



# TRANSIT

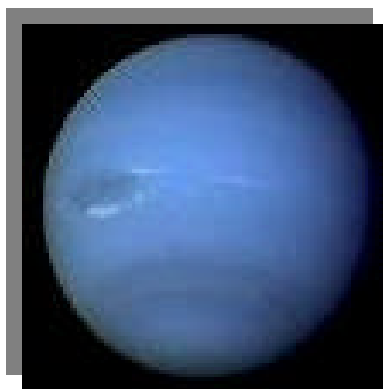
The Newsletter of



05 August 2006  
Summer edition



Uranus



Neptune



Pluto

See Rob Peeling's article on viewing the above two gas giants and the icy rock Pluto

## Editorial

**Next meeting 8<sup>th</sup> September 2006 :**

“Structure formation from the Big Bang to the Present”  
by Professor Shaun Code of Durham University

**Yorkshire Astromind 2006 :**

Date: Saturday 14 October 2006

Time: 1300 – 1700-ish

Venue: The Blue Bell Hotel, Acklam, Middlesbrough, Cleveland

### Directions:

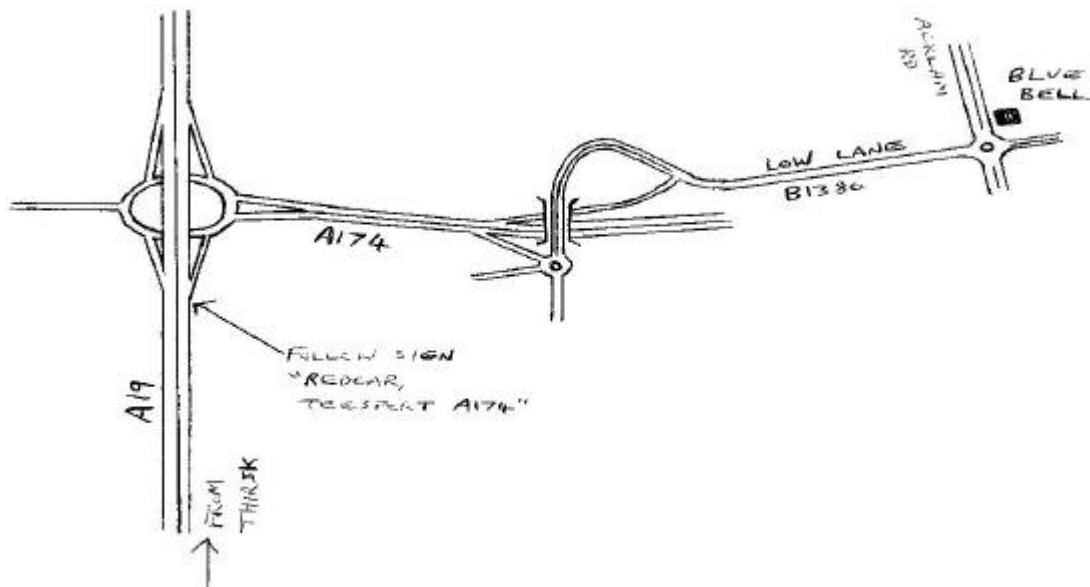
Approach Teesside on A19 from the south.

Leave A19 at exit marked “Redcar, Teesport A174.” Follow A174 towards Redcar.

Leave A174 at first exit. Right at end of slip road, into Low Lane B1380.

At next roundabout, Blue Bell is ahead on left. Straight on at roundabout; car park is on left.

At Reception, ask to be directed to the Conference Room.



## Letters to the Editor :

Any new observations, any comments on local or international astronomy, anything you want to share with your fellow members?

Dear Editor,

Thanks for the July edition of Transit complete with the five desperados on the back page. I wonder if they have been apprehended yet?

With reference to the July 2006 article “The Colour of Stars” by Joe Rao, could I add my own comments on observing Albireo.

ALBIREO – Arabic for the Hen’s Beak, although it is at the front of a swan! I first separated Albireo through 10x50 binoculars many years back, though this magnification did not allow me to see much of the colours. It was not until the late 1980’s that I was given a pair of 15x60 binoculars and after mounting these on a modified camera tripod I clearly split Albireo and could see the different colours. To my eyes at least, the primary appeared pale yellow and the visual companion turquoise. An impressive sight!

Robert Burnham first published his Celestial Handbook in 1966 with an updated edition in 1978. This second edition suggests an A-B pair, those we can see visually through binoculars or a small telescope, are gravitationally bound even though no evidence of the orbital motion had been detected since FGW Struve’s first measurements in the 1830’s. In recent times, however, milli-arc second measuring techniques suggest that Albireo A & B have differing parallax figures making A = 118.2 parsecs distant and B about 10 light years nearer to us. Additionally, these measuring techniques suggest that Albireo A & B have differing proper motions, albeit tiny. They just happen to be in line with the Earth at present.

Even in 1978 it was known that Albireo A had a composite spectrum K3II + B9V and thus consisted of two stars too close to be separated visually. This fact had been arrived at the year previous when H A MacAlister discovered the close companion using speckle interferometry. Then in 1979 Charles Worley, using a 26” lens, was able to visually separate the two stars. About this time there was evidence to suggest yet another ultra-close companion caused minute perturbations of the primary star. Information taken from the WDS CD is shown below together with a wider companion seen in 1944, though perhaps I should add that no two sources seem to agree on these results. Additionally, there is no suggestion of any definite orbital motion between any of the components.

a. 19307+2758 STFA 43 Aa-B 1822 201 99 55 54 34.8 34.4 3.37 4.68 -002 -001

b. 19307+2758 MCA 55 Aac 1976 2002 50 186 115 0.4 0.3 3.37 5.16 K3II+B9V -002 -001

c. 19307+2758 BNU 10 Aab 1978 1995 2 163 160 0.1 0.0 3.37 5.16 K3II+B9V -002 -001

d. 19307+2758 WAL 114 Aa-C 1944 1944 1 340 340 50.0 50.0

Yours astronomically, Mike Gregory

## A night of Planetary viewing.

from Rob Peeling

Since I am on holiday this week (mid-July) and don't have to worry about getting up for work, I was able to stay up late observing last night. Looking out of the window now, I think I may be able to do so again tonight.

Uranus is a clear, binocular object, forming a triangle with stars 81 & 82 Aquarii. It was well above the horizon to the south-east at 00:55 UT 18/07/06. I can believe those who say that from a good dark site Uranus is detectable with the naked eye. Using my 12" Dobsonian I saw a neat, blue disk.

Neptune is to the south and away from any obvious marker stars. It takes a little star hopping with a map to find it. I found it about 20 minutes after Uranus. Once you are in the right area, the planet forms a very wide (15 arc mins-ish) pair with a star (my eyes see it as yellowish) which helps to confirm identification. The disk is smaller than Uranus but much the same blue colour. I tracked Neptune down last year with my 6" Newtonian. The bigger mirror of the Dob makes the job much easier. From a dark site you could well see the planet using binoculars or through the finder. The nearby star flagging it out would help.

Pluto is currently near to 55 Serpens which is at a comfortable altitude to the south. Two stars lying south of 55 Ser would lead you right to the planet if it were visible visually. The southernmost star is a good guide for imaging. Pluto is crying out for a concerted effort at imaging.

I also spent a lot of time looking at some of the Messier objects in Sagittarius. The bright nebulae, M16 (Eagle), M17 (Omega) and M18 (Lagoon) all responded very well when I tried an OIII filter.

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I have read all the writings of Aristotle several times from beginning to end and I assure you that I have not found anything in them which could be what you are telling me. Go, my son, and calm yourself. I assure you that what you took to be spots on the sun are only flaws in your glasses or in your eyes.

- Fr. Baseaus (to Christoph Scheiner who had seen spots on the sun in 1611)

People who never look up do avoid the cow manure, but that's all they ever get to see.

-Anonymous

## Further comments on the foresight of Arthur C Clarke

from John Crowther

Part of the Moon Landing Conspiracy states that stars should be visible from the Lunar surface but both the astronauts and their photographs show that none were seen. This question was in fact raised by Arthur C Clarke in his book "The Exploration of Space" published way back in 1951. Unfortunately one of the pictures in his book (Plate 4 Spaceship on the Moon) shows the Milky Way in the background. He goes on to correct this mistake in his text –

“ This may be a good point at which to correct an almost universal fallacy – the idea that one would see the stars during the daytime on the Moon. They would be there alright, because there is no atmosphere to swamp them with scattered sunlight. But the eye would not see them because the intense glare from the brightly illuminated landscape would have made the eye too insensitive. To observe them one would have to stand in shadow, shield the eyes completely from all sources of light and wait a few minutes. Then they would become visible, first in tens and then in thousands – but they would vanish again as soon as one entered the sunlight”.

The same problem would equally apply to a camera.

Clarke makes another point in the same book, although not questioned in the Conspiracy Theory it is still a very interesting fact.

“It is a rather common idea that the Lunar mountains are much steeper than terrestrial ones, owing to the low Lunar gravity. This is quite incorrect. Although the gravity on the moon is only a sixth of ours this has no effect on the steepness of slopes. A pile of sand on the Moon would form a cone with the same angle as it would on Earth. However the Lunar formations may be more jagged and sharp owing to the lack of normal erosion. Even this cannot be stated as a positive fact for some “weathering” must have been caused by the great temperature changes between night and day”.

As it turned out when finally observed from close up the Lunar mountains (or large hills) were relatively un-jagged possibly confirming Clarke’s “weathering” forecast.

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"The large-scale homogeneity of the universe makes it very difficult to believe that the structure of the universe is determined by anything so peripheral as some complicated molecular structure on a minor planet orbiting a very average star in the outer suburbs of a fairly typical galaxy." - Steven Hawking

## **Two summer deep-sky objects.**

from Joe Rao

Both are well placed for viewing as soon as the sky gets sufficiently dark. While binoculars will reveal both objects as mere fuzzy patches of light, both evolve into splendid sights through a good telescope.

And of course, to truly appreciate them, you should really try to get to a location with a minimum of light pollution, which will also allow you to appreciate the beautiful summer Milky Way.

About halfway up in the southeast sky as darkness falls, are several clouds of stars that are surrounded by a few dark regions in the bright area of the Milky Way halfway between the star Altair and the teapot-shaped pattern of Sagittarius. Four faint stars in a stretched-out diamond are about all that is visible of Scutum, the Shield.

The Shield was described as a constellation by Hevelius, a 17th century astronomer, who christened it with the fantastic moniker: Scutum Sobiesciarum in honor of John Sobieski, a Polish king who defeated the Turks at Vienna in 1683. This constellation still exists today, although known simply as Scutum. And one of the Milky Way's great star clouds is also within Scutum.

Near the northern star of the Shield is the 11th entry in Charles Messier's famous catalogue of "fuzzy" objects masquerading as comets. Messier 11 is one of the richest and most compact of galactic clusters, described by one experienced observer as resembling "a flight of wild ducks."

In his definitive "Celestial Handbook," Robert Burnham, Jr. (1931-1993) wrote: "In binoculars or a low-power telescope it at first resembles a globular (cluster). But with increasing magnification the stars draw apart, finally revealing M11 as a rich swarm of glittering star points, somewhat triangular in shape with one brighter star near the center, but no real central nucleus." Deep-sky authority Walter Scott Houston (1912-1993), who had a regular column in Sky & Telescope magazine for nearly half a century noted that in his 10-inch reflector, M11 resembled, ". . . a carpet of sparkling suns to the very center with outliers swarming on all sides."

Quite possibly the most celebrated object in the summertime skies is the Great Cluster in Hercules, known also as M13.

During summer the Great Cluster is located nearly overhead as darkness falls. To locate it, look toward the four stars, known as the "Keystone" which supposedly forms the body of Hercules.

A keystone is the stone atop an arch, and has this kind of shape, narrower at one end. It's between the two western stars of the Keystone that we can find the Great Globular Cluster of Hercules. It's about a third of the way along a line drawn from the stars Eta to Zeta. Actually, it was not Messier, but Sir Edmund Halley (of comet fame), who first mentioned it in 1715, having discovered it the previous year: "This is but a little Patch,"

he wrote, "but it shows itself to the naked Eye, when the Sky is serene and the Moon absent."

Located at a distance of about 25,000 light years, the Hercules Cluster has been estimated to be a ball of tens of thousands of stars roughly 160 light years in diameter.

Messier first saw the cluster in June 1764 and described it as a "round and brilliant nebula with a brighter center, which I am sure contains no stars." (Obviously, he must have been using an inferior telescope). Today, if you use good binoculars and look toward that spot in the sky where M13 is, you likely will see a view similar to Messier's: a roundish glow or patch of light. Moving up to a telescope, the view should dramatically improve. With a 4 to 6-inch telescope, the "patch" starts to become resolved into hundreds of tiny pinpoints of light.

In fact, through larger instruments, M13 is transformed into a spectacular celestial chrysanthemum. In his "Celestial Handbook," Robert Burnham describes the view of the cluster in a 12-inch or larger telescope as:

"... an incredibly wonderful sight; the vast swarm of thousands of glittering stars, when seen for the first time or the hundredth, is an absolutely amazing spectacle."

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Camelopardalis is the absence of a constellation.

- Dalmiro F. Brocchi

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### **Drawing galaxies and star clusters**

Globular clusters are fun to draw because they are rich in detail. First "box in" a globular with any foreground star pattern. Then, draw the cluster's unresolved, central core. Use a pencil or charcoal stick to make a light gray central zone. Using circular motions, smear the core outward with a smudge stick or fingertip until the edges fade into no discernible border. Next, dot in any of the cluster's resolvable stars. Circle the cluster's rim with the brightest stars, and slowly work to the center. Place stars as precisely as possible. Don't resort to peppering the cluster with stars.

Drawing galaxies requires a slightly different approach. Rub the paper using the pencil's side, not the point, to produce a gray smudge that represents the galaxy's

central area. With most spiral galaxies, this smudge will be shaped like an elongated bar; with elliptical galaxies, a circular shape; with irregular galaxies, almost anything. Then, using a smudge stick or fingertip, draw out the galaxy's farther reaches. Don't add more graphite or charcoal for these outer extensions; smear all that's needed from the central core. Use a fine-tip eraser to show any dust lanes. The sheer variety of galaxy shapes, sizes, luminosities, and orientations guarantees that each sketch will stand out.

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Tycho's observations were generally accurate to  $1/30^\circ$ , five times better than the best previous measurements. Perhaps Tycho's measurements were aided by his ability to remove his nose and align his eye more perfectly.

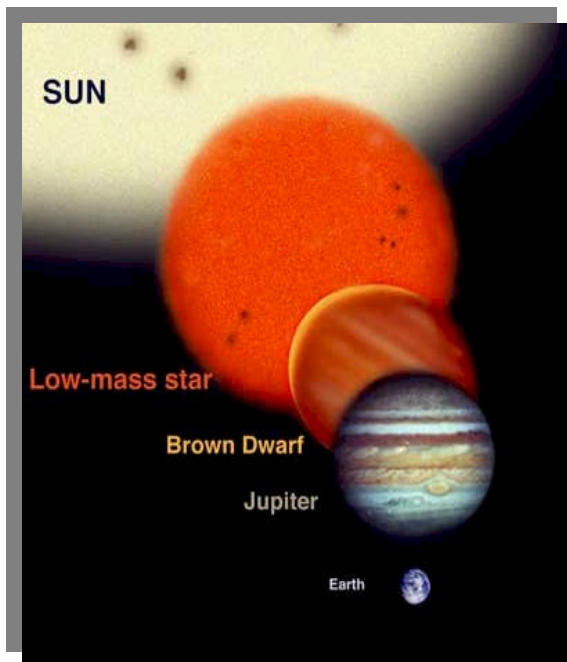
- Simon Singh (Big Bang)

Beep, beep, beep, beep... - Sputnik 1

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## Brown Dwarfs

### What is a Brown Dwarf



When we look up into the sky at night and see the stars it is not obvious at first glance which of the points of light we see are stars and which are planets. It is only after close examination with various instruments such as telescopes and spectroscopes that we can see that there are some bodies which shine by reflected light (planets), and some bodies which shine by their own light (stars). What is it that underlies this difference between stars and planets? A star forms when a cloud of gas contracts under its gravitational attraction, heating up as it does so. Eventually the temperature rises sufficiently for nuclear fusion to take place in the centre, this generates energy, and thus it can start shining under its own power. A planet forms by a different process: The small particles of dust, which are left over after the formation of the



star, collide and sometimes stick together forming larger clumps. These clumps in turn collide to form larger clumps, the process continuing until most of the dust is used up. The result is a relatively cold body which is not sufficiently hot or heavy to produce its own light.

So where do Brown Dwarfs come into the picture? If, for some reason, insufficient gas is available to form a star, then the body will not be able to increase its mass and temperature sufficiently to be able to sustain hydrogen fusion. The resulting object is what is meant by a Brown dwarf:

Unfortunately this makes it difficult to recognise an Brown Dwarf simply by looking at it - we need to know its history as well - how did it form? However, by the time we find a candidate Brown Dwarf it is too late to see how it formed, so we need some other method of distinguishing a Brown Dwarf from a large planet. What would such a "failed star" be like?

At the moment there seems to be no clear cut way of determining if an object is a large planet or a small Brown Dwarf. Some people have suggested a mass limit of around 10M<sub>j</sub>, but it seems likely that it is possible to have a Large planet which has a mass greater than that of the smallest Brown dwarfs.

### **Properties of Brown Dwarfs**

**Mass** According to the accepted theories, the critical mass required in order to be able to commence Hydrogen burning (fusion) is 0.084 M<sub>☉</sub>, so a Brown Dwarf must have a mass less than this. The lower limit is more difficult to pinpoint, but a Brown Dwarf is usually regarded as having a mass between 10 M<sub>j</sub> and 84 M<sub>j</sub>.

**Central Temperature** By definition, the central temperature must be less than 3 million degrees, as that is the critical temperature required for substantial nuclear reactions to take place. The temperature is dependent on the mass, and will be lower for lower mass objects.

**Surface temperature** The temperature of the outermost part of a Brown Dwarf is expected to be around 1000 K, though this will of course depend on its age. It will cool down as it get older. Nuclear fusion may take place at the beginning of its life, but this cannot be sustained very long.

**Luminosity** Because of their low surface temperature Brown Dwarfs are not very luminous. The least luminous "Normal stars" are around 10<sup>-4</sup> L, and whilst a young Brown Dwarf may temporarily be a little brighter than this before the cooling phase sets in, older Brown Dwarfs are going to be around 10<sup>-5</sup> L. This means that its absolute magnitude is going to be around +17.

## Why are Brown Dwarfs important?

As you may know, one of the most important problems in cosmology/astrophysics just now is the problem of the so called "Missing Mass". Various observational and theoretical arguments can be used to show that we have only been able to identify about 10% of the mass of the universe. So where is the other 90%? One theory is that it is bound up in brown dwarfs, so the discovery of vast numbers of Brown dwarfs (or the discovery that there are very few Brown Dwarfs) would have great repercussions for cosmology.

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## Is SETI barking up the wrong tree?

from Seth Shostak

It's been 46 years since Frank Drake aimed an antenna at the stars in the first modern SETI experiment. His hope was to hear a deliberate signal, guided into space by intelligent beings, rather than the natural, noisy dance of hot electrons.

Since then, SETI has expanded its search space, bettered its equipment, and refined its strategies. But the bottom line hasn't budged: still no confirmed chitter from the cosmos.

Some people mistakenly confuse a long search with a thorough one, and figure that the lack of a SETI detection indicates that we're alone in the Galaxy. This, however, is nonsense.

The number of star systems we've carefully examined is only about a thousand. That's a trifling sample compared with the several hundred billion suns that stud the Milky Way, and of little statistical significance. It's comparable to initiating a quest for Americans who play the oboe, but considering the search meaningful after interrogating only two people. In addition, and of great consequence to those who actually do SETI, the speed of the experiments is growing geometrically. Every two years, the breadth of the search approximately doubles.

In my opinion, the reason that SETI hasn't yet succeeded is simple: we've just begun to look. Nonetheless, every day I get e-mails from folks who suggest other reasons for our failure to pick up an alien thrum. It probably doesn't surprise you, but many of these proffered explanations are similar. Indeed, there are four conjectures that are so popular, so prevalent in e-mail after e-mail, that I list them below for your edification and assessment. I also append my own take on each.

### **Top four reasons people suggest for why SETI hasn't found a signal**

1. *"You're counting on the aliens using communication technology (radio, light) that's oh-so-last century. They will be far beyond this."*

In other words, SETI's technical approach is wrong. Variations on this theme are to suggest that we should instead be looking for gamma rays (more bits per second), gravity waves (unclear benefit, except that some people think they move faster than light), or taking advantage of what is somberly and imposingly described as "hyperdimensional physics."

Well, gamma rays are wasteful, requiring an enormous amount of energy per bit. Gravity waves are hard to produce (you need to shake planets or something similar) and hard to detect (consider the complexity of LIGO or any of the other gravity wave experiments). In addition, and as far as we know, gravity waves move no faster than the speed of light.

As for invoking hyperdimensional physics – well that might be dandy if we knew what it was.

True enough, there may be some important, undiscovered laws of the universe that will show us how to send bits from one place to another either more cheaply than light and radio, or faster (and no... quantum entanglement doesn't seem to do it). If and when we discover these new laws, we'll adjust our experiment accordingly. In the meantime I can only point out that, without the physics, it's hard to wire up the equipment!

2. *"If hi-tech societies or thinking machines were out there, they'd have colonized the Galaxy by now. Clearly, we're alone... lone... lone."*

This is, of course, an appeal to the Fermi Paradox, which assumes that if sophisticated societies are common, they should also be ubiquitous. Well, I just checked the parking lot outside the Institute, and I see no large animals with long, prehensile noses. The conclusion *a la* Fermi is that elephants don't exist on this Earth, right? After all, any putative pachyderms have had plenty of time to get to my office, even if only a few of them are so inclined.

To use the Fermi Paradox as a reason for the lack of a SETI signal is to make a very big extrapolation from a very local observation. Seems chancy to me.

3. *"The aliens don't want to communicate with us. Look at what we're doing to the planet!"*

Even aside from the fact that our television signals haven't yet oozed far enough into space to tip off any aliens about our proclivities for deadly conflict, our enthusiasm for environmental degradation, or our addiction to sports, it's self-centered in the extreme to think that any of this would *matter* to them! Did E.O. Wilson refuse to study ants because they routinely war with other ants?

4. *"You SETI types are just looking in the wrong places. We know where the extraterrestrials are: on a planet in the Zeta Reticuli system."*

I like this explanation the best, even though it's the worst. At least it offers a recipe for remedy: simply turn our antennas at the nearby (39 light-years) double-star Zeta Reticuli, and the signals will thunder in. (For those readers who are scratching their crania at this, I note that Zeta Reticuli is the star system that was the supposed origin of the short, brazen aliens who, in 1961, reportedly abducted social worker Betty Hill and her postal worker

husband, Barney. The system's identification is based on a "star map" Betty drew with a dozen points on it.) But allow me to note that we *did* look at both of Z. Reticuli's stellar components during our SETI observing run in Australia, a decade ago. The aliens, for their part, remained coy.

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### **Alien life**

Think again of those astronomers who beamed radio signals into space from Arecibo, describing Earth's location and its inhabitants. In its suicidal folly that act rivalled the folly of the last Inca emperor, Atahualpa, who described to his gold-crazy Spanish captors the wealth of his capital and provided them with guides for the journey. If there really are any radio civilizations within listening distance of us, then for heaven's sake let's turn off our own transmitters and try to escape detection, or we are doomed. Fortunately for us, the silence from outer space is deafening.

- Jared Diamond, "The Rise and Fall of the Third Chimpanzee"

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### **The Bug Eyed Monsters.**

from Ray Worthy

Have you ever taken a mobile dome and set it up for an all-night session. Well I have, several times. It was an annual event in a Newcastle science museum. Children were invited to take part in activities late into the night and bring their own bed rolls to bed down amongst the exhibits. It was called a "Sleep Over", although, as far as my experience showed, little time was spent in sleeping.

The first time was something of an experiment and was a little chaotic. The supervision left something to be desired. After some reflection it was decided that when the sleepover was repeated, to confine the invitations to organised youth bodies such as the Scouts, Girl Guides and such like as these came with their adult supervision already supplied.

My dome was set up in a huge empty hall and the various groups came round at hourly intervals, as regular as clockwork. The organisation seemed far better than the year previous.

So it came about that at one o'clock in the morning, across the hall came a scout troop. Alongside the leader was a huge boy with a remarkable physique, towering above everyone else and it soon became obvious that he was a Down's Syndrome boy. The Scoutmaster introduced me to this boy who turned out to be the most intelligent Down's boy I have ever met. He immediately informed me that he knew all about the stories of the ancient Greek gods and their myths, and having no brakes supplied, he proceeded to regale me and everyone else about Andromeda and the Sea Monster. His enthusiasm knew no bounds.

I took him under my wing and made sure that he lay down beside me on the floor so that I could pay him special attention. I promised to point out where all the relevant constellation patterns were.

The programme included a quick run through some constellations followed by an explanation of how the stars were formed. After this came a tour of the Solar System. Everything went swimmingly until we reached Mars. I was showing a slide of the first view taken from the Viking Lander and explaining how disappointed we all were. I had given this lecture hundreds of times before. The narrative went something like this.

" People in my lifetime used to believe in Martians because they thought they could see evidence of canals and such like which varied in colour over the seasons. This was the very first time that a camera had actually landed on the surface of the planet. What a disappointment it was. All we could see were rocks in a desert. Nobody came up to the lander to say " Hello"; No "Little Green Men", No "Little Green Girls", and most disappointing of all , no "BUG - EYED MONSTERS ."

At this point all Hell let loose. The young boy exploded. He slammed into me, knocking me and the projector several feet to one side. He was shouting -" There's no such thing as "Bug-eyed Monsters".

At that moment, I had no idea what had happened. All I knew was that I was seeing some stars that were not on the dome. As I was in the process of coming to, I realised that the scoutmaster was lying full length on the boy, calming him down saying something like, " There, there now. He didn't mean you". I cannot actually remember putting the equipment back into place, but of course I must have done.

As you probably know yourselves, when you are in the middle of a lecture and something untoward happens, you automatically switch on the autopilot and the lecture goes on while underneath at some subterranean level you begin to think furiously. I was in a quandary and the reason was this:

The dialogue about that first visit to Mars was a lead to the wind-up at the end where I was to have all the kids pointing at any chosen star.

"Just imaging," I would say, " Around that star is a family of planets and one of those planets could be something like our Earth. On that planet, life has started and some creature has built a telescope and this creature is looking at our Sun, (It will be only a tiny speck in their sky), but the creature is talking to a friend saying - " I wonder if that star has any planets like ours? I wonder if there are any little green men or little green girls? And all the time you are here. You are their aliens. YOU are their little green men. YOU are their BUG-EYED MONSTERS. And the lights go up and the show comes to and end amidst all the applause

All this was going through my mind as the lecture proceeded. I wanted to end the lecture in the usual way, but would it be safe? Would I get away with it? As the kids were ooh-ing and aah-ing at one of the slides I took a sideways glance at the boy. He was calm, completely absorbed in whatever was on view. The leader saw me looking and assured me that the boy was OK and he would be fine. I was not so sure, knowing what I did about the end of the programme, but I resolved to stick to the schedule.

When that final point in the lecture arrived all the kids were pointing at the star of their respective choice and I am lying down beside the projector console. It happened alright!

On the line," YOU are their BUG-EYED MONSTERS!" The young boy exploded on cue and this time, the leader was half prepared because he could guess what was coming, although I had not had any opportunity to prepare him. This time I found myself knocked some distance to one side with both the boy and his leader on top of me. I somehow managed to turn up the lights and the finale music, but I was still under the two of them trying to breathe.

It took quite a while for the leader to calm him down, but he managed it. Now my domes have no tunnel and the entrance and exit are by means of a zip door. The audience was organised into a circle, arranged around the inside of the dome and I was positioned in my usual place, to one side of the door, holding the zip open.

The scouts all trooped out of the dome in an orderly manner and thanked me one by one. The young boy came at the end of the line just before the leader. He was chuntering to himself but quite audibly - " There's no such thing as "Bug-eyed monsters". The leader hung back a little, trying to apologize profusely whilst I, facing away from the door was being nonchalant about the whole thing, pretending this sort of incident happened all the time. Just at the moment when I thought he had been mollified, through the door shot a hairy arm which delivered a perfect uppercut right between my legs. I shot up a couple of feet in the air and landed on top of the leader.

All I could hear was, "There's no such things as bug-eyed monsters", fading away into the distance.

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*One of my favourites (and nothing to do with astronomy) Ed.*

The odds against there being a bomb on a plane are a million to one, and against two bombs a million times a million to one. Next time you fly, cut the odds and take a bomb.

- Benny Hill

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## **Transit Tailpieces**

### **Custom Telescopes UK.**

Glen Oliver, a long-time member of the Society, can supply telescopes and accessories of all kinds. He operates from Hartlepool and has a website,  
**<http://homepage.ntlworld.com/glen.oliver/custom.htm>**  
**e-mail [glen.oliver@ntlworld.com](mailto:glen.oliver@ntlworld.com)**

Support local businessmen! Glen tells me that he now has an Astronomy and Space books page on his website

**Transit Adverts** If you wish to let members know what you want to sell or what you are looking for, please send an advert for the magazine.

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**CaDAS Website** Don't forget to visit our very own website at  
[www.wynyard-planetarium.net](http://www.wynyard-planetarium.net).

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**For sale** – Helios 240mm reflector with tripod, eyepieces, Barlow etc. Sensible offers considered. Please contact Graham Johnson at the Carlton Outdoor Centre on 01642 712229

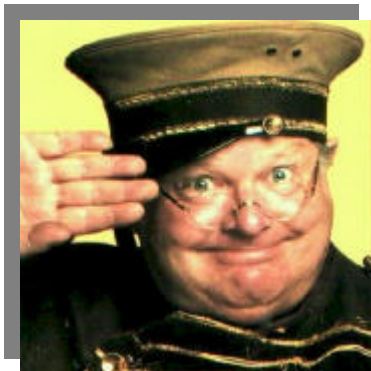
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**For Sale** – A Fullerscope 6" reflector utility mode, on a stand with setting circles and motorised drive, finder and various eye-pieces etc. etc.

Contact [pk\\_12001@yahoo.co.uk](mailto:pk_12001@yahoo.co.uk) for details.

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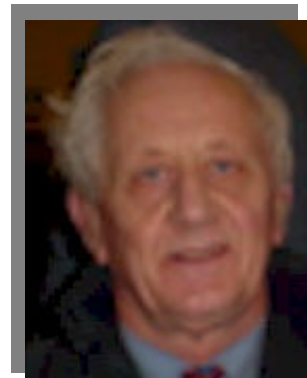
**Articles** Please send contributions for the newsletter to Bob Mullen, 18 Chandlers Ridge, Nunthorpe, Middlesbrough, TS7 0JL, 01642 324939 ([b2mullen@hotmail.com](mailto:b2mullen@hotmail.com))  
Copy deadline date is the 25<sup>th</sup> of each month.



Benny Hill (just testing)



Ray Worthy



John Crowther



Rob Peeling



Michael Gregory

You too can have your picture on the back page, either be a terrific comedian or submit an article to Transit. Sometimes you can one and the same thing!