

The Astronomical Society of Edinburgh

Journal 44 - December 2001



**Dr Mary Brück (left) with Lorna McCalman (President)
and Dr Dave Gavine (former recipient of medal)**

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Editor: Dr Dave Gavine
29 Coillesdene Crescent, Edinburgh
Assistant Editor: Graham Rule
Website: <http://www.astronomyedinburgh.org/>

From the President

At the end of March, my two-year term as the first lady president of the ASE will come to an end. It has been a very enjoyable and rewarding time, which has seen quite a few changes in the Society.

When I first took on the role, I was asked the question "What do you hope to achieve during your term as President?" It was such an obvious question, but one to which I had given little thought! However, the realisation struck that this presented an opportunity to change things about the Society that I felt could be better. For example, there seemed to be little within a society whose members are drawn together with a common interest in astronomy for a hands-on practical approach. There were no co-ordinated group activities for practical observers, the emphasis instead tending towards the lecture meetings. In answer to this shortcoming, now we have set up two observing groups, which, although still in their infancy, enjoy good support and provide a focal point (if you will pardon the pun!) for the members. These groups contain sufficient enthusiasts to provide advice and guidance for new members of the Society who wish to learn the basics of good observational and imaging technique.

Do *you* have a vision for the future of the ASE? If you would like to see your ideas and visions implemented, why not join the Council of the Society. The only qualification for standing is that you have to have been an ordinary member of the Society for one year. Speak to the Secretary of the Society, Graham Rule, and he will tell you how to apply.

This year has been quite eventful. Various interest groups have been shown around the Observatory and we took part in the "Doors Open Day", which saw an estimated 400-500 visitors come to look around. We also hosted the prestigious BAA Aurora Section Meeting, which was organised by Ron Livesey, Director of the Section. This meeting was very successful and, judging by the letters received, was enjoyed by all the participants. We had hoped that the new solar telescope, which we currently have on order, would have arrived in time for the meeting, but sadly, no! The solar telescope is our first major outlay on equipment for some years and we hope that good use will be made of this exciting new instrument. The question of when the solar telescope can be used has been asked on several occasions. The answer is that during the summer months when daylight limits the amount of time for observing anything other than the Sun or the Moon, the solar telescope will keep the interest in astronomy alive. Perhaps you would like to start up a project monitoring and recording sunspot activity and relating the results to auroral activity. In another application, at a time when we often show groups around the observatory during the day, the solar telescope would be ideal to show visitors some stunning views of the sun. It also presents the opportunity to explain that this telescope is a dedicated instrument for observing the Sun and that no other telescope should ever be used for direct viewing. To this effect, we are having multilingual notices printed.

The Society will face many changes in the future, not least because of the proposed expansion and development of the ROE Visitor Centre. The ASE is our society the success of which is the responsibility of all its members. For it to thrive we need people with ideas, drive and enthusiasm to lead the way forward and inspire the next generation of amateur astronomers.

Finally my sincere thanks for the enthusiastic backing from members of the Society and the unstinting support of the Council members during my presidency.

Lorna McCalman

Lorimer Medal awarded to Dr Mary Brück

On Friday 4th May 2001 Dr Mary Brück was pleasantly surprised when she was presented with the Lorimer Medal of the Astronomical Society of Edinburgh. This medal is awarded from time to time in memory of our benefactor, John Henry Lorimer RSA, in recognition of meritorious work in diffusing the knowledge of Astronomy among the general public.

Dr Brück had just given the Society a talk on "Mary Evershed and the astronomy of the Divine Comedy". When our President, Mrs Lorna McCalman, made the presentation.

Dr Brück studied at Dublin before coming to Edinburgh University and gaining her doctorate for research in "Studies of H α line profiles in prominences" In 1957 she encouraged her husband, the late Professor Hermann Brück, to apply for the post of Astronomer Royal for Scotland. He held this post until his retiral in 1975. The Brücks were the last family of astronomers to live in the official residence at the Royal Observatory on Blackford Hill.

Dr Brück became a part-time lecturer in the University of Edinburgh in 1962 and taught generations of astronomers until her retiral in 1984. She was a University Fellow from 1984 until 1987.

Her research dealt extensively with photographic measurements of colour and brightness of stars and in the newly developing field of photometry. Her knowledge of this field informed her "Exercises in Practical Astronomy using Photographs".

She took time out of her academic duties to produce, in 1965, the Ladybird book "The Night Sky" and she was kind enough to autograph copies for a number of members of the Society (including the Treasurer and the Secretary) who had enjoyed reading it as youngsters.

In later years she worked with her husband on historical research, in particular "The peripatetic astronomer : the life of Charles Piazzi Smyth", and has taken a particular interest in the lives of women astronomers such as Agnes Mary Clerke and Mary Somerville.

Graham Rule

Popular Geology Class

Dave Gavine hopes to run a class in Popular Geology at Jewel and Esk Valley College (Milton Road Campus).

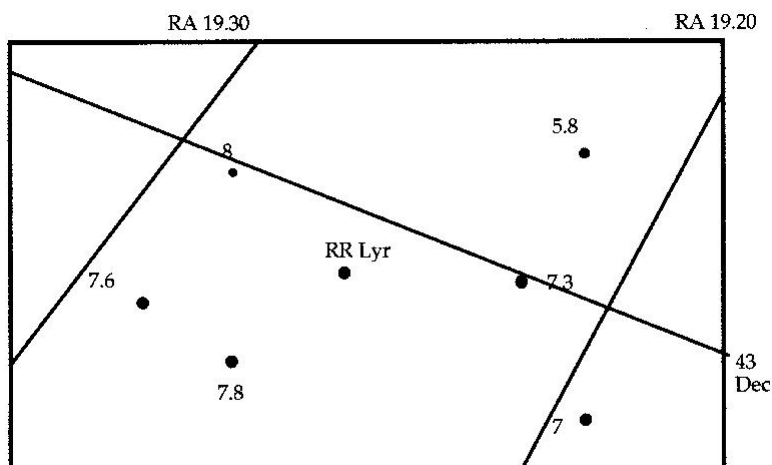
8 weeks beginning on Monday January 7 2002, 6:30 to 9pm. Course fee £40, possibly concessions for the more mature. Details from Dave Gavine (phone 0131 657 2338) or contact Harry Sutherland at the College (0131 657 7284) to book in.

Two Variables in Lyra

The very good book "Observing Variable Stars - A Guide for Beginners" by David Levy (which is available in the Society's library) suggests that a good star for beginners is W Lyrae. Another variable, which is highlighted in the handbook "Stars and Planets" by Ian Ridpath and Wil Tirion, is RR Lyrae. The third edition of the latter book has just been published and is well worth buying as a general reference at the price of £14.99.

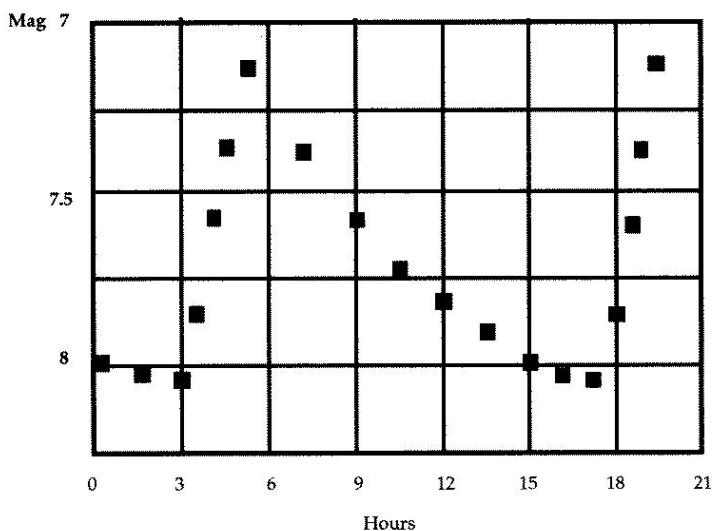
RR Lyrae

This star is the prototype of an important class of variables used as 'standard candles' for indicating distances in space. Related to Cepheid variables they are giant stars that pulsate in size varying by about one magnitude in less than a day. RR Lyrae varies from 7.1 magnitude to 8.1 magnitude in 13.6 hours. Thus it is possible to see significant changes in an evening's observing session as the rise from minimum to maximum takes less than three hours.



The changes can be followed from suburban Edinburgh using 10 by 50 binoculars on a clear night that is free from haze. It is fairly straightforward to find the star. You first spot the naked eye star delta Cygni (2.9 magnitude). RR Lyrae is in the same binocular field of view of this star. If delta Cygni is at the top left RR Lyrae is at the bottom right. A finder chart indicating the neighbouring patterns of stars and the non variables, including their magnitudes, that are used for comparison is shown. The pattern of the three stars on the right is particularly distinctive.

RR Lyrae (RA 19.25, Dec 42.8) has been observed since the middle of August and a rough light curve determined. This is illustrated in the further diagram below. However, the star does not seem to be totally predictable. The observed times of maxima are not those indicated by data obtained from the American Association of Variable Star Observers (www.aavso.org). The maxima seem to be a few hours later than predicted. In addition the times between maxima and minima seem to vary by an hour within a constant period of 13.6 hours.



At the time of writing I suspect that this apparent variation may be due to observing errors

so it is planned to continue observations throughout the autumn.

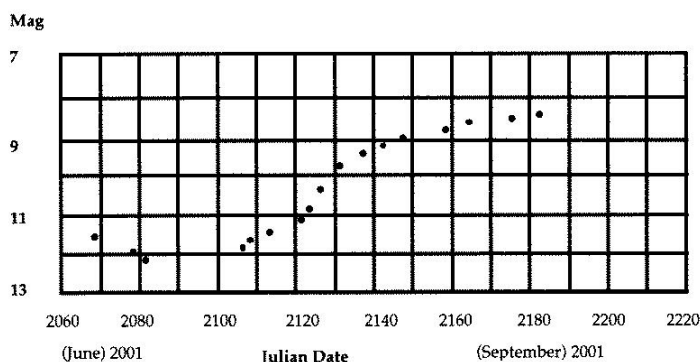
W Lyrae

This star is a long period variable of 196.4 days. It varies from 7.7 magnitude to 12.3. Observations therefore require a telescope and I use a 200mm reflector. It is difficult to observe from a suburban location at minimum as only on exceptional nights have I seen stars of 12 magnitude or dimmer. On the best night this year I could just see, near the zenith, stars of 12.5 magnitude. Nevertheless this is not too great a problem with this star as it is only at 12 or dimmer for about twenty days. Because of lack of contrast with a light polluted sky I have never seen it at less than a magnification of 50. The best view is at time a hundred. Observing it at a higher magnification is not much use. You cannot see the comparator stars as the field of view is too small. It is only worth observing this star about once a week as you will not notice any change over a lesser interval.

Finder charts can be downloaded from the website of the American Association of Variable Star Observers. If obtaining the charts is a problem I would be happy to make copies for you (ring 0131 477 0817). I usually start by finding kappa Lyrae (magnitude 4.2). Using a 40mm eyepiece W Lyrae is in the same field of view about midway between kappa Lyrae and a pair of stars in Hercules of magnitudes 5.7 and 5.9. Kappa Lyrae is at a declination of 36 degrees and W Lyrae at 36.40 (RA 18.15). The big challenge is finding it for the first time. Once discovered the location is not forgotten as the local assemblage of stars is quite distinctive.

Below are the observations of this star this year from June onwards. It reached minimum during the first week of July and is due to reach maximum in the middle of October.

An advantage of observing these stars in Lyrae is that they are circumpolar. They are low down for three months in the evening but for the rest of the year they are well placed for study. I have created specific record sheets for both these stars. I would be happy to supply copies of these to anyone interested.



Although these stars are relatively faint they do represent celestial spectacles in their own right. Imagine living in planet revolving around RR Lyrae and watching your sun pulsate on a 13 hour cycle varying in brightness every day by 2.5 times? Imagine being anywhere near a star such as W Lyrae which varies by nearly a hundredfold over 96 days?

Note

I could not find 'official' finder charts for RR Lyrae from either the AAVSO or the British Astronomical Association (Variable Star Section). My finder chart was constructed from data obtained from the planetarium computer software product "Starry Night Pro". The data on the magnitude of the comparison stars is not 100% reliable. This is, apparently, because the data was obtained from the analysis of photographic plates and not by direct photometric analysis of each individual star.

Des Loughney
9th October 2001

The BAA Aurora Section Meeting

The Aurora Section members came to a meeting in the City Observatory on September 8th 2001 from far and wide. The President of the BAA, Dr Nick Hewitt, came up from Northampton, Karl Lewis from Saltash in Cornwall and Dave Pettitt from Carlisle, our two geomagnetic observers were present and met each other for the first time, there was a Yorkshire contingent from Leeds and Wakefield including Melvyn Taylor, Secretary to the Variable Star Section; Sally Beaumont came from Windermere, Mike Given from Dunkeld and Dave Rutherford from RAF Kinloss together with Dr Henry Soper from the Isle of Man. Dundee AS fielded a strong contingent including Frank Mitchell, now living on Arran, and Dr Tom Lloyd-Evans of St Andrews who were very active aurora observers in the late 1950s and have recently returned to Scotland after many years away. It was a very enjoyable occasion where people could put faces to well-known names in the Section and it was reckoned to be a success socially as much as technically. I thank all for making the effort to come.



Mrs Lorna McCalman, ASE President, welcomed the participants and hoped they would have a good day. Dr Dave Gavine then took over as chairman for the morning session. First, Ron Livesey, Section Director, explained what happened to observations, which came in from land observers, meteorologists, ships and aircraft. Some 13,764 reports had been received between 1976 and 2000. The originals are held in Aberdeen University. Coded summaries in date order are held at Burlington House and master summaries are held in ink in a series of hard-bound ledgers by the Director. Comparisons of auroral activities with geomagnetic and solar activities were shown in graphic form.

Dr Mike Gadsden, a world authority on the subject, described how and when Noctilucent Clouds formed and behaved. A variety of mechanisms from solar activity to volcanic eruptions were considered as possible causes of periodic changes in the annual frequencies of NLC apparitions. There is not sufficient knowledge about the physics of these clouds. The Aurora Section NLC observations made a significant contribution to the study of these clouds. There was evidence, particularly from cosmonauts, that NLC could appear at dates and locations not associated with their classical summer appearances. Observers were therefore asked to keep a lookout outwith the traditional summer season.

Ron Livesey stood in for Jim Henderson of Aboyne who could not be present. Ron displayed Jim's slides of the aurora of 2001 April 6/7 which were very much appreciated. Ron also showed a typical album of aurora photographs received from members, the whole archive of well over 1000 pictures being held at Burlington House.

The meeting adjourned for lunch. Some remained at the observatory with sandwiches to enjoy the views over the Forth while others descended into town to partake of a repast in a local hostelry. In the afternoon Ron Livesey took over the chair.

Dr Alastair Simmons first described the origins of the aurora in conjunction with the activity of the magnetosphere. He outlined the different types of Arctic conditions in Canada,

Norway and Spitzbergen and the types of protective clothing the observers required. He indicated the different types of auroral activity some of which cannot be seen except in the polar winter night. He described also the dangers of travel in snow and the behaviour patterns of polar bears wanting a dinner and how to avoid becoming one.

Dr Dave Gavine spoke about and displayed samples of monastic and post-Reformation records of the aurora. The medieval mind and its interpretation of the aurora in terms of warring armies in the heavens, angels, fires and dragons persisted for many years. Samples of writings in Latin and old Scots were shown and explained.

After a coffee break Dr Russell Cockman of the Association of Falkirk Astronomers showed slides of recent auroral activity and noctilucent clouds. This was followed by Mike Given of Birnam who showed slides of recent NLC seen with difficulty through tropospheric clouds. These fully demonstrated the problems many NLC observers have experienced in this very cloudy summer.

Ron Livesey thanked the members for their attendance. He noted the presence of a good set of sunspots that day and the potential for auroral activity in the higher probability period in the autumn. The meeting was brought to a close by Lorna who proposed a vote of thanks to all concerned. Everyone then adjourned to the Playfair Building where the ASE had laid on a cheese and wine party which was much appreciated.

Ron Livesey

Observing Report

Yes, it has been another miserable year. The Perseids, Leonids and most other meteor showers were a wash-out. Weather for the Geminids was hardly better. On the night of 12/13 December Dave Gavine saw 16 meteors in $\frac{3}{4}$ hour before freezing fog came in - the maximum on the following night was overcast.

A great aurora occurred on the night of April 11/12, the whole sky covered in pulsating light, with long bright red and green coronal rays. Lorna McCalman got some excellent photographs.

Unfortunately all Scotland was clouded over (again!) on the night of the huge aurora Oct 21/22, when brilliant red rays were seen up to 50° by Neil Bone in Chichester and by observers in Cornwall and Devon. But another brilliant display of red and white coronal rays was caught by Dave Gavine in the early hours of Nov 5/6. Smaller aurorae were seen on Aug 17/18 and 27/28, Oct 11/12 and 22/23, Nov 6/7 and 15/16.

Noctilucent Clouds were seen on June 9/10, 24/25 (the brightest) and 27/28, July 22/23 and 27/28, Aug 5/4 and 10/11, by Dave, Lorna, Graham Rule, Ron Livesey and others.

Many of us watched the fine occultation of Saturn by the Moon on Nov 3/4. The good news is that there will be a few more planetary occultations this season. Jupiter on Jan 26 at 1752 (a graze), Feb 23 at 0247; Saturn on Apr 16 at 2046 and on May 14 at 0641. Times and details are in the BAA Handbook in the Library.

Society News

The Society has a new web address: <http://www.astronomyedinburgh.org/>. This continues to be hosted at the ROE and the Council of the Society expresses its thanks to the ROE, in particular to Horst Meyerderks, for this. We also have an e-mail addresses set up for president@astronomyedinburgh.org, as well as similar addresses for [secretary](mailto:secretary@astronomyedinburgh.org) and [treasurer](mailto:treasurer@astronomyedinburgh.org) which should always allow messages to get to whoever holds that post at the time.

I'm sure that Lorna has been too modest to mention a recent talk she gave to the Edinburgh Photographic Society about astronomical photography. From what I have heard this was very well received.

Dave Gavine has also been busy giving talks on astronomy. In addition to his recent Popular Astronomy evening class he has spoken to astronomical societies in Dundee, Elgin, Eastbourne, St Andrews, Falikirk and to the Friends of the Mills Observatory.

Ken Thomas joined Lorna and myself in an evening of talks to visitors at Vogrie Country Park recently. This is the third time members of the Society have been there and it is also the third time we have taken telescopes only to find it completely cloudy. Despite this everyone seemed to have a good time.

When the Observatory was open for Doors Open Day we had a very good turnout and were kept busy showing people round. In addition to some talks on astronomy by Horst I showed my slides about the history of the observatory a number of times. Other groups subjected to my history talk (which includes the One O'Clock Gun and the Time Ball) include the local Lapidary Club and a group from Peebles.

There was a recent meeting of the Scottish Astronomers Group but, unfortunately, because of short notice, the Society was not represented. SAG meetings are open to all interested members of affiliated societies so we will try to announce any forthcoming meetings on our website.

Since the last Journal there have been some very good meetings of the Society. In April, Dave Gavine spoke about "Daft Astronomers". Dr Mary Brück told us about "Mary Evershed and the astronomy of the Divine Comedy" in May, after which she was presented with the Society's Lorimer Medal. George Grant told us about telescope making in June and we had an excellent Social Evening in July with Members' Night allowing a number of short presentations at the August meeting. September saw Ron Livesey speaking about his experiences in astronomy under the heading "A Space Odyssey" and in October Dan Hillier, ROE Visitor Centre Manager gave us a glimpse of what the Centre might be if their Heritage Lottery Bid is successful. The ever popular Brian Kelly came from Dundee to tell us about "The Search for the Nebulae" in November. In December, Mrs Margaret Morris came from Glasgow AS and gave us a most interesting talk with the title "An Accretion Disk on Two Legs" which was illustrated by many of the postage stamps and other items with and astronomical connection which she has collected since childhood. At 'Christmas' meeting we were happy to have guests from Falkirk and Stirling who also joined us for our raffle and a glass or two of wine.

One of the more interesting tasks for the Secretary is to find speakers for meetings. But sometimes it can be quite difficult. I am always open to suggestions of suitable speakers so if you happen to have heard someone particularly interesting who you think might be

appropriate for a meeting of the Society please do let me know. If you believe you may be able to prepare a talk yourself then so much the better. We always have a "Members' Night" in the summer so if you don't feel up to a full talk but do want to tell us about something - observations, book reviews, anything astronomical - then that might be your chance. (It may be only December but I really ought to be working on the Summer Programme by now.)

If you don't actually feel up to speaking at a meeting of the Society perhaps you would prefer to put your contribution in writing. Contact Dave Gavine if you have something for this Journal.

As has been announced at meetings, the current subscription for the Society is £15 (£7 for concessions). Subscriptions became due in October and if you have not yet paid then you should have had a reminder by now. Prompt payment greatly eases the burden of administration that the (volunteer) Officers of the Society have to face.

Since this is the last Journal before the AGM I'd like to remind members that nominations for the Council of the Society should be with me by February 8th. Anyone who has been a member for a year or more is eligible for election. While being a Council Member may not seem the most glamorous of jobs the Society can only continue to thrive as long as members volunteer and give of their time.

If any of you find your Journal too small to read (or know of a member who does) then please let me know. I am always happy to prepare a larger print copy for those who ask. Braille is not impossible but would take considerable notice. The website copy is designed to work well with screen readers.

Graham Rule

Scottish Astronomy Weekend

The Scottish Astronomy Weekend will be held in Dundee University, West Park Hall, on September 6th to 8th 2002. The theme will be "Observing Stars". Total cost (including accommodation and meals) will be about £120.

More details will be announced later at meetings and on our website.

Telescope For Sale

Adrian Weatherhead has just bought himself a new telescope and would like to find a buyer for his old one. It is a "Helios" 114mm reflector (focal length 1m) with equatorial mount and tripod included.

The Society owns one of these - you may have seen it in the Observatory - and your Secretary has one as well. It is easily portable (being very light) and is an excellent beginner's telescope.

Adrian is looking for £70. He may be contacted on 0131 664 8249.