SPACEWATCH
the newsletter of the Abingdon Astronomical Society

10th May 2004

Allan Chapman
(Wadham College, Oxford)

"The Transit of Venus – 8th June 2004"

& Annual General Meeting

Although Allan Chapman has spoken here in person before now, tonight is appearing on a video prepared by the Society for Popular Astronomy (SPA, formerly the Junior Astronomical Society). Think of it as a live broadcast from another part of space-time. He will be talking about the first transit of Venus ever to be seen by anyone alive on Earth today. The last transit was in 1882.

Tonight is our AGM when we discuss, amongst other things, the minutes of last year's AGM. Our AGM's tend to be rather short. In the most unlikely case of there being too many candidates volunteering to stand on the committee, then we shall hold our first ever election!

TRANSIT OF VENUS

By Bob Dryden

This session there is one event dominating all others - the transit of Venus across the Sun. Everyone has been waiting a long time for this, well over 100 years in fact. In fact, transits of Venus are so rare – the last one occurred in 1882 – that no one alive today has ever seen one. But you can see the whole thing from the UK, clouds permitting of course.

The big day is Tuesday 8th June. **NEVER LOOK DIRECTLY AT THE SUN WITHOUT APPROPRIATE FILTERS.** Venus starts to cross the Suns disc at 05.13 UT (6:13am BST) so you will have to be up early. It then takes just over 6 hours to cross the Sun, eventually leaving at 11.25 UT (12:25pm BST). As the transit is so long, you will hopefully find at least a few gaps in any cloud during the morning. While a Venus transit is a rarity, they actually occur in pairs, separated by 12 years, so there is another one in 2012. However, you will not be able to see all of this transit from the UK as the Sun does not rise in time here. Instead you will just catch the last hour if you have a clear horizon. So make sure you try to see this years event as it will be the only time in your life you have the chance to see Venus enter the Suns disc from this country.

THE NIGHT SKY THIS MONTH

The Planets:

Before the transit, Venus will be a beautiful sight in the evening sky until about the end of May. The planet will be a whopping 55 arc seconds in size and a lovely thin crescent shape by then. Those of you with good eyesight might like to try to see if you can make out the crescent shape without binoculars (it is possible). Leading up to the end of May, Venus will dramatically drop towards the horizon as each night passes so this is the last chance to see the planet in the evening this year.

Venus gets in on the action yet again on May 21st as it is occulted by the Moon. It disappears behind the Moon at 11.09 UT and reappears at 12.19 UT. Hang on, that's near midday, it will be broad daylight! Yes it will, but the event will be easily visible in a small telescope if you can find the Moon. Venus is bright enough to see in daylight but you have to know exactly where to look to see it. The Moon should guide you to the planet this time, if you can find the Moon that is. It will only be a thin crescent so it may be hard to see. Beware you do not accidentally get the Sun in the field of view of your binoculars as you scan for the Moon.

Similarly, this is your last chance to see Saturn at a reasonable hour, as by mid-June it too will be too close to the Sun, so make the most of the next few weeks. Saturn appears to get quite close to Mars during May, and they are actually at their closest on 24th. Mars is much fainter now at mag +1.7 but it is still easily visible. In fact, Mars crosses the northern edge of M35, the open cluster in Gemini, on May 10th so that could be an interesting sight.

Comets:

Away from the planets, the interest will be directed towards several comets. Hopefully, the easiest to see will be the best one, C/2001 Q4 NEAT. It will be in the evening sky moving rapidly northward, crossing Monoceros, Cancer, Lynx, and Ursa Major. It could be of 2nd mag in early May – easily visible to the naked eye – but it will fade to about 5th mag by mid June. This will still put it well within binocular range though, so here's a good chance to see a good comet. On the evenings of May 14th and 15th, comet NEAT will be close to M44, the Beehive cluster in Cancer.

At the end of May, comet C2002 T7 LINEAR reappears in the evening sky and it is moving very fast now, crossing Cetus, Eridanus, Lepus, Canis Major, Monoceros, and Hydra by mid June. Again, it could be about 2nd mag towards the end of May (but will probably be just a bit fainter) and will fade to about 6th mag by late June.

There are two further comets visible this session but they are in the morning sky. Comet C/2003 K4 LINEAR is crossing Cygnus and Lyra and could be about 8th mag. Similarly, comet T3 Tabur could be about the same brightness as it crosses Andromeda and Perseus.

This promises to be an interesting time, here's hoping for clear skies.

MOON PHASES:

Full: 4th May; Last Qtr: 11th May; New: 19th May; First Qtr: 27th May; Full: 3rd June.

THIS MONTH'S DEEP SKY OBJECT

"A Remote Cluster"

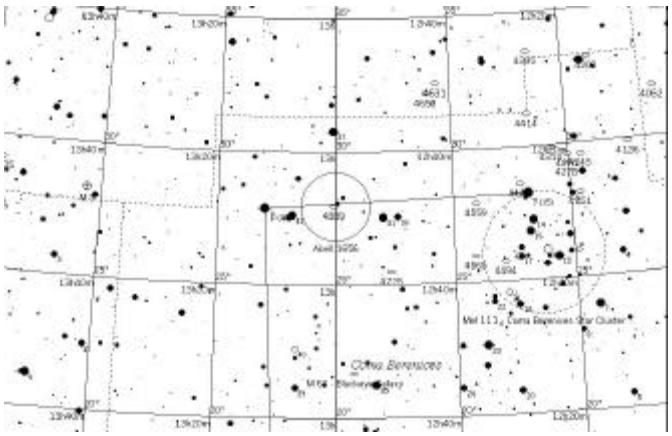
By Paul Warren

This month's DSO will be a challenge, and will push your observing skills to the limits. The DSO is known as the Coma Galaxy Cluster, and unless you have a very large telescope, you will only see two of its galaxies.

Now, why am I presenting such a difficult DSO? Partly because of its huge distance away from us, and partly because it's a challenge!

The two galaxies that can be discerned using an eight inch scope are NGC 4889 and NGC 4874. Note that the finder chart only shows the former, but they are both close together and easily lie in the same field of view.

So how do we find this cluster? Start off at the Coma Star cluster (shown as Mel 111 in the finder chart) in the constellation of Coma Berenices. This constellation sits above Virgo, lying between the bright orange star Arcturus and the hind quarters of Leo. ?-Com lies just to the top of Mel 111, and from there move left to ?-Com. You now want to position the finderscope so that it lies halfway between ?-Com and 31-Com.

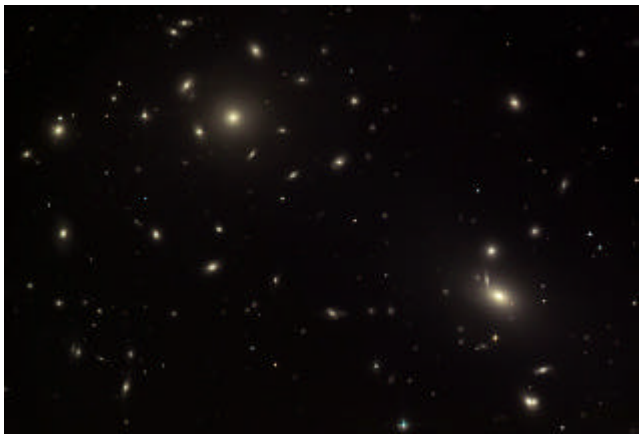


With an eight inch scope all you will see is just the two galaxies NGC 4889 and NGC 4874. These galaxies are very faint indeed, and you will require dark skies, very clear skies and a well dark-adapted eye in order to see them. Indeed, my best views of them have been after a long session of observing faint galaxies and I was surprised at how bright the Coma Cluster galaxies seemed to be. On observing sessions where I haven't been observing a lot of faint objects, then I found the Coma Cluster galaxies to be faint.

As I indicated earlier, this galaxy cluster is remote. Estimates for its distance range from 250 million light years to 400 million light years. In other words, when you see these galaxies, the light set of from them before dinosaurs appeared on earth, and if the latter distance is true then reptiles hadn't even appeared on earth when this light set out.

There are believed to be over 1000 galaxies that belong to this group. The two that can be seen visually are both giant elliptical galaxies. It is thought that galaxies such as these get this big by absorbing smaller galaxies.

Whilst an eight inch scope is capable of revealing the 1.5 billion light year distant quasar 3C273 in Virgo, it has to be said that the quasar looks like an ordinary, albeit very faint star. Whilst the coma cluster is a lot closer that 3C273, it does appear to be distinctly non-stellar as viewed through a telescope.



NASA's Space Place

Voyage to a Double Planet

By Patrick L. Barry and Dr Tony Phillips

Download a "nine planets" screensaver for your computer with spectacular photos of our solar system, and you'll notice that one planet is conspicuously missing: Pluto. Icy and mysterious, Pluto is the only planet never visited and photographed by NASA space probes.

In fact, the clearest image we have of Pluto is a tiny, pixelated blob of light and dark patches taken by the Hubble Space Telescope in 1994. It's tantalizing Š but not much more. Earth-based telescopes have succeeded, however, in discovering one amazing fact: Pluto is not a lone world, but a

double-planet system. Its companion, measuring about half the size of Pluto itself, is named Charon.

Work is underway to launch a robotic probe to visit and photograph Pluto and Charon. The project, called New Horizons, will map both worlds. Sensors will chart surface minerals and ices, and catalog the gases that make up Pluto's wispy atmosphere.

"It's the second epoch in the exploration of the planets," says Alan Stern, the principal investigator for New Horizons at the Southwest Research Institute in Colorado. "We're going to the very edge of the solar system."

Artist's idea of the New Horizons spacecraft flying by Pluto and its moon, Charon. (by Dan Durda.)

The probe is scheduled to launch in January 2006. Its journey will be a long one. Pluto is more than 30 times further away from the Sun than Earth is! Even with a speed boost from a flyby of Jupiter, the probe won't arrive at Pluto until July 2015. Afterward, the probe will venture on to explore the Kuiper Belt, a distant "halo" of small, frozen objects surrounding the solar system, from which comets originate.

Aside from sheer curiosity about these distant worlds, scientists are motivated by questions about the formation of the solar system. Orbiting in the deep freeze far from the sun, Pluto and Charon have undergone less change than the inner planets during the solar system's 4.5 billion year history. These two worlds will provide a glimpse into the past.

Pluto could also shed light on the origin of our own Moon. Earth, with its single, large moon, is unusual. The Pluto-Charon system is the only other pair like it in the solar system. In fact, some astronomers consider Earth and the Moon to be a double planet, too. So knowing more about Pluto and Charon could give clues about how the Earth-Moon system formed.

And, of course, the spectacular, up-close photos of Pluto and Charon are going to look great as a screensaver!

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

HERSCHEL MUSEUM TRIP

Saturday 26th June, trip to the Herschel Museum in Bath. We are arranging a mini bus, leaving from Abingdon, to take members to Bath. To book a seat, fill in a form, available from the front table, or contact Bob Dryden, telephone number 01491 201620, or e-mail bobdryden@ntlworld.com .

FURTHER DISCUSSION

The society's e-mailing list is used by members to comment on all things astronomical, as well as other related and not-so-related subjects. The list is also used to publicise "first-clear-night" observing evenings and for alerting members to hot observing news.

The list host has recently changed. Please make sure you are now on the new list hosted by SmartGroups, not the old list hosted by Topica, which is now defunct.

To view the messages on the web go to:
http://www.smartgroups.com/groups/abastro .

To subscribe to the list either go to this web page and click on "Join the Group" or send an email to abastro-subscribe@smartgroups.com . You will then receive all e-mails sent to the list. To post e-mails on the list: send an email to abastro@smartgroups.com . To unsubscribe: send an email to abastro-unsubscribe@smartgroups.com

Don't forget the Society's web site:
www.abingdonastro.org.uk

Our webmaster, Chris Holt is always on the look-out for members photographs to put on there. Don't forget you can read back copies of SpaceWatch on the web site too.

DATES FOR YOUR DIARY

17th May: 8pm. Beginners' Meeting in the Perry Room.

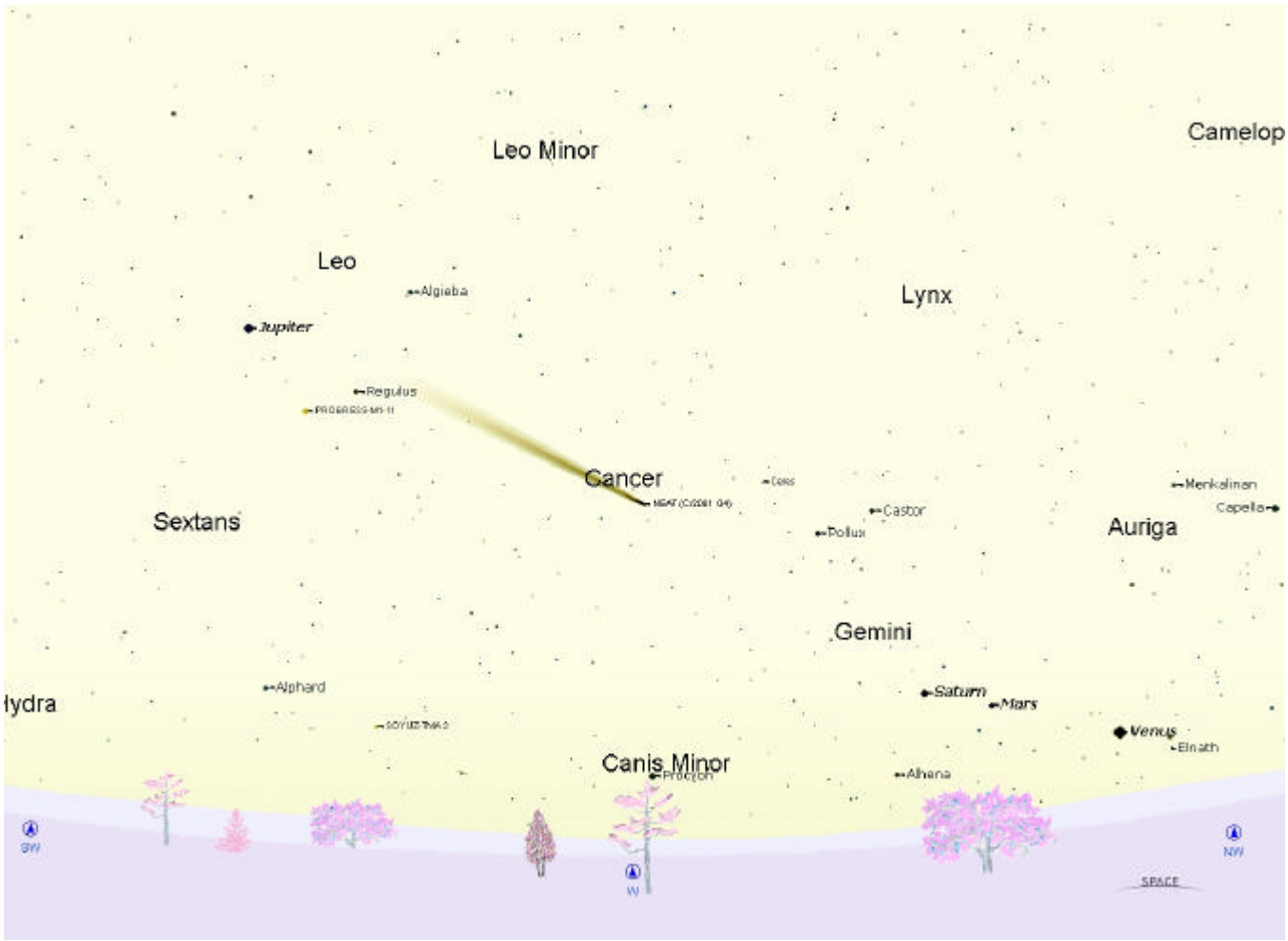
7th June: 8pm. Beginners' Meeting in the Perry Room.

14th June: 8pm. Talk by Barry Jones (Open University) "SETI – The Search for Extraterrestrial Life".

There is no observing evening this month.

The editor of "SpaceWatch" is Andrew Ramsey, who would very much appreciate your help and contributions. Please send any news, observations, photos, etc. to:
Mail: A.T.Ramsey, 35 Cope Close, OXFORD, OX2 9AJ.
E-mail: AbAstro@ATRamsey.com Phone: 01865 245339

STAR CHART



The night sky looking west at exactly 11pm BST next Saturday (15th May). Venus still has not set in the north-west, despite the fact that it will transit the Sun in only three weeks time from this date. It is therefore moving quite considerably from night to night.

The other object moving noticeably from night is Comet NEAT (C/2001 Q4). It is rapidly gaining height from the horizon and crosses the ecliptic plane around the 15th – as you can see from its alignment with the planets in the above picture. However it is also fading, so get out soon and see it – it won't be visible to the naked eye for that much longer.

Note the minor planet Ceres above and to the left of Pollux in Gemini, and two artificial satellites (ProgressM1 11 and Soyuz TMA3).