WAS NEWS

Monthly Newsletter of the **W**orthing **A**stronomical **S**ociety

Official website: www.was.org.uk

Affiliated websites: www.observatory99.freeserve.co.uk

Number 155 **July 2002**

ALMANAC

All times U.T. For B.S.T. add one hour

July./August./September.

LUNAR

July	Date	Time	rise	set
First Quarter	17th	04.47	12.54	23.41
Full Moon	24th	09.07	20.41	03.40
August				
Last Quarter	1st	10.22	23.00	12.58
New moon	8th	19.15	03.28	20.03
First Quarter	15th	10.12	13.28	22.30
Full Moon	22nd	22.29	19.35	03.49
Last Quarter	31st	02.31	22.15	14.17
September				
New moon	7th	03.10	05.18	19.14
First Quarter	13th	18.08	13.56	21.36

EARTH

July	Sunrise	Sunset
17th	04.03	20.09
24th	04.12	20.01
August		
1st	04.24	19.49
8th	04.34	19.37
15th	04.45	19.23
22nd	04.57	19.09
31st	05.11	18.49
September		
7th	05.22	18.34
13th	05.32	18.20

PLANETS (as at August 8th.)

	Constellation	Rises	Sets	Mag.
Mercury	Leo	06.17	20.17	-0.4
Too close to the Sun for observation				
Venus	Virgo	08.58	20.56	-4.2
Visible in the West after sunset				
Mars	Cancer	04.40	19.43	+1.7
Unsuitably placed				
Jupiter	Cancer	03.20	19.00	-1.8
Morning object becoming visible in the East				
Saturn	Taurus	00.34	16.39	+0.1
Morning object visible in the East				
Uranus	Aquarius	19.55	05.32	+5.7
Nearing opposition				
Neptune	Capricornus	19.09	04.14	+7.8
Just passed opposition				
Pluto	Ophiuchus	14.54	00.55	+13.8
Have you seen it yet.!!				

PHENOMENA

Day	Hour	July
13th	15	Venus 4° S. of moon
20th	01	Jupiter in conjunction
21st	02	Mercury in superior conjunction
		August
2nd	01	Neptune at opposition
5th	03	Saturn 2° S. of moon
7th	19	Jupiter 3° S. of moon
10th	22	Mars in conjunction
20th	01	Uranus at opposition
22nd	13	Venus at greatest elongation E. 46°.
26th	11	Pluto at stationary point
		September
1st	10	Mercury at greatest elongation E. 27°.
4th	15	Jupiter 4° S. of moon
10th	07	Venus 7° S. of moon
14th	20	Mercury at stationary point

Minima of Algol

July 13th 02.30 15th 23.18 18th 20.06
August 2nd 04.06 5th 00.54 7th 21.42
25th 02.30 27th 23.24 30th 20.12
September 14th 04.18 17th 01.06 19th 21.54

Lunar Occultations

Times as at W.A.S. Observatory

Date	U.T.	S.A.O.No	Mag	Phase
July	**h. m. s.**			
14th	20.32.12	118916	8.4	diss
14th	21.34.07	118933	8.6	diss
14th	21.46.01	118940	8.7	diss
20th	21.04.28	184822	5.6	diss
28th	23.52.08	147042	4.6	reapp
29th	00.11.54	147050	8.8	reapp
29th	02.19.19	128572	4.6	reapp
August				
16th	21.43.00	184578	7.4	diss
16th	21.52.29	184586	8.1	diss
25th	22.29.15	128787	7.0	reapp
30th	22.48.55	93844	7.8	reapp
30th	22.50.07	93837	8.4	reapp
30th	22.53.09	93840	7.5	reapp
30th	23.39.32	93862	8.6	reapp
30th	23.50.17	93856	8.6	reapp
31st	00.05.25	93863	8.3	reapp
Sept				
1st	00.55.08	77044	8.7	reapp
1st	00.56.10	77045	8.4	reapp
2nd	01.28.04	78079	5.9	reapp
2nd	02.01.45	-	9.2	reapp
2nd	03.01.28	78139	8.2	reapp
13th	18.52.07	185313	6.6	diss
13th	19.09.23	185320	3.3	diss
13th	19.56.07	185346	7.3	diss

This is only about 20% of the predictions for the WAS observatory.

Dave Wells

Editors Note

Greetings all, the 'summer' months now being upon us one could be excused in thinking that astronomical events would be in short supply, *au contrair* I cry, just read through this positively bursting issue of WAS News, but beware, read sparingly, it's got to last you 2 months!!!

Happy WASing and see you all in September.

Rob

Dates for your Diary

Perseid Meteor Watch

Graham Boots

The peak of the Perseid meteor shower takes place this year at 10.00 p.m. on Monday evening the 12th August which is the same moment as the 4 day old moon sets so the sky will be really dark. Up to 80 meteors per hour are expected. It is described as a rich shower with many bright events of the oooh arrrrh type, they are fast and blue leaving trains (trails). They provide a good opportunity for photography when at maximum.

Join me around 9.00 p.m. at our Ferring beach observing site for an hour or two or three, weather permitting. For those interested I will supply some simple meteor recoding forms. If you require directions on how to find our observing site, need advise on photography or how to record events please contact me. Graham Boots on 01903 505346

Reports

Planetary Section Report - July 2002

Glen Thomas

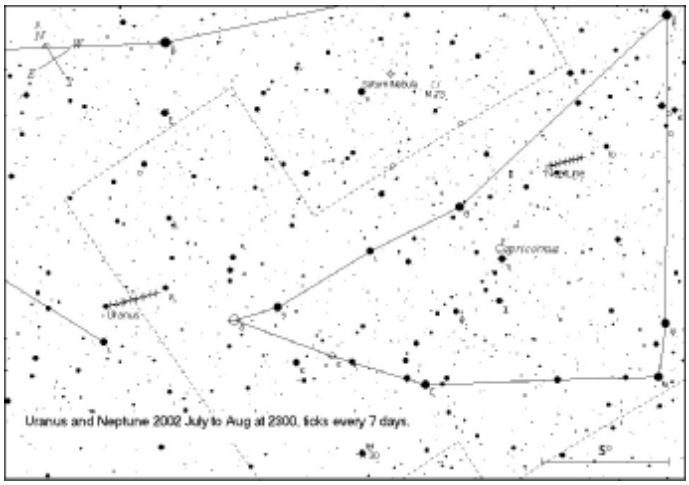
Mercury's evening apparition is poor in August, so we have to wait until the early October mornings to spot this elusive planet.

As Venus draws closer to the Sun it becomes more difficult to spot, eventually disappearing completely during October. You may notice it becoming a larger but thinner crescent as it moves towards solar conjunction.

Mars is now difficult to spot in the evening twilight, reaching solar conjunction on August 11th.

Jupiter is unsuitably placed close to the Sun and will remain so until September when it may be seen as a morning object.

Saturn rises in the NE around midnight in August and will be still be visible high in the dawn twilight before around 5:30 am.



Uranus and Neptune both reach opposition during August putting them as high in the sky as they get. Use the map and binoculars to see the only large planets that eluded the ancients, currently in Aquarius and Capricornus. They are very distant though; so do not expect to see any detail on their discs, even under high power through a telescope. You may, however, glimpse some green or blue.

The map shows stars down to magnitude +9, about 1 magnitude fainter than Neptune (mag +7.8). The brighter Uranus (mag +5.7) is shown as a disk the same size as similar magnitude stars. The tracks show the positions on July 9th at 11 PM, with tick marks every week showing both planets moving to the right of the map.

Pluto is past opposition but is worth tracking down if you have a 20 cm (8") or greater telescope. Best seen when the sky is darkest around 1 am. The Moon will spoil things if it is above the horizon.

Extra solar Planets: Although you will have no chance of seeing the planets directly, there are six planetary systems whose primary, the central star, is visible to the naked eye.

They are, with the magnitudes in brackets: 18 Epsilon Eri (3.7), 4 Tau Boo (4.5), 70 Vir (5.0), 47 Uma (3 planets! 5.1), 15 Rho CrB (5.4) and 51 Peg (5.5).

N.B. All times BST.

Stellar & Deep Sky Section - Autumn 2002

Graham Boots

My last article was devoted to the constellation of Monoceros. At the observatory we began attempting to observe the six objects I had chosen in January but because of poor weather we did not really begin until February. Poor weather continued and we finally observed the last object in April just before this constellation was lost to evening twilight.

We began by examining the triple star Zeta ζ Monocerotis. Three observers found the primary star yellow, the closer attendant blue and the further attendant not so blue.

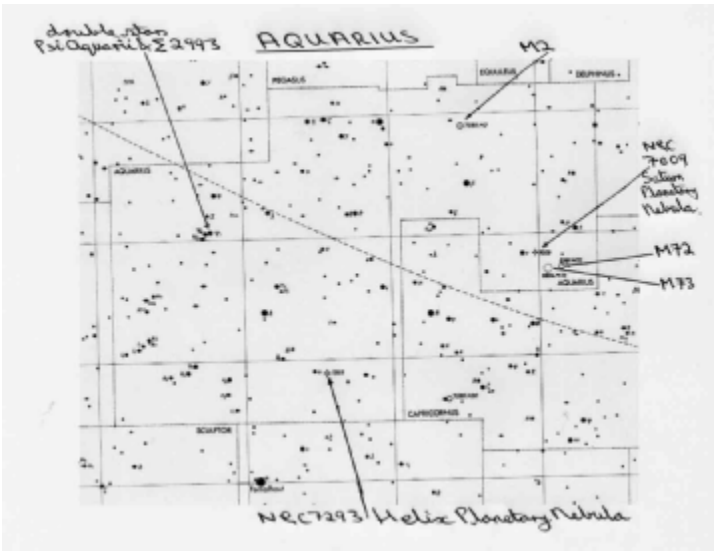
Epsilon ε Monocerotis also known by it's Flamsteed number, 8, a double star was found to have a yellow/white primary while the colours of bluish mauve, bluish tint and purple were used to describe the colour of the secondary star. On another occasion many observers used all sorts of colours to describe this system but never deep red and greenish which were the colours stated in Richard Harshaw's article 'Third Degrees Views' which appeared in the summer 2000 edition of the Deep Sky Observer published by the Webb Society.

Beta β or 11 Monocerotis, which is another triple star, were all stated to be white by a group of observers.
I find the opinions of others at group observing sessions to be reassuring as to what is actually being seen and if objects are observed on more than one occasion, which is often the case, this gives even more value to the overall opinion.

The final double star I chose was Σ 1183 Monocerotis (Σ this is the conventional symbol for the name of Wilhelm Struve which refers to the great Dorpat Catalogue of double stars and OΣ relates to Otto Struve) and three observers found the primary to be either yellow or blue/white while the secondary star was stated to be green, green tint or blue. When the star colour green is stated it is a contrast effect and not a thermal stellar emission colour.

When we observed M50 we found it to be about 100 evenly spaced stars making up a rounded open star cluster. We could see it through the new finder that is now fitted to the 29.2 cms Newtonian telescope. It would have stood out better if it were not in such a rich star field of the Milky Way.

Finally we observed NGC 2244 and NGC 2237 which is an elongated association of O and B stars (hot young stars) and the surrounding Rosette nebular respectively. The star association can be seen quite easily but the nebular is difficult. We observed these objects on two nights. The nebular is one degree in diameter, which is twice the diameter of the full moon and is of low surface brightness. Using a 40 mm super Plössl multi-coated series 4000 eyepiece manufacture by Meade fitted with a Lumicon ultra high contrast filter applied to the Newtonian telescope we were able to see the annulus of gas. The way we were able to detect the gas, as it covers such a large area, was by moving the telescope away from the central star cluster in any direction and we able to note the absence of stars where the gas was. At the outer limits of the gas the stars appeared again. This region of sky having such a rich star field helped this affect. NGC 2237 is an emission nebular of ionised hydrogen, which was left over once the star cluster was formed; the stellar wind pressure is now driving this gas away. It is thought that the O B stars are less than half a million years old and that the nebula will change completely over a time of just millions of years [ref 1]



For the autumn I have chosen the constellation of Aquarius, which at that time of the year occupies our southern sky and can be found below the square of Pegasus. The Rev. Thomas William Webb describes this constellation as 'A dull-looking constellation, but well repaying telescopic research' [ref 2] See star chart that accompanies this article.

In this constellation are two globular star clusters; M2, which is described as densely packed at magnitude 6.5 and the fainter M72 at magnitude 9.4. Our 29 cms. Newtonian telescope should have no trouble finding these objects under fair seeing conditions. Lord Rosse stated that M2 has a dark area near the core.

In 1780 on the same night that Charles Messier recorded M72 he also recorded M73 which is an open star cluster which only consists of only four stars and may have marked the location of one of those comets he was forever seeking. The brightest of these four stars is of the 10th magnitude.

I also intend to find and show members and visitors on Observer's Nights two well-known objects in Aquarius, which are NGC 7293 called the Helix and NGC 7009 called the Saturn planetary nebulae.

The Helix is the largest planetary nebula as seen from the Earth and covers an it covers a sky area of around one fifth of a degree in diameter and is of low surface brightness. It is put at magnitude 6.3 while the central star is 13.5. The best approach I have at my disposal in order to observe this object is to use a wide field low power eyepiece fitted with the Lumicon ultra high contrast filter, which is particularly good for observing planetary nebulae. This will not be an easy object as the declination is –21 degrees.

The so-called Saturn planetary nebula is the name given to this planetary nebula by Sir William Herschel in 1782 [ref 2.] It is put at magnitude 8.0 and it is said that a large telescope is needed to see the Saturn shape. The Earl of Rosse found a thin ray on each side [ref 2]. The spectroscope of William Huggins revealed this object as a mass of incandescent gas whereas previously it was thought to be a heap of stars [ref 2]. The central star is magnitude 12 and the size is put at 28 by 23 seconds of arc.

The final objects I have chosen are a pair of double stars that can both be observed at the same time in the same low power eyepiece. These are Psi Ψ^1 Aquarii of 4th and 9th magnitude and from the sources I have the colours are described as either orange and white or very yellow and blue respectively. The separation is about 50 seconds of arc and the position angle is 312 degrees. The other double star is Σ2993 which is described as 7th and 8th magnitude, both pale yellow, separation 25 seconds of arc and position angle 178 degrees.

Try and find some of these objects through your own telescopes, M2 should be easy enough. Come to the observatory any clear Friday, as the above objects will on the agenda up to October along with many other deep sky objects in the autumn evening sky.

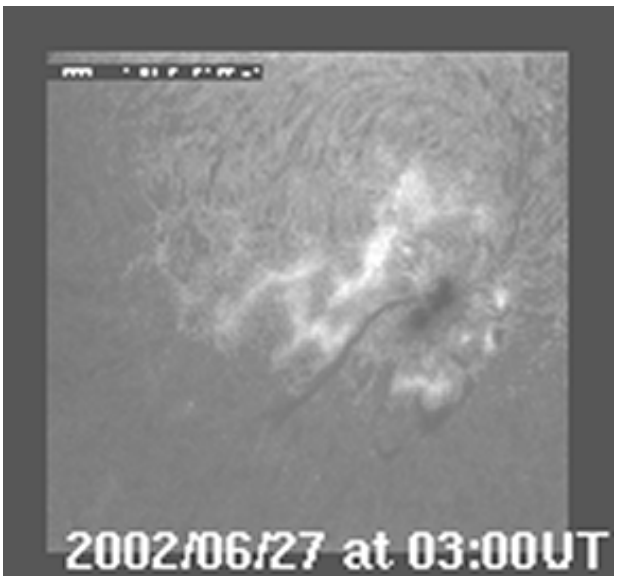
References

1. Catalogue of the Universe by Paul Murdin & David Allen pages 105 to 107 published1979 by Cambridge University Press
2. Celestial Objects for Common Telescopes by Rev.Thomas W Webb Vol. II pages 20 to 24 published 1898 by Longmans, Green, and Co.

Solar Section Report - June 2002

Brian Halls Section Director

At the end of my last report in the previous issue of WASNews, I mentioned a recurring sunspot group – 9973 ($S16^0$ $L=213^0$) - which had appeared earlier in May.



This group remained on the Sun for the best part of the next 11 days before disappearing over the western solar limb. During its course across the solar disk, it first appeared as a large F-class group but slowly dissipating as it continued its journey.

By the time this sunspot-producing region reappeared there was a much smaller sunspot group now visible that remained until the end of the month.

The last two weeks of the saw the appearance of a large group/region 0008 at $S10^0$ $L=293^0$ - (they started numbering from 0001 after they used 9999)!

This large spot remained very much the same size through most of the time it was visible though by June 27, a small photospheric bridge had appeared and was crossing the umbra of the spot – the group had begun to decay. (See H-Alpha picture – taken at Learmonth, Australia)

Sunspot activity through June was overall quite quiet – the number of sunspot groups and sunspot numbers had decreased.

Members observed the Sun on 24 days during month: Graham Boots, Nick Quinn, Brian States and, the Director.

MDF = 6.08 (N= 2.35; S = 4.08)* R = 81.19

*The difference between the whole disk MDF and the hemisphere count is due to all members count active area numbers over the whole solar disk while others also count active area by hemisphere.

Articles

June Lecture Reviewed *- Report by Vanessa Wegner*

Extrasolar Planetary Search

Kevin Apps

Extrasolar Planetary Search is a new field in astronomy therefore it is quite extraordinary that only since 1995 eighty planets have been discovered outside of our own solar system, all of them similar in size to our own gas giants, Jupiter & Saturn.

Our own sun has a mass equivalent to 1000 Jupiters; Jupiter has a mass equivalent to 300 earths. A star is an object undergoing a fusion reaction in its core, to be a star it has to have a mass of more then 80 Jupiters. A brown dwarf is a failed star, therefore it has a mass of less then 80 Jupiters, planets have a vast range of mass & of course have no light of their own.

The world`s largest telescope can not observe extrasolar planets directly, they are simply too far away. However by observing stars & using what is known as the Doppler affect, i.e. when a planet orbits a star the star is affected by the planet` pull causing a slight shift in the wavelength of light; a wobble. This method does have its limitations; currently the precision is only 2 to 3 meters. The surveys are only five years old & we need to see the entire orbit of a planet, currently only planets with orbits of five years or less can be observed. Another problem is the stars themselves, the very nature of stars means that they are not stable & their instability furthers the limitations of using the Doppler affect with its limited precision. Giant stars are also unsuitable because they pulsate & therefore mimic Doppler variations.

The assumption 10 years ago when extra solar planets were first considered is that we would find small earth like planets close to the parent star & giant planets orbiting further out & they would all follow a roughly circular orbit. No rocky planets have been discovered so far, giant planets have been discovered close to the parent star & many follow elliptical orbits. The first giant planet discovered orbited it`s star in 4 days, this was a big surprise.

Kevin showed the audience a graph plotting the planets discovered so far, the largest has a mass of 10 Jupiters & the smallest a mass of 1 Saturn. Nature seems to make planets up to 10 Jupiters in mass but above that they just don't seem to form.
47 Ursae Majoris is almost identical to our sun, it has the same mass & it's the same age, there are two planets orbiting it, both in circular orbits. However Upsilon Andromedae has three giant planets all very close to the sun.

HD209458 was an unusual discovery, because the system is edge on to us the transit of the planet across the sun could be observed, the planet has very low density which means that it is mainly made of hydrogen & helium. The planet`s atmosphere could actually be detected & sodium was identified in the atmosphere. Kevin pointed out the irony of observing a planet 150 million light years away which we can not see but we can however detect sodium in the atmosphere!

How were these planets formed? We mistakenly call all of our 4 giant planets gas giants but in fact only Jupiter & Saturn are gas giants, Neptune & Uranus are ice giants. All four planets have low eccentricities & inclinations, their core masses are similar, these similarities hint at the same formation process. The birth of a planet starts with a slowly rotating & collapsing spherical cloud forms a flattened rotating disc; this spins faster & faster. All the dust & ice particles form planetoids which grow as particles stick together, this is helped by gas which slows them down. This object gets bigger & bigger, once the ice & dust cores reach a few earth masses their own gravitational cores attract gas; at about 10 earth masses they form a hydrogen & helium atmosphere.

The Kuiper Belt, a more distant extensive version of the asteroid belt is made up of icy bodies of which Pluto is the largest, not a planet at all (this is Kevin`s opinion!), current thinking is that they are fragments left over which never formed into giant planets.

What of the future? There are several ongoing searches; over 2000 stars will be regularly monitored over the next 10 years. At least 8% of stars like our sun have Jupiter like planets, as this type of observation has only been happening for the last 5 years there is a huge possibility of masses of Jupiter like planets. It may even be possible to image these planets over the next few years. In 2006 the Keppler mission will launch, its sole purpose is to try & observe earth size planets, it will monitor one hundred

thousand stars in Cygnus for several years. In 2012 an array of 5 or 6 telescopes will be launched, they will try & detect methane & ozone in atmospheres, this would usually be a good indicator of photosynthetic life as methane will not last for long in the atmosphere unless there is plant life on the planet.

Kevin`s lecture was very well received by the audience & certainly inspired imagination & thoughts about other worlds around stars which until recently only seemed like fantasy

Does the Universe have an Outside?

Michael A. Marshall

Before the time of World travel, many people envisaged Earth as a giant tabletop - flat and with a topside and a bottom side (and fearsome edges): in less layperson's English, Earth had an essentially two-dimensional form. Since then, most people envisage the Earth as a giant ball curved and with an outside and an inside (and reassuring self-gravitation): Earth now has very much a three-dimensional form.

In 1951 the then Goring Hall School acquired a Science teacher, and he introduced Astronomy. "Any questions?" he finally asked. "Yes! Is there anything such as a brick wall surrounding the Universe (it being the largest of estates) and, if so, what is on the other side?" I did not get an answer. Reading Astronomy since then, I have come across many and varied clues but no definitive answer: astronomical research allegedly turns up more questions than answers. So what are the outstanding clues?

First, the large-scale structures of galactic residence are much smaller than the Universe as a whole.

Second, we occupy no special place other than a specific galaxy, there is no centre.

Third, we could only ever see out to some 15000 million light-years distant because we are actually looking back into history to the initial event of the Big Bang.

Fourth, we observe the Universe (the space between galactic groups) as expanding into history.

Fifth, the Universe may have suffered an early supraliminal expansion rate (inflation).

Sixth, just as the theoretical concept of three dimensions were formed for architectural reasons some five millenniums ago, dimensions on the scale that everybody can directly observe and adopt, dimensions below the observable limit are now conceived by some scientists in order to understand the workings of the sub-atomic world if not the virtual particles that pop out of the vacuum.

So these clues seem to have underlying complications that need unraveling and correlating.

The first and second clues together suggest that, provided views of the historic Universe were taken at one particular time after the Big Bang event, views of the whole would look very much the same no matter what part of the Universe we were in. Alas, outside our solar system, the stuff of the Universe as it is now, or was four years into history, is totally unobservable!

The third clue suggests that, because viewing the relatively tiny beginning of the Universe would show a greatly magnified beginning: looking back creates a dimensional anomaly, a distortion of perspective as a curvature of the three dimensions.

The fourth clue suggests that, at some 15000-million light years out, the telescopic view would become immensely red-shifted, compressed and unobservable (in accordance with the Special Theory of Relativity) - a kind of black horizon appertaining to a three-dimensional realm.

The fifth clue suggests that much of the Universe is beyond telescopic observation, beyond the black horizon, because the light from it needs more than sonic 15000 million years to reach us. The galactic count might otherwise be much greater, the sky at night be much brighter, an extra-solar star be less than a year into history!

The fourth, fifth and sixth clues together suggest that the Universe is expanding into a higher dimension, alas contrary to a reply from www.netlabs.net/hp/tremor/: "There's no evidence for a 4th, higher, dimensions of space (although I personally still have trouble picturing the curvature of 3D space without it, but anyway...)' The reverse of this suggestion is that a Universe of higher dimension than the third would appear to three-dimensional eyes as expanding: is there anything to suggest that a Universe of higher dimension would expand, in the stretched meaning of the word "expand"?

The sixth clue suggests that sub-atomic particles might come out of the vacuum to seldomly congregate and form atoms and so further galaxies. Am I suggesting a return to the Steady State theory? I did not receive a reply from the then Fred Hoyle as to whether neutrinos might play a part in this scenario, such was my understanding then.

The layperson with understanding unrelated to Astronomy might need to correlate the foregoing with their own understanding in order to accommodate it. The concept of dimensions larger than the directly observable ones we glibly talk about might offer such an opportunity. (On the super scale of higher dimensions, our everyday three dimensions would curl up just as dimensions below the observational limit would already have done so.)

As with language and mathematics, we cannot comprehend higher things whilst restricted to common usage: we have to adopt new concepts, as that of extended spatial dimensions. There is a magical quality about these, and I am not referring to the multitude of dimensions pertaining to mathematical equations of the Universe: a lower dimension is contained entirely within a higher dimension, but a higher dimension greatly overflows a lower dimension: a thing in a lower dimension would he part of a thing in a higher dimension, but a thing in a higher dimension would overflow many things in a lower dimension.

For those of a religious persuasion, does not the Holy Bible infer that God is everywhere and so (in part) in each of us, and we are in His domain and so in Him? This account could put God not only in the physical universe of four dimensions, but in a domain conceptually of five and possibly six dimensions. (The fifth dimension could be reserved for our spirit or soul to pass through on our way to heaven or hell. Whether heaven and hell are in other worlds in our four-dimensional Universe or in a detached four-dimensional Universe, both contained in a five-dimensional medium, is another matter of personal choice.)

Much as God may have preordained for the Universe without further interference, may have given to the science of Astronomy, we could never exercise our lower-dimensional selves in His domain of higher dimensions and so usurp Him (not to mention any of His angels and fellow gods, and the Devil and his witches and fellow devils).

For those who believe in reincarnation, they might consider that Earth may be just one of multitudinous worlds from which they came, there possibly being more worlds than all the peoples that have walked this earth. (I hope I shall be rewarded the opportunity to go through my previous life again and again, making a different decision each time until I got it right, to become a professional astronomer even.)

So the answer to my school-days question I provisionally accept is that our largest estate is surrounded by a conceptual higher dimension instead of a brick wall, and what is (mostly) on the other side is a yet higher dimension, perhaps other universes (from whence we may have come). (A standard 9—inch wall would require bricks numbering some ten to the power of 44, and would not even solve the dark matter problem.)

Notices

Society for the History of Astronomy founded in UK

Stuart Williams - Secretary, SHA

Saturday 29th June 2002 saw the founding of the UK's new national Society for the History of Astronomy, in the glorious and historic surroundings of Wadham College, Oxford, England. The Society's principal aims are: To promote an academic, educational and popular interest in the history of the science of astronomy and related subjects. To encourage new research into the history of astronomy, especially amateur research at the local level, and to facilitate its collation, preservation, publication and dissemination both by conventional means and through the Internet or such other new means as may subsequently become available. To bring together those with a common interest in the subject, whether amateur or professional researcher or general enthusiast, and to organise activities for the benefit and interest of the members.

Hosted by Dr. Allan Chapman MA D(Phil) FRAS, well-known historian of astronomy, the Founding Meeting, chaired by Stuart Williams FRAS LRPS, took place in the Okinaga Room at 2pm, during which a formal Proposal and Constitution for the Society for the History of Astronomy were discussed and minor amendments made. These were then voted upon and accepted unanimously by a full meeting of more than fifty attendees.

A number of messages of goodwill were presented to the meeting, including a formal representation from the Royal Astronomical Society by Dr. Helen Walker of Rutherford Appleton Laboratory, who is a Scientific Secretary of the RAS, and congratulations and good wishes sent by Professor F. Richard Stephenson, President of IAU Commission 41 (History of Astronomy) and the ICHA, on behalf of the officials of those organisations.

During the meeting, the Society's first Council was elected, the candidates previously announced being formally and unanimously elected en bloc, without opposition. The Council now officially consists of: Hon. President - Dr. Allan Chapman MA D(Phil) FRAS; Hon. Vice President - Sir Patrick Moore CBE FRS; Hon. Vice President - Dr. Michael Hoskin PhD FRAS; Chair - Emily Winterburn MSc; Secretary - Stuart Williams FRAS LRPS; Treasurer - Kenneth J. Goward; General Council

Members - Roger Jones, Kevin J. Kilburn FRAS and Dr. Nicholas Kollerstrom MA Cantab PhD FRAS. They are now charged with the responsibility of setting up and managing the operation of the Society.

In addition, the Society's newly appointed Webmaster and newsletter editor, Callum Potter, and Archivist Mark Hurn and Librarian Madeline Cox were formally introduced to the meeting.

The Founding Meeting concluded with a Presidential Address by the new Society's Hon. President Dr. Allan Chapman and the formal handover of the Chair to Emily Winterburn who then closed the meeting at a little after 4pm.

A group photograph was taken, followed by tea and an astronomy book raffle thanks to the kind sponsorship of publishers Springer-Verlag and booksellers Aurora Books who donated the prizes and have contributed to the Society's Library. Attendees departed at 5.30pm, all agreeing that a splendid and momentous occasion had taken place, making an excellent start to what will be a new chapter in the history of astronomy.

For general enquiries, please write enclosing a stamped s.a.e. (or two International Reply Coupons) to: Mr. Stuart Williams FRAS LRPS, Secretary, SHA, Flamsteed Villa, 26 Matlock Road, Bloxwich, WS3 3QD, England. For membership details and a membership form, please send a stamped s.a.e. (or two International Reply Coupons) to Mr. Ken Goward, Treasurer, SHA, 14 Keightley Way, Tuddenham St Martin, Ipswich, Suffolk, IP6 9BJ, England. Website:www.historyofastronomy.fsworld.co.uk

Top Ten Differences between Astronomers & Astrologers

Presented by Brian Halls

10 Astronomers never try to contact dead astrologers.
9 Nancy Reagan never asked an astronomer for advice.
8 An astronomer plans an evening according to the position of the stars, planets, etc. An astrologer plans their life according to the positions of the stars, planets, etc.
7 Telescopes come in a staggering array of shapes and sizes. All
Ouija boards look the same.
6 Carl Sagan did not have a 900 number.
5 Your VISA limit is of very little interest to an astronomer.
4 Astronomers occasionally make accurate predictions.
3 Alcohol makes complex astronomical concepts more difficult to comprehend. It makes astrological concepts easier.
2 Transposing two astronomical objects. coordinates makes a huge difference. Transposing two people's horoscopes makes no difference at all.

And finally...

1 Astronomers believe in the truth of relativity. Astrologers believe in the relativity of truth.

2002 Comet Awards Announced

Harvard-Smithsonian Centre for Astrophysics

Cambridge, MA -- Want some quick money in these days of WorldCom and Enron? Go and find a comet! An annual award of several thousand dollars for discoveries of comets by amateur astronomers has just been announced for the fourth consecutive year.

The Smithsonian Astrophysical Observatory (SAO), part of the Harvard-Smithsonian Centre for Astrophysics in Cambridge, Massachusetts, has announced the recipients of the 2002 Edgar Wilson Award for the discovery of comets by amateurs during the calendar year ending June 10. The award was set aside as part of the will bequeathed by the late businessman Edgar Wilson of Lexington, Kentucky, and administered by the SAO. The following seven discoverers will receive plaques and a cash award:

Vance Avery Petriew of Regina, Saskatchewan, Canada, for his visual discovery of comet P/2001 Q2 on 2001 August 18. Kaoru Ikeya of Mori, Shuchi, Shizuoka, Japan, and Daqing Zhang, Kaifeng, Henan province, China, for their independent visual discoveries of comet C/2002 C1 on 2002 February 1. Douglas Snyder of Palominas, Arizona, and Shigeki Murakami of Matsunoyama, Niigata, Japan, for their independent visual
discoveries of comet C/2002 E2 on 2002 March 11. Syogo Utsunomiya of Minami-Oguni, Aso, Kumamoto, Japan, for his visual discovery of comet C/2002 F1 on 2002 March 18. William Kwong Yu Yeung of Benson, Arizona for his charge-coupled-device (CCD) electronic-camera discovery of comet P/2002 BV.

Observers Ikeya and Utsunomiya have had their names attached to comets previously. Comet C/2002 F1 was Utsunomiya's third named comet; he also won the Edgar Wilson Award in 2001 for C/2000 W1 (Utsunomiya-Jones).Ikeya became world-famous in the 1960s for a string of five comet discoveries between 1963 and 1967, with comet C/1965 S1 (Ikeya-Seki) becoming likely the

brightest comet of the last century -- visible in broad daylight to the unaided eye as it skimmed closely by the sun's surface in October 1965.

At the beginning of the 17th century, Johannes Kepler thought there were more comets in the skies than there were fish in the seas. Many other people then still clung to the view of malevolent visitors bent on mischief prowling through the earth's atmosphere, whereby comets were seen as harbingers of doom, creators of earthquakes, disasters, famine, defeat in battles and deaths of kings. Going back to ancient times, the sudden appearance of comets, their enormous size, and their just-as-sudden departures raised superstitious fears wherever they were observed. Hundreds of comets were observed and recorded before the invention of the telescope in 1609, and the number of discoveries soared when better-quality telescopes came into use in the 18th century. Armed with small instruments that pale in comparison to ones available to amateur astronomers today, the race to discover new comets and gain recognition and fame began.

Nicknamed the "Ferret of Comets" by the King of France in the 1760s, Charles Messier became one of the most famous comet hunters of all time. He just missed the recovery of Halley's comet in December 1758 at its first predicted return, but for the next fifteen years, nearly all comet discoveries were made by Messier. It was rumoured that he may have been even more upset over the discovery of a comet by a rival while he was attending his dying wife than he was over her death.

Nearly two hundred years have passed since the comet discoveries of Messier. Today amateur astronomers continue to discover new comets that may bear their names for eternity. Fighting increasing light pollution and competition from sophisticated professional observatories, the challenges and rewards have become even greater. There have been numerous comet awards over the centuries, but the Wilson Award is currently the largest publicly known award.

The six visual discoveries of this past year involved four different comets and represent the most new comets discovered by visual observers since 1994. Automated CCD searches with large professional telescopes have dominated comet discovery since 1998. Utsunomiya's discovery was made with large 25x150 binoculars (having lenses with diameters of 6 inches). The other discoveries were all made with moderate-sized reflecting telescopes having mirrors with diameters ranging from 10 to 20 inches.

Yeung's discovery image was obtained on 2002 January 21, but he reported the object initially as stellar in appearance and it was given a minor-planet (rather than cometary) designation; CCD images taken by Timothy Spahr at the SAO station on Mount Hopkins in Arizona in early May showed that P/2002 BV was indeed cometary with a faint tail, and Yeung's object was announced as a comet on May 9 (IAU Circular 7896).

The brightest comet of the bunch, C/2002 C1 (Ikeya-Zhang) , became a faint naked-eye object this past March and April for northern-hemisphere observers, and is of special interest because it is the first return of this comet to the inner solar system in 341 years, since it was last observed in 1661. Carefully made observations in February and March 1661 by the Polish astronomer Johannes Hevelius have allowed astronomers to confirm that the two apparitions belong to the same comet, though for centuries it was speculated erroneously that the 1661 comet might be identical with a comet seen in 1532. Comet C/2002 C1 is now the comet with the longest orbital period that has been definitely seen at two or more returns to perihelion (closest approach to the sun). The famous Halley's comet orbits the sun roughly once every 76 years.

In 2001, there were only two recipients of the Award, for their independent visual discoveries of a single comet (Albert Jones of New Zealand and Syogo Utsunomiya). Of the 20 Award recipients in the first four years, twelve have been for visual discoveries, seven for discoveries from CCD images, and one for a discovery from a photograph. The countries with the most recipients so far are the United States (5), Japan (4), and Australia (4). In years when there are no eligible comet discoverers, the Award is made instead to amateur astronomers judged by the Central Bureau for Astronomical Telegrams (CBAT) to have made important contributions toward observing comets or promoting an interest in the study of comets. Headquartered in Cambridge, Massachusetts, the Harvard-Smithsonian Centre for Astrophysics (CfA) is a joint collaboration between the Smithsonian Astrophysical Observatory and the Harvard College Observatory. CfA scientists organized into seven research divisions study the origin,evolution, and ultimate fate of the universe.

For more information:

http://cfa www.harvard.edu/iau/special/EdgarWilson.html
http://cfa-www.harva rd.edu/iau/Headlines.html
http://cfa-www.ha rvard.edu/iauc/06900/06936.html

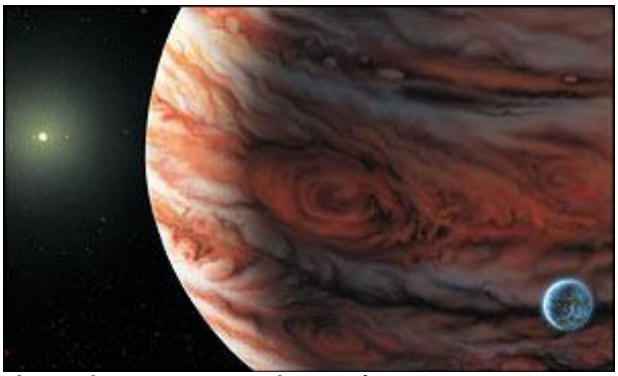
WAS News News

Astronomers hail planetary discovery

Dr David Whitehouse ~ BBC News Online science editor

Astronomers have discovered a planetary system around another star that is similar in scale to our Solar System.

It reminds them of home, say the researchers.



The new planet is 3.5 to 5 times the mass of Jupiter.

The scientists, Geoffrey Marcy of the University of California at Berkeley and Paul Butler of the Carnegie Institution of Washington, together with colleagues in the UK and Australia, announced a total of 15 new planets on Thursday.

This brings the number of known exoplanets - planets outside our own system - to over 100.
Included in the new finds is the smallest exoplanet yet. It is only 40 times more massive than Earth.

Detecting Earth-sized planets is probably not possible using current ground-based techniques. That will have to wait for a new generation of satellite observatories, due in the next decade.

'We are getting close' - Veteran planet hunters Geoffrey Marcy and Paul Butler are gradually finding planetary systems that are more and more like the one in which the Earth resides.

55 Cancri (l) and visually adjacent 53 Cancri lie in the constellation Cancer

"All other so-called extra solar planets discovered up to now orbit closer to the parent star, and most of them have had elongated, eccentric orbits," said Geoffrey Marcy. "This new planet orbits as far from its star as our own Jupiter orbits the Sun."

The smallest planet ever detected circles the star HD49674 in the constellation Auriga, at a distance of about one-twentieth the distance from the Earth to the Sun.

Its mass is about 15% that of Jupiter in addition to it being 40 times that of Earth.

Getting closer - The planetary system that superficially looks like ours orbits a star called 55 Cancri in the constellation Cancer. It was already known to have one planet orbiting it, also discovered by Butler and Marcy in 1996.

55 Cancri's first planet is a gas giant slightly smaller than Jupiter that orbits the star in 14.6 days, at a distance only one-tenth that from the Earth to the Sun.

The newly discovered planet orbits 55 Cancri, a star 41 light-years away, about five times further away than the first planet, making this planetary system similar in proportion to ours.

The new planet's slightly elongated orbit takes it around the star in about 13 years, comparable to Jupiter's orbital period of 11.86 years. It is 3.5 to 5 times the mass of Jupiter.

"We haven't yet found an exact solar system analog, which would have a circular orbit and a mass closer to that of Jupiter. But this shows we are getting close," says Butler.

Prime candidate - Calculations made by Greg Laughlin of the University of California at Santa Cruz show that an Earth-sized planet could survive in a stable orbit between the two gas giants.

But because current techniques are not able to detect an Earth-sized planet orbiting another star, the existence of any such planet around 55 Cancri is speculative.

"The existence of analogs to our solar system adds urgency to missions capable of detecting Earth-sized planets - first, the Space Interferometry Mission and then the Terrestrial Planet Finder," said Charles Beichman, the chief scientist of the American space agency's (Nasa) Origins Program.

And British planet hunter Dr Hugh Jones, of Liverpool John Moores University, said: "Most of the planets found previously are like distant cousins to the planets in our own Solar System, but now we are finding ones much more like ours. We are getting closer to our brothers and sisters."

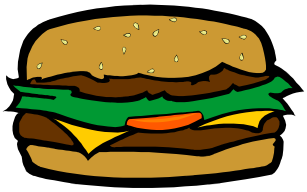
A detailed look at the observations suggests that there may be more objects orbiting 55 Cancri because the two known planets do not explain all the data. One possible explanation is a Saturn-mass planet orbiting the star as well.

Bar - B - Que

Yum Yum

Saturday 20th July 2002

From 6.00 p.m.



At

The Observatory
101, Ardingly Drive
Goring-by-Sea

Cost £1 for an adult and free for a child 14 or under

Food Contributions Welcome

Please let us know the food you intend to contribute and if you require vegetarian meals please contact Avril Swan on Worthing 501461

Please bring your own liquid refreshments

Tickets available from Graham Boots at the above address or on the day Worthing 505346 let me know if you are bringing someone other than a member as I need some idea of numbers for catering purposes

Observatory will be open and Venus and a 10-day-old Moon will be in the evening sky. If it rains event will take place indoors

Diary

July 10 ***Members Evening*** **–members get a chance to show what they have been doing over the last year.**

July 13 Summer SAGAS Meeting, Portsmouth Naval Base, Hampshire.

September 11 ***The Moon – a Biography*** **by Dr David Whitehouse (BBC On-line Science Editor)**

September 21 BAA Annual Exhibition Meeting, Cavendish Laboratory, Cambridge.

October 9 ***A.G.M.***

November 13 ***Getting Started with CCD Astronomy*** **by Alan Smith (Christ's Hospital Observatory and Horsham Astronomical Group)**

December 11 ***TBA*** **by Owen Brazell editor of "The Deep-Sky Observer" published by the Webb Society.**

All Meetings **(bold)** are held on the second Wednesday of every month unless otherwise stated, at Heene Church Rooms, Worthing at 7.30 p.m. Meetings include the latest astronomical work, reports and, photographs by members. For further information please call 01903 521205, on the Internet at *www.was.org.uk* or Email: *worthing_astronomical_society@hotmail.com*

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Note to Contributors

Contributions & Correspondence for the **September** issue of WAS NEWS should be with the Editor by **September 1st**. All material for inclusion should be sent to the Editor.

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