



# Dumfries Astronomy Society Newsletter

Issue 1: Sep 07

## Sputnik: Fifty Years On



*Launched on October 4, 1957, Sputnik - the result of the arms race between Russia and the USA - was the first artificial satellite to orbit our Earth.*

To celebrate this cornerstone in space exploration, Dumfries Astronomy Society (DAS) is holding a special event at Dumfries Museum on 2<sup>nd</sup> October, two days before the fiftieth anniversary of the Sputnik launch.

Usually described as about the size of a basketball, 180 pounds in weight and - compared to modern equipment

rather modest, in the days of the Cold War it was a massive achievement. Containing 2 radio transmitters, sending signals which could be picked-up by radio amateurs, it circled the Earth for 6 months before re-entry into Earth's atmosphere.

Numerous purely military satellites followed, but even in these early days many scientific discoveries were made. One of the first was the discovery of the Van Allen radiation belts by the equipment on Explorer 1. Other satel-

lites, looking for the tell-tale signs of nuclear tests in orbit, found the first signs of GRB's - Gamma-Ray-Bursts - a very "hot" topic in modern astronomy.

Following in the footsteps of Sputnik, a multitude of research satellites were launched. At least two should be given special mention; Voyager 1 and 2, giving us the first close-up pictures of the planets and now the two man-made objects furthest out in space. And of course the Hubble telescope, which delighted the scientific world with its results, but it also enchanted the wider public with the beauty of the pictures it produced.

Dumfries Astronomy Society's Sputnik celebrations on 2<sup>nd</sup> October will include talks about the legacy of Sputnik plus what can be observed in the sky with basic equipment. Check the local press for more information or log on to the Society's website at [www.astronomers.ukscientists.com](http://www.astronomers.ukscientists.com)

*Klaus Schiller*

## Constellation in Focus—Ursa Major

This month, we're looking at the constellation Ursa Major. Probably the most recognisable of all constellations for those north of the Equator and one of the earliest to be learned, Ursa Major sits in the sky above the pole during summer evenings and reaches its lowest point dipping below the horizon in some latitudes) during the winter. Ursa Major contains the 'asterism' the Plough. (See page xxx for article on asterisms)

If you draw an imaginary line from Merak through Dubhe, the two brightest stars, the line points due north and is used to locate Polaris (The Pole Star). For this reason these two stars are sometimes called 'the pointers'.

A test of how clear your sky is (or how good your eyes are) will be found at the second star from the end of the Plough's handle. Mizar and Alcor are only a fifth of a degree apart and the brighter of the two was the first binary to be split into components (Mizar A and Mizar B) by a telescope. Spectroscopes later revealed that these are both doubles themselves; the closest pair being a mind-boggling seven or eight thousandths of a second of an arc apart. (Data table opposite)

*Lindsey Mason*

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### Ursa Major Data

Latin: Ursa Major.

Genitive: Ursae Majoris

Short form: UMa

Area: 1,280 sq deg.

Coordinates: RA 10.67, Dec=55 N.

zodiac: no - North circumpolar





## Asterisms



The 'Summer Triangle'.  
The asterism consisting of Deneb in Cygnus, Vega in Lyra and Altair in Aquila



Orion's Belt—consisting of the stars Alnitak, Alnilam and Mintaka (left to right)

*An asterism is a group of stars that resemble a shape or pattern but which is not a constellation. Two examples of 'asterisms' are the Summer and/or Winter Triangle. Haven't heard of them? Okay, we were all beginners once!*

Sir Patrick Moore coined the phrase "The Summer Triangle", consisting of the stars Deneb in Cygnus, Vega in Lyra and Altair in Aquila for one of his Sky at Night TV programmes and he was surprised when it became popular among amateur astronomers. It was somehow decided that there should be a winter equivalent to this. A square and hexagon were tried but 'they' settled on another triangle. Consisting of Betelgeuse in Orion, Procyon in Canis Minor and the brightest star in the night sky, Sirius in Canis Major.

Asterisms come in three 'sizes' for a want of a better word. Large, like the triangles just mentioned, with stars from more than one constellation. Medium,

with stars that are part of a constellation and small, with stars that are in the constellation but don't form part of the general shape. Another 'large' asterism is The Square of Pegasus. This consists of Scheat, Markab and Alpheratz in Pegasus with Alpheratz in Andromeda forming the top left corner. Alpheratz was in Pegasus but the IAU (International Astronomy Union) decided, for some reason to move it to Andromeda. This is a good marker for the next 'size'. Right below The Square of Pegasus is the circlet of Pisces, an almost circle of stars.

The most famous asterism is The Plough (Dipper, shopping trolley, frying pan, etc.) in the constellation of Ursa Major, the great bear. Consisting of the stars Dubhe, Merak, Phecda, Megrez (forming the bowl), Alioth, Mizar and Alkaid forming the handle. This asterism forms the hind quarters and tail of Ursa Major. Dubhe and Merak are known as the pointers, as

they point (draw a line from Merak to Dubhe and continue) to Polaris the pole star. In the opposite direction they point to Leo, the lion, with its backwards question mark asterism.

An equally famous asterism is Orion's belt, in, you guessed it, the constellation Orion, the hunter. Consisting of (from left to right) Alnitak, Alnilam and Mintaka, it's distinctive because these stars form a very near straight line. There are many other asterisms like these. The Keystone in Hercules, the 'W' of Cassiopeia, the Kite of Boötes etc. Get searching!

*Neil Booker*

## Grateful Thanks and Fond Memories

DAS members are fortunate to have been given two large telescopes by the family of the late Sandy Jamieson. Fondly remembered by the Society, Sandy was a founder member of DAS and was a very active local amateur astronomer who gave talks to various groups around the area and held star parties for his neighbours. The high point of Sandy's astronomical year was when he invited the neighbours round to view the Perseids meteor shower every August. He became a popular helper at the Society's observing nights and at the Wildfowl and Wetlands Trust Cygnus evenings which were organised jointly with DAS, with plenty of knowledge to share and a few good anecdotes to pass the cloudy spells.

Sandy is survived by his son, Peter, and his daughter, Susan, who both agreed that his two larger telescopes should go to the Society. These are Newtonian reflectors, one of which is a Dobsonian in a square cross-section wooden tube that will be familiar to those who came on those observing sessions with the Society. The other is on a robust German mount and housed in a cylindrical metal tube.

The Society is very grateful to Sandy's family for the telescopes, which will be put to good use as the Society grows from strength to strength.

*Mark Toner*



## Galaxy Zoo!

Astronomers are inviting members of the public to help them make major new discoveries by taking part in a census of one million galaxies. Visitors to [www.galaxyzoo.org](http://www.galaxyzoo.org) will get to see stunning images of galaxies, most of which have never been viewed by human eyes before. By sorting these images into "spiral galaxies" (like our own Milky Way) or "elliptical galaxies", visitors will help astronomers to understand the structure of the universe. The new digital images were taken using the robotic Sloan Digital Sky Survey telescope in New Mexico.

'It's not just for fun' said Kevin Schawinski of Astrophysics at Oxford University where the data will be analysed. 'The human brain is actually better than a computer at pattern recognition tasks like this. Whether you spend five minutes, fifteen minutes or five hours using the site your contribution will be invaluable.' Visitors will be able to print out posters of the galaxies they have explored and even compete to see who's the best virtual astronomer.

The astronomers hope that the survey will shed light on how different kinds of galaxies are distributed across the sky. The results might even reveal that there is something fundamentally wrong with existing models of the universe.

Sir Patrick Moore, an enthusiastic supporter of the project, said: 'Non-professionals have always been deeply involved in studying the sky and they now have yet another opportunity to make themselves really useful. Moreover, their help is now of immense value so do join up - as I am doing myself!'

For more information visit [www.galaxyzoo.org](http://www.galaxyzoo.org)



Spiral galaxy M101 as seen by the Sloan Digital Sky Survey. M101 is 27 million light years away, and is one of the finest spirals in the sky. Credit: Sloan Digital Sky Survey.

## Astronomy for Beginners

*Do you gaze up at the night sky and wonder about the stars? If so, why not take a short astronomy related course? The New Curiosity Shop offer these three accessible courses for newcomers to the subject;*

**Constellations of the North** is a taster course in practical astronomy. You will learn to recognise the constellations and find out how to identify stars in the night sky.

**Astronomy for Beginners** is your chance to begin to understand a little more about the marvels of astronomy. You will use your computer, your own senses and the night sky to learn some of the basics about stars, the solar system and how to make observations. You will start to find your way around the sky and identify some important stars. You will begin to picture the place of our own planet, the Earth, in the wider universe. You will be encouraged to discover for yourself how to identify the stars and the planets, and your tutor will guide you through a number of practical projects you can try.

**Astronomy for Beginners - Practical** A follow-on course from Astronomy for Beginners. This course will develop recording skills such as note-taking, sketching and photography and the discipline of the observer. You should finish this course with confidence in your ability to tackle real astronomical observations and, perhaps, contribute to a regular observing programme. For more information and how to register for these courses go to [www.newcurioshop.com](http://www.newcurioshop.com)

Mark Toner



Dr Neil Bone is a regular contributor to *Astronomy Now* magazine, and a respected author in the subject of astronomy. Here he is with the telescope he used as the inspiration for his lecture tour 'Adventures with a Small Telescope'.

Neil will be presenting his talk at the Society's Sputnik 50th anniversary celebrations at Dumfries Museum on 2nd October.



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We're on the web at:

[www.astronomers.ukscientists.com](http://www.astronomers.ukscientists.com)

We would be delighted to receive any articles for submission to future newsletters. Contact any of the members above.

## DAS Programme—2007 to 2008

Tuesday, 11 September 2007

General welcome and discussion of the programme for the coming year, followed by a short update of *Development and Findings of Trans-Neptunian and Kuiper-Belt Objects* by Klaus Schiller.

Tuesday, 2 October 2007

A special event at the Dumfries Museum to mark 50 Years since the launch of Sputnik. The guest speaker will be Dr Neil Bone of *Astronomy Now*, speaking about *Adventures with a Small Telescope*.

Tuesday, 13 November 2007

A briefing on current objects, constellations etc, as preparation for a special observation night on 16 November to be held near Caerlaverock, weather permitting, followed by a talk on Dr David Robertson, of the University of Glasgow Gravitational Wave Group.

Tuesday, 11 December 2007

Christmas Quiz

Tuesday, 15 January 2008

A talk by Dr Sheila Rowan who is a member of the University of Glasgow Gravitational Wave Group and a native doonhamer.

Tuesday, 12 February 2008

Briefing for a possible outing to Edinburgh on the 16 February. A visit to [Our Dynamic Earth](#) or the [Royal Observatory](#) has been suggested, but members might have other ideas, which can be discussed at the September meeting.

Also a talk by Lyndsay Fletcher of the University of Glasgow Astronomy and Astrophysics Group on *A New View of the Sun with the Hinode and STEREO Missions*.

Tuesday, 11 March 2008

Dr Helen Fraser, of the University of Strathclyde, will talk about *Gases to Gases; Dust to Dust - the chemistry behind star formation*.

Tuesday, 15 April 2008

Another special event (still to be planned), but again under the heading *Yuri's Night*.

Tuesday, 13 May 2008

*Annual General Meeting.*

*Unless specified otherwise, all meetings are held in St Georges Church Hall, George Street, Dumfries at 715pm prompt. Newcomers and visitors very welcome. Come along to a couple of meetings before you decide whether to join the Society. Membership is currently £15 per individual or £20 for family membership.*