMMITTEE ON OBSERVATIONAL ACTIVITIES

Bulletin No. 2

METEOR SECTION

Meteor observing is a field in which amateurs without specialized equipment can make an important contribution. The prime requirements are enthusiasm, knowledge of the constellations, and a willingness to stay awake when the majority of citizens are sleeping. Other things being equal, more meteors are observed between midnight and dawn than between dusk and midnight. With some thought, it becomes apparent that those arriving before midnight have to overtake the earth, while those in the early hours of the morning are meeting the earth head-on. Thus the latter will tend to be brighter with more of them.

Meteor observing is a field in which the junior member of a Centre can come into his (or her!) own. In Ottawa, we have two groups of experienced observers composed of high school students (Hillcrest and Queensway). If you are thinking of starting or expanding a meteor observing group, include high school pupils in your recruiting - after a short period of training the students will develop into very effective observers.

The first bulletins of the Meteor Section will deal with topics such as setting up a visual observing station, the type of information gathered by visual observers, and the recovery of meteorites after a suspected fall. Later bulletins will deal with meteor photography and spectroscopy, telescopic meteors, and the collection of fireball reports from untrained observers. I would like to stress that these bulletins will attempt to transmit advice from one amateur to another, and will not be formulating hard and fast rules. If you have ideas of your own, go ahead and try them out and please let me know the results. Your comments on these bulletins will be welcomed along with news of the activities of your group in the meteor observing field, but NOT the data you have collected. Please mail this to: Meteor Centre, National Research Council, Ottawa 2, Ontario, where Dr. Peter M. Millman will feed it to his hungry computers.

A number of brilliant fireballs have been observed recently; it is important to remember that most of the people from whom fireball observations can be collected do not know what they have seen. Reports of flying saucers, or unconfirmed stories of planes crashing in flames, unexplained noises from the sky and other peculiar happenings should be investigated - otherwise the chance of a meteorite recovery may be lost. Remember, reporters and others in the mass-communication field cannot be expected to be familiar with meteoritic phenomena. It is instructive to read the reports of the meteorite which fell in Barwell, England, last Christmas Eve (see SKY AND TELESCOPE July 1966, p.7, and Journal of the British Astronomical Association April 1966, p.192), and compare this with the published account of the Bruderheim meteorite of March 4, 1960 and the Peace River meteorite of March 31, 1963 (see JOURNAL of the R.A.S.C., October 1961, p.218 and June 1964, p.109, respectively). The comparison reflects great credit on our meteorite recovery experts in Western Canada and the final story of the fireball of September 17, 1966 should reflect similar credit on us in Ontario!

There are a number of books now available which will be useful to students of meteoritics. A reliable star atlas of naked-eye stars is essential - my first choice would be Norton's Star Atlas (Gall & Inglis) with Ray Couthie's Deep Sky Catalogue a close second, available from Ray Couthie, 22018 Ybarra Road, Woodland Hills, California, USA. Fletcher G. Watson's Between the Planets (available as a paperback from Doubleday-Anchor Book N17) is a near-essential. In a large group, one individual should obtain McKinley's Meteor Science and Engineering (McGraw-Hill). There are many others - some day I hope to send you a fairly comprehensive list. Do not forget the publications "Sky and Telescope" and "The Review of Popular Astronomy".

METEOR SHOWERS OF AUTUMN AND EARLY WINTER

The ORIONIDS reach the maximum of their 8-day period on the evening of Thursday, 20-21 October. The radiant is located at RA 6 h 20 m, Decl. 15°N (10°NE of Betelgeuse, between Betelgeuse and Delta Geminorum). Thus the shower is at its best in the early morning with the radiant culminating (reaching its highest point in the sky) around 4 a.m. at which time the maximum rate of 15-20 Orionids and 7 sporadic (non-shower) meteors may be expected. The first-quarter moon will not interfere with observations of this shower.

The TAURIDS are not a rich shower (of the 15 meteors per hour which may be expected under favourable conditions, only half will be Taurids); however, they have an extremely long period (about 30 days) and the long paths at low speeds make these meteors fascinating objects. They are associated with Encke's Comet; it is possible that they give rise to meteor showers on Mars, Venus and Mercury as well as on earth. During the period of maximum activity, from 1st to 10th November, the diffuse radiant is located in the area of the sky between Aries and Aldebaran. The waning moon may interfere with observing during the early part of this period. Incidentally, this shower makes a "return visit" in the latter part of June as the daytime Beta Taurids, which can be observed only by means of radar.

The LEONIDS are the most famous (or infamous!) of the periodic showers. They gave rise to spectacular displays in 1799, 1833 and 1866, but their failure to perform as expected in 1899 ruined popular interest in meteor observing for years. However, interest in this shower is reviving due to the unexpectedly rich display of 1961, and another rich return in 1965. There is an excellent chance that the night of 16-17 November will be an exciting one for meteor observers. The radiant is in the Sickle of Leo, and the moon is between new and first-quarter phase. If you have an interest in meteor photography, this is one night to keep your camera handy. If possible, observations on the nights of 15-16 November and 17-18 November should also be made, just in case the Leonids have other surprises in store. Good Luck!

The GEMINIDS, like the Perseids, are classed among the "old reliables" of meteor showers. The radiant is near Castor, the period of greatest activity is between the 9th and 14th of December, and the maximum will occur on the night of 13-14 December, when the hourly rate should reach 50 meteors. The Geminids tend to be rather slow (not as slow as the Taurids) and bright - this is a good shower to try your luck with a camera, taking precautions to prevent the lens from dewing or frosting over! Culmination of the radiant takes place around 2 a.m.

The URSIDS are normally a weak shower of faint meteors, but they apparently gave rise to a minor storm in 1945. Their maximum falls on the night of 22-23 December; the radiant is near Beta Ursae Minoris, in the bowl of the Little Dipper.

The QUADRANTIDS, named for a now-defunct constellation, have their radiant roughly in the centre of a triangle formed by the last star in the "tail" of the Big Dipper (Alkaid), the head of Draco, and the "Keystone of Hercules" (RA 15 h 28 m, Decl. 50°N). There are no bright stars in this area - just a big nondescript patch which left an embarrassing void in early star maps - hence the unsuccessful attempt to fill it with a drawing labelled "Quadrans Muralis". The Quadrantids come third among the "Big Three" of the annual showers, with a rate of 40 meteors per hour (the Perseids are first with a rate of 50+ per hour, the Geminids second with a rate of nearly 50). However, it is a difficult shower to observe - the period of activity is less than a day, and weather conditions normally daunt all but the hardest observers. The peak of activity occurs on the night of 3-4 January, 1967. Dress warmly if you observe this one!

Finally, for fireball report forms, meteor plotting charts, meteor record sheets, and instructions in their use, write to the Meteor Centre, National Research Council, Ottawa 2, Ontario, and return all data sheets there on completion.

If you want to talk about your meteoritical exploits and adventures, or would like advice on getting started in this hobby of meteor observing, then write to me. Please let me know the name of your Centre's meteor co-ordinator as well.

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