



## NRC Publications Archive Archives des publications du CNRC

### **Vermin of the skies** Tapping, Ken

This publication could be one of several versions: author's original, accepted manuscript or the publisher's version. / La version de cette publication peut être l'une des suivantes : la version prépublication de l'auteur, la version acceptée du manuscrit ou la version de l'éditeur.  
For the publisher's version, please access the DOI link below. / Pour consulter la version de l'éditeur, utilisez le lien DOI ci-dessous.

#### **Publisher's version / Version de l'éditeur:**

<https://doi.org/10.4224/23002409>

*Skygazing: Astronomy through the seasons, 2017-10-31*

#### **NRC Publications Record / Notice d'Archives des publications de CNRC:**

<https://nrc-publications.canada.ca/eng/view/object/?id=ada948ee-30a4-4dae-987b-5b1c7abb4a16>

<https://publications-cnrc.canada.ca/fra/voir/objet/?id=ada948ee-30a4-4dae-987b-5b1c7abb4a16>

Access and use of this website and the material on it are subject to the Terms and Conditions set forth at

<https://nrc-publications.canada.ca/eng/copyright>

READ THESE TERMS AND CONDITIONS CAREFULLY BEFORE USING THIS WEBSITE.

L'accès à ce site Web et l'utilisation de son contenu sont assujettis aux conditions présentées dans le site

<https://publications-cnrc.canada.ca/fra/droits>

LISEZ CES CONDITIONS ATTENTIVEMENT AVANT D'UTILISER CE SITE WEB.

**Questions?** Contact the NRC Publications Archive team at

PublicationsArchive-ArchivesPublications@nrc-cnrc.gc.ca. If you wish to email the authors directly, please see the first page of the publication for their contact information.

**Vous avez des questions?** Nous pouvons vous aider. Pour communiquer directement avec un auteur, consultez la première page de la revue dans laquelle son article a été publié afin de trouver ses coordonnées. Si vous n'arrivez pas à les repérer, communiquez avec nous à PublicationsArchive-ArchivesPublications@nrc-cnrc.gc.ca.



## VERMIN OF THE SKIES

Ken Tapping, 31<sup>st</sup> October, 2017

It seems that every year brings a report or two of an asteroid passing by, nearer than the Moon. Seeing small, dark objects against a black sky is not easy, although we are getting better at it, but for a while yet we won't get much prior warning. On the other hand, the Earth is tiny compared with the space between the Earth and Moon, so even with the current number of objects we see passing closer than the Moon, the chance of the Earth getting hit is small. We also know that the last time the Earth was hit with disastrous consequences was about 65 million years ago. During recorded history, asteroids have been sworn at far more often than they have been feared.

In 1801, Guiseppe Piazzi, an astronomer at Palermo, Italy, thought he had found a new planet, orbiting the Sun between Mars and Jupiter. A strange, totally empirical formula known as "Bode's Law" predicted there should be a planet at that location, and Piazzi thought he had found it. It was named "Ceres", after the Roman goddess of agriculture. There was a bit of a local reason for this choice; Palermo is on the island of Sicily, and near an ancient temple dedicated to Ceres.

Compared with the other planets, Ceres was small, less than 1000 km in diameter, smaller than the Moon. However, it continued to be described as a planet until the 1850's when more objects similar to Ceres were discovered in similar orbits, and were named Pallas, Juno and Vesta. They became known as "asteroids", because they looked starlike through the telescopes of the time, and also as planetoids, because they resembled planets. To date, around 800,000 have been discovered: rocky and icy objects ranging in size from Ceres down to assorted small rocks and rubble. The discoverer of a new asteroid has the chance to suggest a name for it. After checking to make sure the name is acceptable internationally, the International Astronomical Union, which manages the names of all astronomical objects, makes it official. Asteroid 12410 is officially named

"Donald Duck". There is as yet no asteroid named "Micky Mouse". There are so many asteroids that back in the days when astronomers had to expose photographic plates for hours to get an image, there was a good chance that somewhere on it there would be a little line, showing the movement of an asteroid. Their habit of sneaking unwanted into astronomical images led to their being referred to as the "Vermin of the Skies".

Asteroids are lumps of material left over from the birth of the Solar System. The Sun and planets grew from the accretion of small bits of stuff into bigger bits, lumps and then large bodies. The gravitational attraction of Jupiter, the largest planet in the Solar System, inhibited the formation of a planet between Mars and Jupiter, leaving the construction material still there, orbiting where a planet would have been. Most of the asteroids orbit between Mars and Jupiter, but a good number are in highly elongated orbits, many of which cross the orbit of the Earth. Some of these might have been thrown out of the asteroid belt between Mars and Jupiter by collisions. Others might be lumps of construction material left over from making the other planets and then thrown off by some gravitational perturbation into new orbits.

Although being hit by an asteroid any time soon is unlikely, it will happen sometime. Telescopes and other devices are being developed to spot potentially hazardous asteroids as far in advance as possible. Because of all the tiny perturbations to asteroid orbits due to the other planets, predicting whether an object could be a threat next time it goes past is difficult, but we are getting better at it.

Saturn lies low in the southwest, getting lost in the twilight. Brilliant Venus lies very low in the dawn glow, with Mars, much fainter, above it. The Moon will be Full on 3<sup>rd</sup> November.

---

**Ken Tapping is an astronomer with the NRC's Dominion Radio Astrophysical Observatory, Penticton, BC, V2A 6J9.**

**Tel (250) 497-2300, Fax (250) 497-2355**

**E-mail: [ken.tapping@nrc-cnrc.gc.ca](mailto:ken.tapping@nrc-cnrc.gc.ca)**