

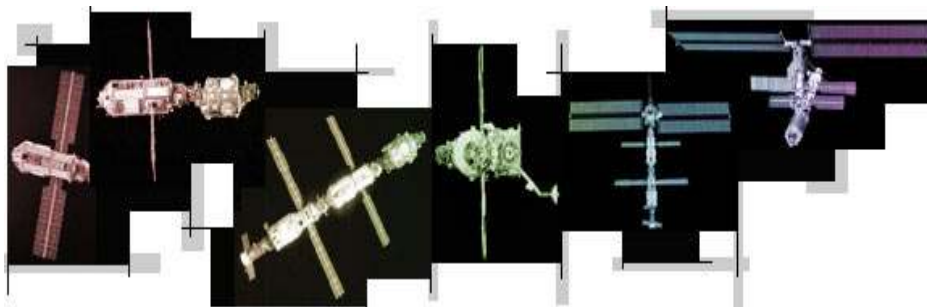


TRANSIT

The Newsletter of



16th April, 2004. Julian Day 2453112



Reading between the lines of President George W. Bush's announcement of the intentions of the USA in space in the future, it seems that the International Space Station

is about to be relegated to a very distant back seat - and such a wonderful concept. The other question is “Will Hubble be saved?”. Lots of people are trying to save it.

Editorial

March meeting. As one questioner said after the March lecture, it was one of the most technical to which we have been treated. David Robertson, of the Astronomical Instrumentation Group in the University of Durham, where Jurgen Schmoll also does his research and development, described the very latest technology in the adaptive optics field. From the beginnings in the US Defense Department, the methods of correcting telescope optics for the variations in atmospheric stability have now reached the pint where no large modern telescope can be without it. David also gave us a summary of the very large telescopes now being planned, including the Overwhelmingly Large telescope of 100 metres aperture, and Euro 50 at 50 metres. Amazing!!

April meeting. Because the “formula date” for the next meeting falls on Easter Friday, the date has been changed to the 16th. The annual Presidential Address will be given as usual by Jack Youdale. His subject this year is “Beginning Astronomy”.

Cosmos V. Cosmos V North East, held every four years and organised by Neil Haggath, will be held on Saturday the 18th of September. The venue will be the Thornaby campus of Durham University, with five star speakers to enthral us throughout the day. Tickets are expected to cost £8, although this has yet to be confirmed. There will be a full article on CosmosV in next month’s edition.

Transit of Venus. With the resources of the Wynyard Planetarium and Observatory available, the Society will be able to make some first-class observations of the coming Transit of Venus on June the 8th. Last year’s transit of Mercury provided a very good day for those who were able to be there but this year’s occasion should be even better. John is planning to involve some local schools in taking part, with the aim of making enough observations to do some real science. Using contacts with other astronomers in widely different places, it should be possible to gather enough data to calculate our very own value for the Astronomical Unit, as done by the astronomers of history. If members are intending to gather at the Planetarium and make observations, would they please contact John (or myself), so that he knows what the numbers are likely to be and what equipment will be there on the day. Neil Haggath is going to Turkey and Keith Johnson to Greece, to give themselves a reasonable chance of a clear sky. Let’s hope we have a lucky day in the North-East, too. If we have a transit expert in the Society, who knows how to take the right observations and how to use the results, will they please get in touch?

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Astronomy and the Internet

from Rod Cuff

If you have any particular areas that you'd like me to tackle for a future issue, please e-mail me (rod@wordandweb.co.uk).

Good sites by amateur astronomers

- ‘Blogging’ is the thing on the Web these days – essentially a *Dear Diary*, often for all sorts of self-promoting mush. But there’s a good astronomy-related one from an amateur astronomer at www.backyard-astro.com/pMachinePro2.3/weblog.php

as pretty but it would do the job. In my opinion we are decades away from a truly reusable launch vehicle, a true spaceplane with air breathing rockets (although this scramjet technology is maturing quickly). In the meantime let's use something we know works.

As for returning to the Moon, it sounds like a backward step, particularly the way it's being seen as just a stepping stone to Mars. But in my opinion the Moon is the key to opening the door to space. Imagine a base on the moon that made simple launch rockets and refined fuel. This is not such a big step as it would seem, certainly less of a step than going to Mars. Such a facility could launch fuel to Earth orbit at a fraction of the cost of launching it from Earth. Just look at how much hardware was used to get men to the Moon, and how much was used to get them back again, the comparison speaks for itself.

With spacecraft able to refuel in orbit, or dock with a fully loaded booster, the cost of going further, even just to the Moon, would be dramatically reduced. But should we then go to Mars? Despite what I said earlier, I would have to say not just yet. Let's get back to the Moon first, let's get the launch costs down, let's get used to actually TRAVELLING and LIVING routinely in space instead of just going around the block. But, above all, let's do it for the right reasons. Just to plant a flag is not reason enough I think.

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Down the Plughole?

From John Crowther

This article was in the Daily Mail the other day. I remember seeing the Coriolis Effect demonstrated at the Equator in Michael Palin's "Pole to Pole" TV series. It seemed too good to be true then, when demonstrated by a plastic bowl with a small hole in it at no great distance from the equator line in Africa. I wonder which way the water spins when leaving CaDAS member's baths? Perhaps we should have a poll.

"Question" "What is the most common urban myth? Certainly one of the commonest is the idea that water circulates down plugholes in the opposite direction in the southern hemisphere. This myth takes on more power when it is passed on through text books and by teachers. I remember being taught this as a child.

The so-called Coriolis Force (I prefer the word 'effect') was apparently first recorded when naval guns reached such a range that shells fired in a north-south direction deviated sideways, relative to the spinning Earth beneath. This effect is caused by the fact that the Earth at the latitude of the ship has a different rotational, and therefore sideways, speed to the latitude where the shell lands.

This wasn't noticed with earlier, shorter range, guns and should not apply across the tiny span of a plughole. The Coriolis Effect is measurable at large scales only and circulation in bowls and lavatories is more likely to be something to do with their design. Demonstrations of the Coriolis Effect at the equator involve trickery. A bowl of water

can be rotated by turning sharply left or right while holding it, producing the alleged effect without anyone recognising the scam.

Water circulates down plugholes by random chance, or the way you make it. However, I'm still researching to discover if drinking Australian lager makes the room spin the opposite way; another urban myth in the making?

Dr Keith Moseley, Head of Physics, Monmouth School, Monmouth”.

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The CaDAS Interview - Dave Weldrake

The Society has been the nurturing ground not only for enthusiastic amateurs but for two people who took their enthusiasm for astronomy into their professional lives – Dave Weldrake and Carole Haswell. As many of you know, Dave has kept in touch with us from his University post at Mount Stromlo, sending us the occasional “Letter from Australia”. Despite the devastating fire at the Stromlo Observatory, Dave has been able to continue his researches and make progress towards submitting a thesis for his doctorate. Here are his long-distance thoughts on my interview questions. Although the article has turned out to be longer than usual, I thought you would all be interested in all of what one of our professional honorary members had to say.

Where were you born and brought up? I was born in Middlesbrough, and brought up in Acklam. Bluebell Beck was just over the road and I spent a great deal of time down there as a kid. I have one half-brother, who lives in Perth (Australia). He is twice my age so had already moved out by the time I arrived, so I was essentially an only child. We see each other every now and again.

Did you travel a lot when you were in the UK? We travelled to Greece most years, for the yearly cloud-escape, as well as to Spain etc - the usual package haunts. In the UK itself we did only a little travelling, apart from on the NY Moors and the immediate area.

Are you married? No, I'm still living the high life of a bachelor. *Do you intend to get married?* Yes, if the opportunity presents itself. I have no immediate plans for settling down permanently, the life of an astronomer involves only living in one place for a couple of years before going somewhere else. It is definitely on my mind, but not the highest priority.

When did you first get interested in Astronomy? I was first interested in astronomy at the age of about 7. The first Star Wars movie is responsible. My Grandmother bought me a Tasco 60mm refractor. It was appallingly bad, couldn't even see Jupiter's Moons, but it got me started. I remember seeing Jupiter in Leo, and interestingly its back there now, so I've officially been an observer for one Jovian Year! About 8 years ago I bought a 12inch (30cm) F5.3 reflector, which is still in my parents house in England. As I was telescope-less here in Australia (which is a sacrilege considering the skies here) I bought a 6inch (15cm) refractor (Dave Graham will be pleased to hear that). I use it most nights

here in Canberra when the moon clears off. So officially I've got two telescopes, separated by 12,000 miles.

Where did you do most of your early observing? In my back garden until I discovered CaDAS (in about 1994). I then did an awful lot of observing from the car park at the Castle Eden Walkway with Blenkinsop et al. I think I know every square inch of that car park. I have found that most professional astronomers don't know the sky at all, which I found incredible. So doing all that early observing has given me a great edge. I'm very grateful to Dave Blenkinsop for getting me started down this road.

What is your favourite type of astronomy? Planetary observing I would say. I also like Deep Sky observing, but I get a real thrill from seeing Ganymede passing across the cloudtops of Jupiter, or looking at Triton.

These days my astronomy is more computer programming, but I have the option of going out on a night and reminding myself why I do it.

Have you done any mirror grinding and telescope making?

No, I leave that to the Jack Youdales of this world.

What is good about the Society and what would you change? Good things include having so many members! I remember not having any trouble at all talking to people and their enthusiasm really fired me up. The topics given as lectures at the meetings have a huge range. Again this is great to stimulate learning. I always found it more enjoyable to observe with others, you can share what you see, which gave me a real thrill. Also the Cosmos I-V seminar days run by Neil really makes you feel a part of something. Maybe a bit more advertising of society meetings would be an advantage. I found out about CaDAS through 'Astronomy Now'. I'm sure there are lots of people out there who would come along, although the new planetarium is doing a good advertising job.

What was your educational route? I went to school at Mill Hill School, Green Lane, Middlesbrough. I enjoyed my time there a great deal. It has since been knocked down and turned into apartments. I went to live in Hatfield (Herts) at the University of Hertfordshire in 1997-2000, did my BSc in Astrophysics. I came to realise while there that the only good thing to come out of the South of England is the M1. The course was great, but I didn't like the area very much.

I worked in the Middlesbrough M&S as a checkout chick before starting my PhD.

How do you come to be in Australia doing research? Simply speaking, I'm here because I applied to Stromlo and was offered a place. My options were to stay at Hatfield, move to Australia or move to Manchester. I don't think there was much competition. I always had a deep desire to be a professional astronomer (I still get a thrill when I tell people that is what I do), and as such I chose to take it as far as I could many years ago. I always felt that if I don't try for it I'll regret it all my life. I am very happy with what it has done for me up to now. I love the job, being involved in new cutting-edge research, and I can't imagine doing anything else.

Comment on Australia as somewhere to live. As a place to live, I love it here. I would be very happy to spend the rest of my life here. It does get very hot. Right now, as I type this, it is 39 C. The people are friendly and the lifestyle is relaxed and easygoing. For astronomy, it is clear for 80% of nights, and Sagittarius is at the zenith in winter. It is likely, however, that I'll move away to where the jobs are (most likely the USA), but it's always in my mind to return.

What are you researching? My research topic involves searching for transiting Hot Jupiter Extrasolar Planets in the globular cluster 47 Tucanae. This means I have to measure the light output of some 40,000 solar-type stars in the cluster over 33 nights. I then look for a periodic dimming of around 1-2% that lasts for 2-3hrs every few days, caused by the unseen planet moving in front of the star. Not an easy task, but I'm making progress.

Its going well, I discovered 100 variable stars in the cluster and I'm currently just finishing up the research paper on them. I'll then start the main planet search, follow up any candidates with the Gemini 8m, and I'm due to be finished by this coming Christmas.

How did the Mount Stromlo fire affect you? It affected me as it did everyone at Stromlo, quite badly. We live in the suburb of Duffy, which is just off the mountain and worst hit by the firestorm. We saw 40m high flames coming from the pine forest into the nearby streets about 500m away and many homes were burning when we evacuated our house. We just grabbed what we could and got out, convinced we would never be back to that house. Embers were landing on the roof and we figured it only had minutes left.

The police finally let us go back about an hour later, and the garden was completely black and destroyed, the fence was burning and next doors' shed was alight along with all the trees. Our house was still standing in the middle of all this, I have absolutely no idea why. So we then went back into the blackened garden and put out the spot fires, which were at the base of the house. We had to live with friends for a week, before the power was reconnected and we could clean up the house.

Later we saw footage on the news of our driveway and garden in a bonfire, which also made it to International News, so you guys would have inadvertently seen our driveway on the telly! Other footage showed the garden as a total red glow, again I cannot explain why the house survived when 500-odd others burnt all around us. We still live there.

Stromlo, as we all now know, was all-but destroyed, but amazingly the two main office buildings completely survived. So our work was essentially unaffected. Now all that remains is the burned buildings outside my office window, which should be rebuilt fairly soon.

Do you get back to the UK very often? I have only been back to the UK once since I started here 3 years ago. As an astronomer, you spend only 2 or 3 years in any one country, before moving to the next job. After 3 or 4 of these postdoc jobs you settle down in a permanent position. It would be great for that permanent job to be here in Australia. I will return to the UK if the job needs me to, but it isn't my first choice. I feel there is a great deal more of the world for me to see.

Do you worry about asteroid strikes, global warming, the ozone layer? I'm aware of them, but don't overly worry too much. The ozone layer problem is large here in Australia, you get burnt very quickly here if you don't take precautions. Especially when watching the cricket for several hours in the sun (I'm a big fan, go to watch a few games.) As for asteroids, I have faith in the observers that will give us a few days warning, enough for me to hide under Ayers Rock somewhere.

What do think happened to Beagle2? I was very disappointed to hear that Beagle2 had somehow failed. I think it got there successfully and is currently lying complete on the Martian Surface. As for the failure, I think it failed to open properly. I'm expecting an Aeronaut (is that a word?) to go up to it and give it a kick in a few years. It'll then carry out its mission. I'm glued to the Mars Rovers website these days, very funky stuff.

I assume that quantum theory, cosmology and super massive black holes excite you? Yes, to different degrees. Cosmology is important for our global view of the Universe, but has little to do with the small scale objects I deal with. Quantum Theory and SBH are things I read about every now and again, but they don't feature in my day to day life.

In astronomy, you are a life-long learner - comment. Yes, astronomy involves constantly learning new things. As a PhD student, the learning curve is fairly huge. There are many things we have to do and learn how to do, especially learn the foreign language of computer programming. However the rewards are many, well worth the effort and I would recommend to any young members to follow it to their hearts content, you never know, you might just end up doing it for a living.

Do you like travelling? Yes I like to travel, although not too often. One of our Professors is nicknamed the 'Qantas Professor' as he is away every month or two somewhere in the world. The only thing wrong with travelling from Australia is that it takes so LONG to get anywhere. A favourite place? I think that would have to be Rottnest Island off Perth. A beautiful desert island, lots of white beaches to lie on. Also the Blue Mountains have some of the most spectacular scenery I'm ever likely to see, aside from scanning the Large Magellanic Cloud with my telescope of course...

What is the essence of astronomy for you? I think the reason why we are here is to look and appreciate the Universe that surrounds us. Why would the Universe have spent so many billions of years to make life forms, and not expect them to explore that which is around them? Or at least be curious about it anyway. I'm glad to be starting my own journey into the Universe.

What is the most exciting thing about astronomy at present? I think the discovery of Planets orbiting other stars. People have been looking for them for years, and now the technology is there to actually let us do it. I'm sure that the discovery of the first Extrasolar Earth (probably within the next 10 years) will spur us on to eventually go there and have a look. I'm sure these discoveries will prove the scientific need for us to move from this 'Pale Blue Dot'.

Tell me about the memorable characters you have met in the astronomical world?

There have been a few characters. I think the most memorable is a guy (lets keep him nameless) who likes to observe at the 2.3m telescope at Siding Spring in the nude. He says it keeps unwanted night time visitors to a minimum, and who am I to argue?

There was also a guy who calls himself the 'Interstellar Medium' and dresses up in black wizard outfit and roams the observatory on open days. Not one to meet on a dark night.

There was also a lady Buddhist, who decided one day to cook her evening meal in the 40inch telescope dome while I was observing 47 Tuc there. It took a visit from the Site Manager to get her to move along. Hmm.

Have you any heroes or people who have influenced you a lot? No real heroes, but I am very grateful to Neil Haggath and John McCue for making me feel so welcome at my first meetings those years ago. Also, David Graham and later, Cliff Meredith, of the SPA Planetary Section both made me feel like my scribblings of Jupiter meant something. Dave Blenkinsop for sharing his massive knowledge of the night sky. He will be pleased to hear that his teachings have taught a few professors a thing or two about observing. Chris Newman for having the patience of a saint when I was hogging his 7inch refractor. Darren Bushnall and the guys at Hartlepool AS for all the fun. I couldn't possibly mention everyone here, but generally all the members of CaDAS.

As for heroes, I'm not one for idolisation. I think the members of the group 'Crowded House' for giving us the songs that helped me survive 33-nights straight at the telescope.

Have you "done" all the Messier objects - in one marathon? No, I haven't attempted a Messier Marathon. I have however seen all the objects in that catalogue, but I think doing that in one night would be crazy!

Are you a member of national associations or societies? I am a long-term member of the SPA. The people there helped me a great deal when I started off in this journey, and as such get the recognition they deserve. I am not in the BAA. I am a FRAS, and a member of the Astronomical Society of Australia (ASA).

Do you have time for any other interests and hobbies? Astronomy pretty much takes up all my time, I do it at work during the day, then come home and eyeball with the telescope at night. I do like to dabble in Geology, especially looking for fossils etc. Bush walking takes up some of my time in the winter, it is way too hot in summer for rambling around. The views from the mountains are incredible. I like to watch Cricket. It is an Australian Cultural pastime to sit in the sun for hours on end watching it, and I enjoy travelling around watching the Australian team. The crowd (typically 40,000+ in the big stadia) gets really into it, and its a fun day out.

Canberra is a beautiful city, and another hobby is sampling the local food and drink.

Do you like music? I like music, although not typically popular music, not really into classical, and I don't recall ever having been dancing. How boring I hear you cry, but I have a small interest in little known Australian bands. Some of them are very good.

Years ago I learned to play the piano, to grade three. Not a very high level, but I can read music and try my best not to murder the piece.

What about the theatre, films, ballet? Canberra has a vibrant theatre and short-film scene. Every now and again we go to a local film festival, but that generally only happens in the summer. I have seen both Harry Potter and LOTR. I thought the former was very good, and the latter was one of the best movies I've ever seen. I read the book after that, an incredible piece of work.

What are you reading at the moment? Right now I'm reading 'Red Mars' by Kim Stanley Robinson. It's all about the colonisation of Mars, set a hundred years or so in the future. Very good indeed, some nice scientific theories in there about terraforming the place. I can recommend the Foundation Series by Isaac Asimov, a few books telling the story of humankind in the far distant future (about 40,000 years I think). People have colonised the Galaxy by this time, and the books deal with interesting sociological problems that would arise in such a situation, that given a large enough group of people, their trends and quirks can be predicted statistically.

Tell me about some of your International connections. Most of my collaborators are around this part of the world (Australia). I have three supervisors and one advisor for my project. Two of them are at Stromlo, one in Canterbury New Zealand, and the other in Canada. Astronomy is a small world to be a part of and everyone knows someone in just about every institution in the world. That will prove useful as I come to the end and apply for my first postdoc job. Interaction between the group is done almost entirely by email, and seems to be working fine up to now.

What is your most satisfying astronomical achievement to date? I think the second small research project I did before I started my thesis topic. That involved measuring the rotation of NGC6822, Barnards' Galaxy. It hadn't been done before and we ended up producing the highest resolution rotation curve obtained for any galaxy outside the Magellanic System, to 20pc resolution. We then went on to show that the accepted model for Dark Matter distribution in Dwarf Galaxies is essentially wrong. There have been many satisfying results in my thesis, but they don't quite confront the theorists quite as much as that result did.

Do we do enough as individuals, as a Society, to combat light pollution?

As individuals, there is very little that you can do about it at all. In a group, you have more clout and I think you as a Society are doing as much as you can. The sky in England is essentially unrecoverable, as the population there gets bigger and bigger. All that can be done to curb the problem is to make sure that lighting is modernised and the problem minimised, but I don't think any group can make the problem go away.

Where does your motivation and enthusiasm come from? I don't know, but it is difficult for me to think of a time when I wasn't interested in Astronomy. I'm just glad to be doing what I like. There are certainly worse things for me to be doing. Sometimes I wonder if my enthusiasm will go away, but I don't overly worry about it.

If you were World dictator, what measure would you introduce? First of all I would increase the spending on manned space exploration. I believe that the future of our species is to be found in space, and any efforts to get us up there at least semi-permanently have to be good. Also, I would reduce bureaucracy.

In a short sentence, what is your definition of a civilised society? I believe a civilised society is one which can combine resources to obtain a common goal, irrespective of politics, a society which can change the standards of living for all humankind.

Whom should I interview next? Let me think, perhaps one of the newest members of the Society. We're all in the same boat after all.

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Transit Tailpiece

Quote/Unquote

There is something fascinating about science. One gets such wholesale returns of conjecture out of such a trifling investment of fact.

Mark Twain

Scientists feel no qualms about suggesting different but mutually exclusive explanations for the same phenomena.

Frank Tipler and John Barrow.

I do not define time, space, place and motion, as being well known to all.

Isaac Newton, Principia.

Pi. After putting the mnemonic for pi to 20 places in last month's Transit, I read that a chap had done a charity thing, reciting pi to 22,000 places - from memory!!

For Sale Meade LXD 55, Model SN8, 8 inch Schmidt-Newtonian telescope, with case of 8 eyepieces. Cost new, a year ago, was £1100. If you wish to see the instrument, please call 01388 773948, Miss C. Prestedge. Please contact the Editor for the address of the lady selling the scope, if required..

Post and Email If anyone wishes to change the way they receive their Transit, please let me know. If any member is not receiving a copy, or has changed their address, please let me know.

Articles Wanted! Please send contributions for the newsletter to Alex Menarry, 23, Abbey Road, Darlington, DL3 7RD, 01325 482597 or to John McCue, 01642 892446 (john.mccue@ntlworld.com). Copy deadline date is the 1st of each month

The Back Page Picture(s)
The April Portrait Gallery



The subject of The Interview this month is one of our Honorary professional astronomers, Dave Weldrake, researching in Australia at present.

Junior Astronomers



John McCue gave a planetarium show to Abbey Road Junior School, Darlington (headmistress Elaine McCue). This is one of the lovely thank-you letters he received afterwards.