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The Newsletter of

Cleveland & Darlington Astronomical Society

8th February, 2002. Julian Day 2452314

Editorial

January Meeting. Last month's meeting was Member's Night, with a good attendance, as usual. Four members gave short talks – Mark Rice, David Blower (a new member, brave man), John Crowther and Julia McBride. A summary of the talks appears later.

Membership Fees. These are now due for 2002 and should be sent to Ian Miles as soon as possible to ensure your membership continues.

Observatory Rota. At last month's meeting, Ian Miles pointed out that the Society makes two members available each Friday evening to open the Observatory for members of the public who come along to our Open Nights. The numbers on the rota are down to three teams of two, which puts a lot of pressure on the team. If any member would like to join this rota, they would be most welcome and their services would be gratefully received. Please contact Ian Miles if you would like to join the team. Ian writes : -

Friday nights only, approximately 7pm to 9pm. Not on clouded over nights. Not in the summer months (late May to early August). Two people are nominated. Vast practical observational experience is definitely not needed (I am proof of that!). Newcomers will be paired with old hands. Training in the use of the telescope will be given. Fridays can be swapped if inconvenient . The more assisting, the less likely it will take up a lot of anyone's time (one evening every one or two months, depending upon numbers of volunteers).

Back issues of mags. Gareth Morris is offering these free to a good home. Please see the Small Adverts at the end for a contact email address.

Sunderland Astronomical Society. I now get 'North East Observer', the free magazine the Sunderland Society produces four times a year. One item which caught the eye was that their plans for an observatory are making great progress. Planning permission has been received for a dome on the Washington Wildfowl and Wetlands Trust site and construction should start soon. Their next few meetings in February are on the 8th or 9th (Deep Sky Observing), 15th or 16th (Deep Sky Observing 2), 17th (General meeting , Lecture by Dave Newton on Telescope Mounts) and 20th (Public Observing session). If you want to know more, their website is at www.sunderlandastrosoc.com. I am sure any member of CaDAS would be made very welcome.

Letters from the Antipodes. We continue to receive interesting write-ups from our representatives Down Under. I hope you are enjoying reading them. Having never

experienced reliable weather, or seen the Southern Skies, I'm envious and look forward to their continuation.

CaDAS next meeting will be on February 8th, at Thorpe Thewles Village Hall, with John Harper of Scarborough AS talking on "The Zodiac and its Signs". In March the meeting is on the 8th, when Dr John Steele, of Durham University will talk on "Astronomy in Ancient Babylon".

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National Space Science Centre to be the UK Information Centre for Near Earth Objects

(Department of Trade and Industry Release)

The UK's first government-backed Information Centre on Near Earth Objects is to be sited at the National Space Science Centre in Leicester, Science Minister Lord Sainsbury announced today. The facility will also analyse the potential threat from NEO's hitting the earth and provide an extensive range of information about asteroids and comets. The new centre will be operational by Easter 2002 and supported by the Natural History Museum in London. It will also involve a consortium which includes University of Leicester, Queens University Belfast, Queen Mary University London and the Royal Observatory Edinburgh.

Lord Sainsbury said: "The potential threat from NEO's to our planet has been an issue of increased international interest and concern over recent years. "By setting up an information centre we are helping the UK play a full and prominent role in an area that requires international action."

The centre will include a website, exhibition and interactive facilities displaying what asteroids and comets are and where they can be found. The centre will:

- provide information on the nature, number and location of NEOs
- explain how these objects can impact the Earth and its atmosphere
- provide information on the effects of planetary collision with comets and asteroids
- explore the history of impacts within our solar system
- explain the risks posed by NEO impact and the likelihood of occurrence, comparing them with more frequently encountered and widely understood hazards
- highlight the importance of missions to encounter and rendezvous with NEOs to increase understanding of their characteristics.

The centre will be a focus for sharing information with other sites including the Spaceguard Centre in Wales. Subsequently other sites will be able to update their information on NEO's.

Lord Sainsbury also published today an update report on the "Implementation of the Recommendations of the NEO Task Force". Part of the work has been to identify suitable telescopes, which can be used to track NEO's. So far two telescopes on La Palma in the Canary Islands have been identified as possible sites. The first of these - the Isaac Newton - will be used as a pilot study after February 2002.

Notes:

1. NEO'S are asteroid or comets whose orbit brings them close to the Earth. They are both believed to be the remnants from the formation of planets. Most asteroids are composed of rock while comets can be a mixture of rock and frozen gasses.

2. The risk of being hit is remote, and there are currently no known large asteroids or comets whose orbit puts them on collision course with Earth. However, the potential for significant damage to the Earth and its environment does exist.
3. The Earth's atmosphere protects against objects smaller than about 50m in diameter. Objects above 50m in diameter may survive passage through the atmosphere but will impact the Earth less than once every hundred years on average.

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Spilled Beans and Other Irrelevancies

By John Crowther

What a good idea it was for our Editor to interview well-known members of the Society, for now we can work out how old they are and Frank Gibson from New Zealand has already spilled some of John McCue's beans.

There are also memories not spilled. For instance – in the Sixties, I used to travel from Guisborough to night classes in Hugh Bell School, on my inferior copy of a Honda 50, a British, 4-stroke, Ariel Pixie (£60 new, by mail order). At the first session, Jack wasn't too pleased because on the door it said "Astrology Class"! Another year, Jack's night class was the W.E.A. one at Redcar. During a rail strike, Jack pedalled there from Billingham. We were looking out of the windows, wondering, but he wasn't really late.

Editor, your "daft questions" weren't really daft, just difficult. If any of us were to became World Dictator, we would need to remember Lord Acton's famous words "Power tends to corrupt and absolute power corrupts absolutely". Don't worry, I'm slowly coming to something rather astronomical, or rather to something which shows how ridiculous Astrology is.

It concerns Hitler, the Dictator. Some of you may have seen on TV the 40's film "The Great Dictator". Charlie Chaplin took the title role in this hilarious film. What a pity Charlie wasn't Hitler in real life. Hitler was a great believer in Astrology and Dr Goebbels, the Propaganda Minister, used this to help him as the Reich collapsed. On Friday, April 13th , 1945, President Roosevelt died. Goebbels used his private phone to congratulate Hitler. "My Fuehrer, I congratulate you! Roosevelt is dead. It is written in the stars that the second half of April will be the turning point for us".

Hitler, like other megalomaniacs, altered the Universe to make himself more important. He had the strange idea that he was inside a hollow Earth and believed that a powerful rocket would strike the Antipodes. Patrick Moore, in one of his first books, "Space in the Sixties", mentioned this.

In the novel 1984, Big Brother thinks in a similar way. Winston Smith, in the dreaded Room 101, was forced to admit that the stars were small bodies, quite close to the Earth.

So it's a pity that power and humility so rarely mix.

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Study yields new Global Atlas of light pollution.

If you re setting out to escape city lights with your telescope tonight, make the most of any dark skies you find - they're becoming rare. According to a new study by Italian and American scientists, a staggering 97 percent of people in the developed nations suffer some degree of light pollution, and the problem is getting worse - exponentially.

The report, appearing in the Monthly Notices of the Royal Astronomical Society, is a second-generation attempt to assess the impact of light pollution on a worldwide scale. During the late 1980s, the US Defence Meteorological Satellite Program (DMSP) satellites, for the first time, produced a global map of wasted light shining into the sky from poorly designed exterior lighting. It showed the alarmingly few areas remaining on the planet where truly dark skies could be found.

The new report and associated maps are much more sophisticated, and show that many areas previously thought unaffected do in fact suffer light pollution after allowing for other new variables.

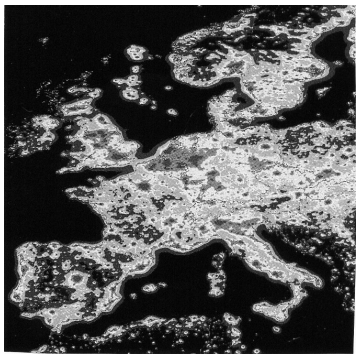
For the first time, mathematical models have been used to quantify not only where lights are, but also their effect on night-sky visibility. Several different maps were made, from data collected in the 1990s. Scientists at the Institute di Scienza e Tecnologia dell'Inquinamento Luminoso, Italy, said: "The new maps account for many details like the scattering of light by molecules and aerosols, the extinction along light paths, the Earth's curvature, altitude of each area, mountain screening, observed sky direction, natural sky brightness, stellar extinction, and the capability of the human eye". Using these corrections, the maps are said to correspond much more closely with the effects of light pollution as experienced by observers on the ground.

Within the EU, more than 96 percent of the population never experience a sky darker than the equivalent of an unpolluted sky with a half Moon. In the most heavily developed areas, skies never become darker than those of nautical twilight (when the Sun is between six and 12 degrees below the horizon). About 20 percent of the global population are now unable to see the Milky Way with the unaided eye. Truly dark skies are generally now limited to extreme environment areas, such as deserts and polar regions, which people have not colonised to any degree.

The low-Earth-orbit, DMSP satellites use an oscillating scan radiometer, the Operational Linescan System, with a photomultiplier tube as the detector. The OLS scans a 300-kilometre-wide swathe of the Earth's surface perpendicular to the orbit, constructing a bi-dimensional image as the orbit progresses. The first images of the Earth at night could not be used to quantify the actual amount of light being thrown upwards, as the detectors were saturated by the intensity. Now the problem can be overcome using complex image-processing techniques, including one familiar to CCD users - Lucy-Richardson deconvolution – to extract information about the directionality of light emission. This is important in assessing the effects of light pollution at a distance from the source.

Importantly, the report discusses the significant reduction possible in light pollution when shielded lights are used. Within Venice, 'romantic', soft lighting is used to reflect the city's character. The result is shown in an image of Venice, barely visible at night, owing to the careful lighting policy. But after application of the new models to the same image, Venice is found to suffer considerable light pollution from neighbouring settlements with less careful lighting policies.

The report has been widely welcomed by astronomers and those campaigning for darker skies. The BAA's Campaign for Dark Skies commented: "Although the new data shows substantial deterioration in the global scale and impact of light pollution, our efforts are making a difference. These maps tell us that every single astronomer - amateur and professional - needs to make whatever contribution they can to the fight for darker skies".



Europe by night

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Once in a new moon

From Darran Summerfield

I used to think that only clear, moon-free nights were any good; nights when the sky is more willing to give up its faint secrets. But recently I had a change of heart. I was drawing an open cluster, M47 in Puppis to be precise, when a bank of mist rolled in and washed out the sky. Although this cloud spoiled the view, it actually made the cluster simpler to draw. I found it easier to concentrate on accurately drawing the cluster's brighter members. Later, when the sky cleared, I was able to fill in the fainter stars without any difficulty. It was then I realised that this technique could be applied to brightly-lit, moonlight nights.

So I suggest that you don't waste those bright nights. This applies equally well to those of us that live in light polluted areas. Don't wait until one of your trips to a dark sky site. With our climate, clear nights come few and far between, and don't always coincide with a new Moon or with the chance to travel. I've now found that any clear night can be put to good use, regardless of how washed out the sky is.

On such nights I recommend making preliminary sketches. Fill in the brightest stars in the field and take the time to get their positions correct. Don't make the faintest star you can see the smallest dot you can draw. Then when a dark night comes around, complete the faint details of the sketch, including the fainter stars. This way you won't waste precious 'dark sky time' filling in details you can see on any other night.

Not only is this a good way to maximise your dark sky time, but it is also one possible way of tackling bewilderingly complex objects like M11, M35 or M37. Such objects don't look so difficult to draw when seen through the glare of a bright sky.

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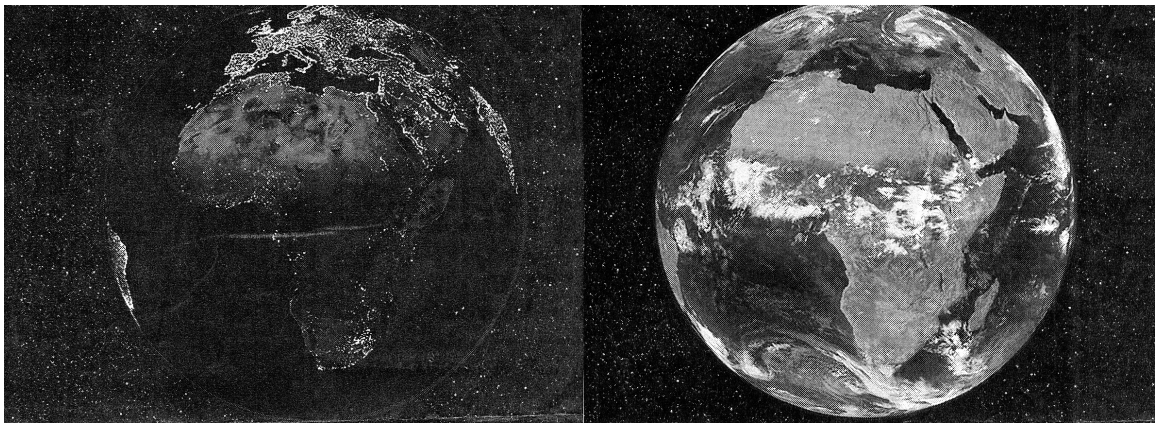
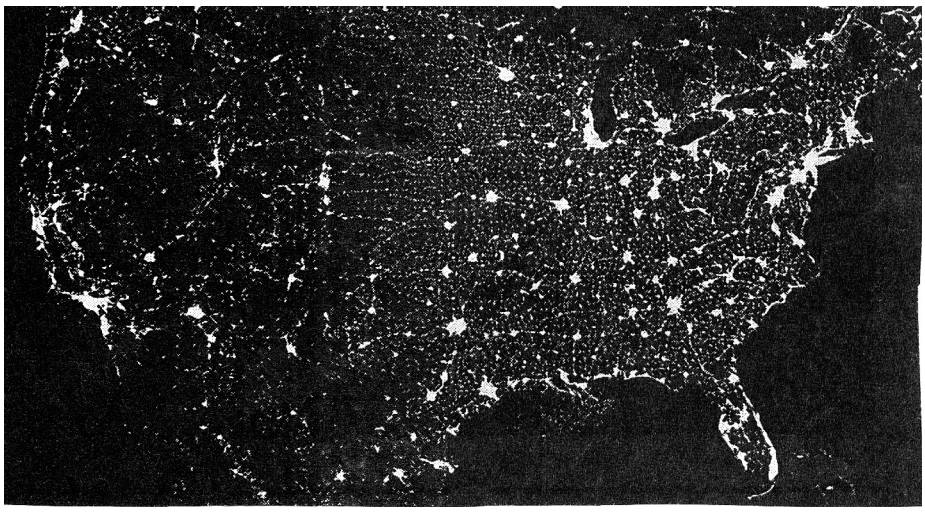
The Stars are fading away

A flood of artificial light has left one in five human beings unable to see the bright band of the Milky Way at night, according to a study of the global effects of light pollution. A recent study is the first to document in detail the extent to which human beings have wrapped the inhabited world in a luminous fog, shutting out most of the heavens from view. Light pollution has long been recognised as a problem in the United States, Europe and Japan. Chris Elvidge, a National Oceanic and Atmospheric Administration physical scientist and one of the study's three co-authors, said that no country in the world is untouched. About two thirds of the globe lives under skies polluted by artificial light. Away from city lights at night, about 2,000 stars are typically visible. In big cities, that shrinks to a few dozen at most. (From the Times, 9/8/01)
The satellite pictures below show how bad the situation is.



The World at night and by day



The USA by night

Letter from New Zealand

By Frank and Linda Gibson

Well, here we are for the next issue. The long summer holiday is coming to an end (I am a School teacher, physics and mathematics) and it is almost time to be back at the grindstone. I thought that this month I would start a series of articles on my progress with astronomy over the past few years on the basis there might be a few tips for readers and they may have ideas they could pass on to me to solve problems.

When I first got off the big silver bird in 1989 and looked up at the sky, I was reminded of that old joke. Two drunks walking home late at night and one looks up at the sky and says ”Is that the Moon up there?” and the other replies “I don’t know I don’t live around here”. I had expected things to be different, but how different?

The first thing you notice is that the moon is upside down, so those moon maps that you buy which show it upside down because that is the way it is in an astronomical telescope are now – upside down. Poor old Leo is laid on his back with his legs in the air having his belly tickled by Draco the many-headed snake. The locals call Orion “The Pot” because he is also upside down and does not really look so obviously human as he does from England. Any sailors who sailed down the coast of Africa in the time of Columbus and Vasco Da Gama must have found it really difficult to bite their tongues when they were told that they had to believe that the Earth is flat. It’s amazing what the threat of being burnt at the stake can do to your perception of the Universe. I now realize that in fact it is the view from England that is upside down and we have got it right in New Zealand.

Old friends such as Ursa Major and Cassiopeia are no longer visible at all and as you look further towards the south you see patterns you have never seen before. The first objects which grab your attention are the group of very bright stars, which make up Crux (Southern Cross) and Centaurus. These are important direction finders because there is no bright star to tell you where the South Celestial Pole is. If you take a line at right angles to the centre of the line between Alpha and Beta Centauri and a line through the long axis of Crux then where they intersect is pretty close to the pole. These are also areas where on a clear moonless night the Milky Way really shows itself. There are a number of clusters in this area but the most mysterious object in some ways is the dark nebula called the Coal Sack in Crux. All around is a gaseous glow and the Coal Sack looks as though someone has taken an eraser and rubbed out the stars in that patch. It looks like a hole in the sky.

On the first clear night that I looked at the sky in New Zealand, I noticed two fuzzy patches, which I dismissed as small wisps of cloud that had lost their friends. I then realized that they were not moving relative to the stars and realized I had found the Magellanic Clouds. With anything less than a large telescope the Magellanic Clouds do not show much. In fact in my telescope they almost disappear because, although they are large, they have quite low surface brightness. This means that as only a small part of the Clouds can be seen through the telescope and the contrast is low so it is difficult to realise they are there. However, they are one of those objects that really put us humans in our place. I teach a module on Astrophysics to my university entrance group and when I ask them to find the Magellanic Clouds and then next day tell them that that bit of light which entered their eyes took over half a million years to get here I often have what teachers

call “a moment”. That instant when, just for a few seconds maybe there is a perceptible density of concentration and tangible silence, while every student in the room is gripped and amazed by what you have shown them. It is these “moments” which make the job worthwhile.

When you move to a new country, getting off the aeroplane takes seconds. Getting your feet on the ground takes years. This has its advantages because in that time you grow to either love or hate the country. Luckily my family and me grew to love New Zealand. I find it very difficult to sing our national anthem or watch the All Blacks do the haka without getting wet around the eyes. (Talking of rugby, when you see the New Zealand Rugby Sevens team at the games in Manchester look for Mana Ashford and Chris Masoe both ex-students of my school - Wanganui City College). I digress. What I was intending to say was that due to the job of earning a living, bringing up two bright children and generally building a life, astronomy took a back seat for a long time. I have a pair of binoculars, which I brought from England, and these showed me many wonderful sights but I did not do any serious observing. I decided in 1998 that I should get serious about astronomy.

We bought five acres of land (cost NZ$27,000 = £10,000) and built a house. In England most houses are either brick or stone, which is very difficult to work with. In New Zealand most houses are wood. This is because there is not much stone, and wood is much better for withstanding earthquakes, of which we have many. In a wooden house an earthquake makes a few things fall off the shelf, a stone house collapses. Building in wood is also something that most people can do if they want to. So we built our own house. On the rest of the land we run house cows, pigs, goats, geese, ducks, chickens (chucks) dogs and cats.

The sky is beautiful and so far no government has found a way to tax its use. I have a couple of pictures of the outside of my observatory. I had intended to give you a run down on the observatory but I got lost in my history, so I shall do that in the next issue.

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Adventures in Telescope Making - Part One

By Darran Summerfield

Last year, a nagging problem, that I had previously managed to ignore, developed into a sanity-endangering condition. I was suffering from a bad case of aperture fever, a condition that invariably infects an amateur astronomer at some point during their lives. Most victims learn to live with the affliction, others succumb to its effects. Unfortunately the only known cure is to acquire a bigger telescope. What makes my situation particularly irritating is that I already have a really good telescope, a seven inch Maksutov.

Looking at my telescope and my two year old son, I realised that even if I could afford it, hearing the reply “you already have one” from the house treasurer was virtually guaranteed. So, with a sigh, I resigned myself to an extended period of saving, my cure would have to wait.

Then one day I had a revelation, if I couldn’t afford to buy a new telescope then perhaps I could make one? I can’t specifically remember what put the idea into my head, but it stuck. However, since I have problems putting up shelves, such a prospect seemed

ridiculous! I knew nothing of woodwork, except the basics, nor anything of metalwork; my non-existent understanding of optics was only matched only by my lack of experience with electronics. To the casual bystander these handicaps must have seemed like insurmountable obstacles but to me these inadequacies simply fuelled my naive confidence. After all, in a situation like this, thinking you can achieve something is far more useful than thinking you can't.

I decided to start the project by surfing the internet for articles on amateur telescope making. This turned out to very fruitful, in fact it's probably possible to build a telescope exclusively using the internet as source of information. As well as accumulating a huge amount of info and ideas, I came away with three conclusions: lots of people have done it; doing it didn't seem that difficult; and there seemed to be an infinite number of different ways how to do it. The only pre-requisites seemed to be patience, time and a willingness not to give up easily. Obviously I would have to acquire certain skills, but I hoped these would develop as the project progressed. After all, the only way to learn how to make a mirror is have a go.

From the many books available on the subject I managed to compile a list of recommended titles, and for Christmas I received three of them: How to Make a Telescope by Jean Texreau; Build your own Telescope by Richard Berry and Star Testing Optical instruments by James Suiter. Reading these books reinforced my belief that making a telescope was not so difficult, the only real issue is time. As an added bonus it seemed entirely possible that I could build a telescope that was not only significantly cheaper than a commercially available telescope of comparable size, but it could be of better optical quality. This final revelation came as an unexpected surprise and was the only encouragement I needed to convince me to make my own optics. For those that are curious, most telescope manufacturers produce optics that are, at best, slightly better than the bare minimum required to produce a good image. For an amateur optician there is nothing to stop them from working on a mirror until it is much better than the minimum commercial standard. Of course making my own optics could backfire, but then any mistakes would be my own, and making them and correcting them would be the best way to learn (ask me whether I still believe this when I'm still trying to figure my first mirror after the fifth attempt). Although fabricating my own mirror would increase the build time, it would drive down the price significantly. So I deemed this an acceptable trade off considering that I was intending this to be a long-term project anyway.

Now that I'd decided to 'go the whole hog' and build a scope from scratch, I needed to make some important decisions about what I was actually going to build. The type of telescope was settled right from the beginning, since a Newtonian is the universally accepted first scope for a budding telescope maker. I think this is mainly because the amateur optician only has to make one optical surface, the primary mirror. This, coupled with a simple 'Dobsonian' mount, minimises the complexity of such a telescope and maximises the chance of success.

The size of the mirror was the next decision. I settled on a ten inch f six, meaning a mirror ten inches in diameter with a focal length of sixty inches. This was a good all round compromise. It would give me a mirror that was not too difficult to make but would be significantly larger than my current telescope. I ordered the blank from Orion Optics because they would supply it with a pre-generated initial curve and a grinding kit (minus a tool, to save money) from Beacon Hill Telescopes.

I brought my newly acquired blank along to the March club meeting to get some advice about what grit size I should use on a pre-generated curve? I had no idea that Jack's talk would be about Horace Dall - talk about inspiration! I was also concerned that I might have bitten off more than I could chew by starting with a ten inch, but Jack quickly allayed my fears with his seemingly boundless enthusiasm and encouragement.
I'm now waiting for a bag of dental plaster to be delivered so I can make a tool to grind the mirror (I've since discovered that a simple bag of cement would have sufficed).
Soon the real fun will begin....

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The CaDAS Interview – John McCue

Founder of the Cleveland Astronomical Society and Vice President of CaDAS, PhD in Astronomy, FRAS and lifelong enthusiast – John just had to be a candidate for The Interview. He's always been there, for as long as I have been a member and at every meeting I have attended. He missed one recently for very good reasons, but his claim is that he has missed just two in the last 20 years. We talked in Darlington, as John was "on his way" to the Planetarium to prepare for the first Schools Lecture there on Sunday, January 20th. After two years of high level effort by many members of the Society, this was the test of readiness, when the sound system, the synchronised slide projector system and the planetarium projector were combined for a show to knock 'em in the aisles.

Is everything going to be ready for Sunday, John? It's going to be touch and go. It takes the stimulus of a fixed date to ensure extra effort is made to get things finished off. It may be a disaster. In that case I'll have to give them their money back! It will probably be ok.

You have been interested in, no consumed, by astronomy from a very early age. How did you start? I can remember it exactly. A mate of mine at school, called Terry, was given a telescope by his parents. It was a 1 inch refractor, with a shaky little tripod and mount from Charles Frank in Glasgow. We saw all sorts of wonders in the sky with that little telescope. In those days it was possible to star gaze in the back yard and see the Milky Way. I learned my constellations with an I Spy book that way. Looking back, we were very lucky. Town kids nowadays can't see the wonders of the skies without special trips.

Did you have a happy family life? Yes, I remember it with affection. Happy memories. We lived in a terraced house in Thornaby. My Dad was a steel worker and my Mum was great. They always encouraged, never putting me off things I wanted to do. My brother, Peter, is 4 years younger than me. He is now a supervisor with the Northumbrian Water Authority.

When did you get your first telescope? My Dad bought me a two and a half inch refractor, with a camera tripod. Being a steel man, he made me a super alt/azimuth mount to fit on the tripod.

What about school? Well, I failed my 11-plus, went to Secondary Modern in Thornaby then passed the 13 plus and went to Acklam Grammar School, in Middlesbrough. Yes, school was an enjoyable experience and I lapped up everything I was taught. It was there that Frank Gibson and I did all those things he wrote about last month. Unfortunately astronomy wasn't on the National Curriculum then, as it is now. We were self-taught. *And then on to University?* St. Andrews was one of the few –of about four, I think – which did an Astronomy degree at that time. *No doubts about what to read, then. Was it pure Astronomy or with Physics or Maths?* The other subjects were only studied where they were relevant to the astronomy. It was a four-year honours course. St. Andrews is a quiet seaside town, not a big metropolis like London or Manchester. It was more to my liking and very pleasant living and studying there.

You came back to the North-East, though and have been here all your life? Well, not yet. *Yes, of course, only the story so far !* But yes, I came back to my roots and went into teaching. *Wait a minute, you have a PhD. Was that not at St Andrews?* No, I wanted to get into teaching. Encouraging young people in the love of astronomy has been a life long enthusiasm of mine and gives me a big thrill. No, it was while I was teaching full-time that I continued my own education externally at the University of Teesside. First an MSc in Applicable Mathematics with a project on SkyLab. That year a solar maximum occurred, the Earth's atmosphere expanded and Sky-Lab came down. An unexpected climax to the project. When I'd recovered from the MSc, I continued at Teesside to do Mathematical Astronomy, with John Dormand, and my thesis was on the retrograde rotation of Venus. While I was studying with him, he wrote a book on the Origin of the Solar System with M M Woolfson of York University. *Well, I'll be blowed! I knew Michael Woolfson while doing X-Ray Crystallography at UMIST.* John Dormand told me that the popular accretion hypothesis doesn't work in many respects and the Capture Theory fitted the observed facts much better – such as how angular momentum is distributed in the Solar System.

Your passion with education has been from the very beginning? I must have enjoyed my education because I have been a teacher all my working life. It is a big thing in my life to encourage people to have an interest in astronomy. *Have you lectured a lot?* I used to a lot of public talks but things got so busy I had to cut down on that.

Do you have a special interest? I've found that I have passions about most things in astronomy and space science. Over the years I have concentrated on things for a while, then moved on to something else. When I was doing my PhD, Venus was the big thing. I ran the Venus Section of the BAA then. Nowadays, the impact threat from asteroids takes centre stage. CCD's have revolutionised everything for amateurs. We can track comets and asteroids very accurately and I'm currently very interested in positional astronomy. I worked very hard to improve my accuracy and eventually, after several tries, my observatory was awarded an IAU code. I'm number 937. *That must have pleased you.* I was really chuffed. One important point about the asteroid topic is that it engages the public interest. The Press and popular TV cover it. We can show potential

sponsors and investors that the Observatory and Planetarium have a practical value to everyone. It's not just a narrow sectional interest for the starry eyed any more.

Tell me about your association with Jack. When I was in the Sixth Form at Acklam Hall, there was an astronomy exhibition at the Dorman-Long Museum. Jack was exhibiting a Dall-Kirkham (DK) telescope he had made. In 1980, when we started the Cleveland Astronomical Society for Schools, he was very well known in the area so we asked him to be President and he agreed. I made a 6 inch and a 10 inch mirror with Jack at the night classes he ran. Of course, building the mirrors into a telescope needs a lot of extra gear, so they took a while to complete.

You started the Cleveland Society. Yes. The title originally included "for Schools". However, more and more adults started attending, so we dropped the "for Schools" bit. The idea of kids and adults doing things together appeals to me. I would like to start a junior section of CaDAS to encourage the youngsters but the problem is finding the time to organise it. *Youngsters do attend now, don't they? I saw three 10-year-olds one evening, two lads and a girl.* Oh, they were local kids, finding out what was happening in the Village Hall and getting out of the cold. So we welcomed them in the hope of enthusing them with astronomy.

That's the Cleveland end of CaDAS. How did the merger with Darlington come about? There was always a lot of cross-attendance between the two Societies. Darlington was formed about the same time – 1980, I think, you'll have to ask Barry and Dave Graham about that. I think it was Dave who suggested the merger to cut down on duplicated organising effort. We became CaDAS in the late 1980's, with Barry as Chairman. Dave was Director of the Saturn Section of the BAA, you know. You should interview him. *Ok, he's now on the list. I'll blame you.*

Have you "done" all the Messier objects? No, I haven't, now you come to ask. *Well it's a bit like the Munros to mountaineers. Either you just have to do it, or it's not important.* Well, in that sense the Messiers are not important to me. I think if I did want to see them all I would go to Portugal and "do" them in a Marathon, in one night.

What about your own family? Elaine and I were married in 1977, April the second, Grand National Day. It's our Silver Wedding this year – the Queen's Golden Jubilee and our Silver Jubilee. We have two sons. James is at Newcastle University and Sam is 19, at the Sixth Form College. *You teach there, of course. I take it you approve of Sixth Form Colleges.* I would give them 2 cheers. They can specialise in a wider range of subjects and can concentrate scarce resources. But the idea of continuity from fifth form to sixth at one school is gaining ground again. Ian Ramsey, one of the best schools in the area, want to have a sixth form again. I enjoy teaching in a Sixth Form College, Maths, Physics and GCSE Astronomy at night classes. The big advantage is that the students are keen and committed.

Do you ever ask yourself where your enthusiasm and commitment comes from? No, I've never questioned it. It's always been there, a natural thing for me - to enthuse others and

pass on my knowledge as much as possible. I'm inspired by the wider situation, outside and beyond Planet Earth, by exploration. There are far bigger things than us out there, This is exciting and keeps me going.

Who has influenced you the most? I guess my teachers at school. My science teacher, Bill Dixon. *Have you any heroes?* John Dormand, my supervisor at Teesside U.

With this consuming interest of astronomy, do you have time for any other pastimes or interests? My other passion is music. I studied the cello up to about grade 4 but found it too hard to keep studying. I play for pleasure now, with groups of players from school, for concerts. *Do you like dancing?* Now here's a coincidence! Elaine and I have started going to ceroc classes at the Ladle on Tuesday evenings. Ed Restall recommended it and we have great fun.

What are you reading at the moment? One big author in my reading was H. G. Wells, with his amazingly inventive science fiction. I am returning to HG after a long absence I've also been getting really engrossed in Lord of the Rings. Tolkein is a vivid writer. It was a big cult thing in the 1970's and is now making a popular return. I went to see the recent film, the first of a trilogy, and was blown away by it. It's a long film, 3 hours, but it went in a flash. *What about Billy Elliot?* Yes, I saw that one. *Did you cry?* No, but I wept buckets in Lord of the Rings when Gandolf was lost.

Light pollution and it's encroachment on the Observatory must be a worry to the Society. What do you think of the idea of a Light Pollution Officer? This is a question which affects all astronomers, amateur and professional. I know many Astronomy Societies appoint people to talk to Local Authorities, Planning Departments, Road Lighting people and other developers to persuade them to install shielded, astronomer-friendly lighting. Looking at the pictures of the pollution of the night sky taken from space, it's getting worse very rapidly, all over the World. I've read of supermarkets using sensible lighting design at their car parks as an advertising boost to their eco-friendly image. Yes, the Society should consider the problem seriously and encourage someone to do the job.

After nearly two hours of pleasant conversation, John set off into the night to put his overalls on and check things out, by himself, at the Planetarium. He wouldn't hear of me going with him. I don't know what time he got home.

Member's Night, January 11th

The annual meeting, when our own members volunteer to give us a talk, produced four contributions, which filled the evening pleasantly and with interest.
Mark Rice told us of his first Occultation – that of Aldebaran by the Moon. That was in 1998. He found that watching it live was fascinating and the disappearance was exactly on time. Last year he saw Saturn occulted twice, again by the Moon. (An occultation, he said, means hidden). On January 14th, there was to be an occultation of a star by an asteroid and Mark had prepared enough charts for us all to be able to find SAO 60107.

As the very dim asteroid passes in front of SAO 60107, the star winks for 5 seconds. Very accurate timing, either by stop-watch or using a recording of a radio station which broadcasts time continuously, gives valuable information on the orbit of the asteroid. There is a web link to information on these occultations from the Sky and Telescope site. At 6pm on 26th January, Jupiter will be occulted by the Moon and we were all recommended to see the phenomenon. A fascinating talk. Thank you Mark.

David Blower, a new member, had brought to the meeting two of his telescopes to demonstrate the difference between the reflecting and refracting varieties. He has been about a year in serious astronomy and bought the two telescopes to experience for himself the advantages and disadvantages. A quick description of the way each type of telescope works was covered first, with overhead diagrams. He found his Meade refractor, which tracks automatically from a "goto" database in the telescope or a bigger database by computer, very easy to set up and use. This cost £300 all together, with software. The Tasco reflector was more economical at £220 but not as easy to set up and use. Well done David and thanks for all the trouble you went to in preparing for the talk and bringing the instruments.

John Crowther gave us some thoughts on Time and Tide. He thought that megalithic astronomers were more intelligent than they were generally credited for. In his opinion they were at least as intelligent as we are now, setting up their stones for very accurate astronomical alignment with no instruments to help. The Greeks worked out precession 2500 years ago. He pointed out how the meanings of words change and how our views of myths have changed from the time of the Greeks and King Canute. Their view seemed to be that time flowed past, like the tide – and not even a King could stop it, despite believing the sycophancy of his courtiers. Nowadays we have this very strange idea of parallel Universes, as described by John Gribben in his books. Is this a myth?

Julia McBride saw the eclipse of 2001 by travelling to Africa. Having chosen France in 2000 and experienced the day going dark, but being prevented from seeing the actual eclipse by a cloudy sky, this time was more certain to have clear skies. Exodus Holidays organise Eclipse tours as well as "ordinary" holidays. When Julia took a trip to South America with Exodus, she was struck by the fact that there were "too many " stars, especially with different Constellations to deal with as well. They flew out to Harare then were transported to a very dark sight near Lusaka. The whole thing Julia saw as a sociologically significant event. It was a big tourist jamboree for the whole area and welcomed by everyone. Local radio were broadcasting all the usual safety warnings and Schools used the event to interest their pupils in these matters. There had been two eclipses in successive years and the Churches used this as a thought-provoking occurrence. The actual eclipse was seen under a clear sky and seemed to go very slowly from first contact. There was time to try things out – the reflection from water to reduce the brightness (it didn't work!); to see the crescents under the trees, shining through the leaves; the reflection method onto a wall (that worked), and pinhole cameras worked ok, too. The eclipse itself was very quick. Three and a half minutes goes very quickly. She saw the diamond ring, the bright corona and there was Sirius in the day. It was like an all-round sunset and not as black as she expected. A recommended experience and should be seen somewhere in 2002.

Letter from Australia

By Dave Weldrake

I'm in the control room of the Australia Telescope Compact Array, here in Narrabri (north NSW), observing here for a couple of days, then off to Sydney (AAO Epping) to reduce my data. It's for my second 3 month project, deriving a rotation curve for Barnards galaxy, using radio H1 data here from the array. The array is made of six, 22m dishes, on a long railway track. You don't half get a buzz when you press the button to move the dishes, especially if there's a public tour going on around them at the time. My first project went well, and is being continued in addition to this one. I've just put a proposal in for Gemini S, to image the star at 0.1" . Might get a trip to Chile, you never know.

Well, now its time to boast about the weather once again. It's 27 degrees today, nice clear blue sky. Shame about the full moon, Narrabri's one of the darkest sites around. Went rock climbing in the Kaputar National Park yesterday, scrambling up a cliff was great fun. Anyway, better go, lots to do. Observing on Parkes in December. Can't wait.

Some time later . . . . . .

Guess where I am?? In the control room at Parkes, that big radio telescope near the town of the same name in NSW. Its on that movie called "The Dish". Well, anyway, I expect a few of you might have seen it. Its a huuuuuge thing, 64m across. I took a few piccys today, and they'll appear on my website in due course. I'm doing a spot of HIPASS observing here, scanning the sky in H1, working on the northern extension, towards Orion right now.

The last few weeks have been really hectic for me, I moved into a house with a workmate, a real nice 3-bedroomed house, in a Canberra suburb called Duffy. It has a huge backyard, already christened with a cricket match. I gave a poster and went to a week long conference on Planetary Nebulae in Canberra, went to Sydney twice with work, giving a lecture at a Dwarf galaxy meeting there and then drove to Parkes where I am now, and shall be here for another few days.

It took about 8 hours to drive here from Sydney, stopping off for a bushwalk in the Blue Mountains en-route. We went to a place called "The Walls" in the BM. As you can imagine it is a series of sheer cliffs, 1km high. (Yes, you heard right, 1km of sheer drop). I've never seen anything quite so spectacular. I took loads of pics, standing on the top looking down into the abyss of rainforest below. Wait till you see the pics of me stood on the top of the cliff, on a knifepoint going down, down, down...

It was quite hot when we went there, like 35 degrees or something and millions of flies about. We tested the height by dropping stones off the cliffs (no-one else around so its OK). They took about 20 seconds to hit the tree canopy below. Unbelievable. Also the silence was amazing. We sat on the top listening to nothing but birdsong. I might turn into a poet, or something, at this rate (only joking). It was incredible, you get nothing like that anywhere in Europe. So that was the other day. Today I didn't do much. Had an induction course to use the dish (I'm now an Official Parkes User!!) and sat around. Had a bit of rain today, big thunderstorm, but the forecast is fine for tomorrow.

I leave Parkes on Monday, to drive back to Sydney and spend the night there (and a swim), before driving back to Canberra on Tuesday. I'm off to the Flinders Ranges in South Australia for Xmas, drive there on the 20th, I think. It'll take 3 days to get there,

spend a couple of weeks camping in the outback before driving back to Canberra. I'm off to Perth for 6 weeks on the 15th Jan to see my brother and parents (haven't seen them since May), so as you can see, it's all go for me these days. I'm trying to take a pic of The Dish, with either Orion or the Southern Cross in the background. Quite hard to do. Once you get set up, the thing slews off somewhere. Its clear tonight here. The Magellanic Clouds are very bright and so is Sirius (would be, being near the zenith).
Better go. The wind is getting up a bit. If it gets much worse I might have to stow The Dish. Ahhhh, the power. "Power denied is power wasted"...

Dave ..... (Who loves his job)

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Light Pollution

You may have wondered why there are two pieces on Light Pollution in this issue. One reason is that they have been in the in-tray for ages, and the senders may be getting peeved at me for not using them! The real reason is that the whole issue of light pollution is getting serious – really serious, for astronomers.
In our own way, we are threatened, too. What if the Eden Walkway site is threatened with more pollution? Will we know? What can we do? Does CaDAS need a Light Pollution Officer to keep abreast of these things and talk to the Local Authorities?
Views in Letters to the Editor, please.

"Astronomy Now" and the US mag. "Astronomy". Gareth Morris is offering a large number of back issues of these magazines, free to a good home. Please contact him at gareth_morris7@hotmail.com, or the Editor, if you would like to have them.

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 www.goliver.freeserve.co.uk. 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.

CaDAS Website Don't forget to visit our very own website and give John McCue your comments (www.stocktonsfc.ac.uk./mccue/caseden.htm).

Please send contributions for the Newsletter to Alex Menarry, 23, Abbey Road, Darlington, DL3 7RD, 01325 482597 (a.menarry@virgin.net) or to John McCue, 01642 892446 (john.mccue@ntlworld.com).