

Meeting of the Radio Astronomy Group, 2005 October 8

On 2005 October 8 the Radio Astronomy Group held the first meeting of the renewed group at the Humfrey Rooms in Northampton, courtesy of the Northamptonshire Natural History Society.

55 people attended the meeting, many of whom were unfamiliar faces to regular BAA meeting attendees, and it appeared to me, that many visitors were new to the BAA.

There was a good programme of talks for the day, and after very brief introductions from Martin Morgan-Taylor (President of the NNHS), Bob Marriott (Secretary of the Astronomy Section of the NNHS), and Laurence Newell (leader of the Radio Astronomy Group), the key speaker for the day began his talk: Dr Tim O'Brien, a professional scientist from Jodrell Bank, spoke about Jodrell Bank's 6.4m Robotic Radio Telescope. Tim particularly enjoys working with teachers in the pursuit of the public understanding of science, and described in some detail (amongst other topics) a Rotarian and Royal Institution-funded project that he had initiated, in which several schools were using the Jodrell Bank telescope remotely, to map their allocated portion of the sky. Over 1240 students took part in this project, mapping their school's 20°-wide strip of the sky from longitudes 20–220°. After all schools had completed their part, the results were combined to produce a complete map.



Attendees at the Radio Astronomy Group meeting. Photo: Tom Boles

A conference was held at the Royal Institution, where school representatives were invited to share their results, and discuss their experiences with the other schools.

Following Tim was Murray Niman, who spoke on 'Challenges to the radio astronomy spectrum'. Murray outlined how years ago, the old radio communications agency was run by good engineers, who were laid-off when Ofcom was created a few years ago. Ofcom employees tended to consist mainly of lawyers and broadcasters, and their aim seemed to be to try not to spend Treasury money, so there were now very few people involved in spectrum protection. The result was that specialist scientists needed to be

more aware of what was going on, and to do more themselves to try to protect the remaining spectrum where possible.

The overall forecast demand for radio spectrum was actually far, far more over the next few years than the available spectrum, so the remaining bits that were not currently occupied would be closely scrutinised. Since last November there had been nearly one consultation per week, and the UK Microwave group, of which Murray was an active member, had been very busy submitting papers, to fill in the gap that was appearing; Jodrell Bank and PPARC had also been getting up to speed responding to the consultations. Murray encouraged the newly reformed Radio Astronomy Group to formulate responses to consultations wherever possible, as they had already done on one occasion.

Richard Lines then talked about his personal work attempting to monitor the Shoemaker-Levy Jupiter impact at 21MHz, and making solar observations at 600MHz. Richard was clearly an experienced and knowledgeable constructor of radio receivers, who

► An introduction to CCD observing follows, before Levy inspires us with some idea of the huge variety of star behaviour, in chapters on different types of stars, both easy and challenging. Last is a chapter on the Sun, following 'Other variable things' which covers for example, variable nebulae, gamma ray bursts, blazars, and 'AM Hercules stars, or polars'.

To help the reader plan an observing programme, Part III contains stars not described elsewhere, divided into seasons and rated 1–5 according to difficulty. Obviously invaluable for the complete beginner, this section could also be useful for a transition from binocular to telescopic variables, and possibly beyond. I did find that W Persei (p.163) and U and W Orionis (p.166), had different level ratings in the individual star notes, to the list at the end of the chapter on p.175. Hints for cold weather precede the January to March stars. A selection of prominent southern hemisphere variables is included.

The last section is a miscellany of John Goodricke, the AAVSO past and present, and Leslie Peltier (whose book *Starlight Nights* inspired me to take up variable star observing), finishing with a bibliography, glossary, the Greek alphabet and constellation abbreviations. Sadly omitted from

the bibliography 'Going further', are the two most recent general books on variable stars by Gerry Good and Gerald North, and John Isles' *Variable stars* from the Webb Society series, collectively perhaps the most useful volumes to lead on from this book.

It seems a pity when updating not to have changed the AAVSO charts for Z Camelopardalis and U Geminorum on pages 121–124, which were replaced in 2003/4. Having said that, the new TV Corvi chart on page 116 did not reproduce well. A chart referred to in the text on page 87 appears to have been left behind in the previous edition!

Illustrated with some interesting lightcurves, many finder charts and a few photographs, this inspiring introduction to variable star observing gives the beginner an excellent start and an incentive to investigate further. It has brought some interesting stars to my notice.

Janet Simpson

Janet Simpson had an art college training, has only fairly recently taken up a lifelong interest in astronomy and is an active member of the BAA's Variable Star Section.

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loved rummaging in skips to find useful components from which to build his systems. He explained that the source of the Jupiter radiation was the generation of decametric radiation which occurs between 5 and 40MHz; there is a window of opportunity to detect this if the ionosphere doesn't get in the way, and it can be reasonably strong. Using mostly scrap bits and pieces, Richard built a half wave dipole and a receiver, which he designed to be able to take out into the countryside away from interference. His experience trying to monitor Jupiter during the impacts was a good learning process, even though his observations were negative.

Spurred on, Richard built a 600MHz radio telescope, diving into skips on his way home from work (his mark 1 used a scrap TV aerial). He described in some detail, the receiver electronics that he had developed for this telescope and showed the resulting real signal obtained from monitoring the Sun. Richard is clearly a real enthusiast, who we will hopefully hear a great deal more from in the future.

After lunch the raffle was drawn, for which a good number of prizes had been donated, including a number of excellent books from Cambridge University Press, and a receiver from Jeff Lichtman of Radio Supplies.

Then Laurence Newell, the leader of the RAG, outlined the activities and work of the group, spending some time describing the proposed Plug and Play Observatory system that was being developed to enable observers without electronics experience to have a go at doing some radio astronomy using a simple-to-use system. The aim is to

have a controller that will plug into a PC, which will interface directly to a number of receivers. At the moment, receiver designs for operation at VLF, 1420MHz and 2.7GHz are being produced. The user will be able to choose which receivers to use, and the system should prove simple to use, and make the logging of data, and its submission to the Group's database, simple to achieve.

John Cook, an officer of the RAG, who is responsible for the development of the VLF receiver, outlined the design and use of his simple VLF receiver for solar flare monitoring. He had been using such a receiver for some time now to monitor solar flares by detecting a radio signal from a transmitter a long way around the Earth, after the signal had bounced off the ionosphere. It was only possible to do this kind of observation during the daytime, when the ionosphere was particularly reflective to radio signals, and solar flares are then evident as a characteristic change in the signal.

Peter King then talked about the 151 MHz steerable array at the Mullard Radio Astronomy Observatory, which is being recommissioned for the BAA to use. Peter is conducting much of the recommissioning work himself, and is overseeing other parts of the work which other observatory staff are doing for us. He outlined the current state of the telescope: unfortunately, when the Ryle telescope was constructed, the stanchions of the 151MHz were lowered to the ground, and the cables inside had snapped, so these would have to be re-cut to a precise length; the yagis had been found new in a

hangar nearby, and were installed, and six of the seven declination motors had been replaced. Peter described the outstanding work, and the way in which he hoped that it might be used once it was available to BAA members. He hoped to work together with the Variable Star Section to monitor flare stars, to see if a correlation between the optical and radio activity could be found.

After tea, James Wilhelm spoke about the John Smith 408MHz All Sky Survey, which was dedicated to the memory of John Smith, who had led the decision to start the survey. Ken Tapping, a professional involved in the project, later moved to Canada, and John continued the work. The first receiver, which operated at 136 MHz, is now located near Cranleigh; the telescope was moved twice over the years. The aim of the survey was to attempt to map radiation from our galaxy, and some bright sources. This was a transit telescope, for which the declination was changed every week or so; this meant that they obtained several scans at the same declination. The data was gathered and then distributed to processors via a website. James said that a paper would be published on the survey website in the future. He showed a short video of Gordon Brown interviewing John Smith, who talked about the benefit of solar observing and gave a brief demonstration of the radio telescope collecting data, showing an increase in the noise as it scanned across the Sun.

Bob Marriott then gave an entertaining talk on 'The history of radio astronomy in the BAA'. He started by mentioning the first

New members

The British Astronomical Association cordially welcomes the following new members:

Elected 2005 May 25

Allcock Roy, Stoke on Trent, Staffs
Allseits Patrick B., Ashburn, Virginia, USA
Allseits John, Ashburn, Virginia, USA
Austin Michael, Southwater, West Sussex
Barber Robert John, London, SW1
Briggs Gordon, Curtin, ACT, Australia
Brown Avril Anne, Edinburgh, Scotland
Cassell Brian William, Frome, Somerset
Davis Robert A. Greville, Stonehouse, Gloucs.
Davy Richard William, Borehamwood, Herts.
Dunkinson Gordon, Broadway, Worcs.
Grieve Alistair, Potten End, Herts.
Handscomb Phillip, Bishopstone, Herefords.
Handscomb Dominic, Bishopstone, Herefords.
Kaustav Bhattacharya, Harrow, Middlesex
King Ian, Paddock Wood, Kent
Lang Robert Hugh, Llanishen, Cardiff
Martin Anthony, Swadlincote, Derbyshire
Middleton Keith, Marston Green, Birmingham
Porte Elliott Neil, Romford, Essex
Ritchie Benedict, Chichester, West Sussex
Rooney Kieran, Primrose Hill, Belfast

Sansom Tim, London, NW6
Scott Matthew Leonard, Stratford-upon-Avon, Warwickshire
Steele-Leith Alastair, Northampton
Stockbridge Dave, Nettlebed, Oxfordshire
Tuaifaiva Lucy, London, NW6
Vafidis Maria, Athens, Greece
Wakefield Gerald Charles, London, SE6
Wilson Andrew, Niedersachsen, Germany

Elected 2005 June 22

Banerjee Abhijit, Radlett, Hertfordshire
Baxter David Robert James, Hedge End, Southampton
Brown Jonathan, Glasgow, Scotland
Chambers Peter, Bletchley, Milton Keynes
Cusworth Will, Hexham, Newcastle
Gilby John, Great Horwood, Buckinghamshire
Griffiths Martin, Bridgend, Glamorgan
Grotherr Joachim, Hamburg, Germany
Hill Jason, Sheffield, South Yorkshire
Honey Stuart Ian, Faversham, Kent
Kavanagh Mel, Northfield, Birmingham
Kirshner William Sibbald, Sale, Cheshire
Leslie Clive, Beckenham, Kent
Lindup Kenneth Robert, Chiddingfold, Surrey

Mulloy David, Nelson, Lancashire
O'Neill Thomas, Motherwell, Lanarkshire
Pearson David Anthony, Sleaford, Lincs.
Pegrum Joanne Elizabeth, Bishops Stortford, Herts.
Stott Melanie Jane Collette, Fixton, Manchester
Stott Charlie, Fixton, Manchester
Taylor Graham, Horley, Surrey
Tilley John Stephen, Micheldever, Hampshire
Walton Mark, Barnsley, South Yorkshire

Elected 2005 October 26

Armstrong Michael John, Lancaster
Arnold Graham, Bucknell, Shropshire
Bell Steve, Burnham, Essex
Bell Ralph, Farcet, Peterborough
Boardman Steve, Fleet, Hants.
Bowles Neil, Sheffield, South Yorkshire
Broadfoot Sharon, Fazakerley, Liverpool
Charnock Paul, Leicester
Chetta Victor Benjamin, Shrewsbury, Shropshire
Clements Colin W. A., Lisburn, Co. Antrim
Collins Roger J. Howard, Edinburgh, Scotland
Coysh Terence G., Clevedon, North Somerset
Davies Julius, Basingstoke, Hampshire
Davies Malcolm, Shrewsbury, Shropshire
Day Philip S., Wickford, Essex

ever radio astronomy paper that appeared in the *BAA Journal*, which was written by J. A. Clegg, V. A. Hughes & A. C. B. Lovell; it gave the results from people who had collected their own data on radio echo work of a meteor stream. Two years later, Arthur C. Clarke wrote a paper on 'The radio telescope'. Clarke was involved in the development of radar in the 1940s and 1945, and had written a now-famous paper about stationary rockets in Earth orbit (geostationary telecommunications satellite design) which was published in *Wireless World*. His *BAA Journal* article was published in 1949 April, and included a straightforward explanation of what radio astronomy was about. The BAA Radio and Electronics Section was founded in 1957, which was the year that Jodrell Bank was inaugurated, the launch of the *Sky at Night* television programme, and the launch of *Sputnik*; it became the Radio Astronomy Section in 1964. Bob went on to give a brief history of the Section, in his characteristically entertaining way, and concluded with a surprise communication that he had received from Arthur Clarke by e-mail as follows:

Bob,

Thanks for your letter. Nice to hear from you! Glad you are reviving one of my late Jurassic papers! Who was it who said that radio astronomy was nonsense because radio waves won't go through the Heavyside layer? I wish you all the very best with your efforts. Here's an update on my affairs.

Arthur

In the discussion time at the end of the meeting, Andy Thomas gave a brief presentation describing some of his own work. Andy is a radio ham living in Market Harborough. He described how he had used a surplus satellite TV receiver that had an AGC line to detect radio emission from the Sun. He monitored a solar eclipse at 11 GHz using a yagi and a chart recorder, and was able to detect the unobscured and then later, obscured Sun. Professional astronomers at Nançay in France had been interested in these observations.

A number of attendees had brought along posters to the meeting, which were displayed on boards around the room, and stimulated discussion.

Of the 55 attendees, 28 returned a questionnaire that was given out. The responses

were unanimously favourable regarding opinion of the work and aims of the group. Attendees had travelled up to 200 miles to the event, and were keen to attend another one-day meeting next year. All were very keen to receive a circular, and were willing to pay for the circular in paper format, although most indicated that they'd be happy to receive it free in pdf format, with a wide range of topics suggested for the content. 19 respondents were completely new to radio astronomy, saying that they had no experience of the subject, and had come along to learn more, although others indicated that they had a wide range of technical expertise in general, ranging from TCP/IP to PCB and database design.

Karen Holland

Asteroids and Remote Planets Section

I am pleased to announce the following new positions within the Section:

- Assistant Director (Astrometry)*
Peter Birtwhistle
- Assistant Director (Occultations)*
Andrew Elliott
- Assistant Director (Photometry)*
Richard Miles

Their responsibilities will be to provide assistance to the Director and the Section in their respective fields of expertise, including

- keeping the Director up to date with technical developments and observing methods
- advising the Director of new observing opportunities
- assisting the Director with data analysis.

I would also like to take this opportunity to thank John Toone (previously ARPS Visual Co-ordinator) for the help he has given to the Section.

Roger Dymock, Director

Destecroix Leon, Hayling Island, Hampshire
Dibley David, High Wycombe
Edward Ranjit Trevor, Redhill, Surrey
Edwards Paul Anthony, Coleshill, Warwicks.
Elliott John Maurice, Dorchester, Dorset
Evans Tim, Acton, London W3
Evans Darren, Little Hulton, Manchester
Fice Simon, Stevenage, Herts.
Fisher Paul, Chingford, London E4
Fost Andrew, Southampton, Hants.
Game Cary Richard, Stevenage, Hertfordshire
Harrod Roy, Barnsley, South Yorkshire
Harvey Sydney J., Uttoxeter, Staffs.
Hayton Keith Andrew, Brentwood, Essex
Herring John Gordon, Cromer, Norfolk
Hollamby Christopher John, Hassocks, West Sussex
Howells Richard, Stevenage, Hertfordshire
Hughes Andrew, Little Hulton, Manchester
Humberstone Michael Sidney, St. Ives, Cambs.
Islam Naeem Ul, Dhaka, Bangladesh
James Norman, Loughborough, Leics.
Jevons Darren, Mirfield, West Yorkshire
Jones Mark Andrew, Lydney, Gloucs.
Jowett Lee Richard, Sheffield, South Yorkshire
Jutting Ian George Caton, Tonbridge, Kent
Kerrigan David, Berkhamsted, Herts

Kinder Martyn, Crewe, Cheshire
Ko Kuei-Hsin, Colehill, Dorset
Lad Reena, Mapperley, Nottingham
Law Robert, Dundee, Angus, Scotland
Liffen Scott, Chingford, London E4
Lowrie Heather, Glasgow, Scotland
Mace William, Harlow, Essex
Majden Edward P., Courtenay, B.C., Canada
Mallen Maurice, Leek, Staffs
Martin-Cuell Nicola, Harrow, Middlesex
Middleweek Laurence, London, NW3
Mills Jane, Walcott, Norwich
Mills Peter John, Walcott, Norwich
Mitchell Christian William, Esher, Surrey
Mitchell Trevor, Wallington, Surrey
Morgan Alan W., Cambridge
Ozen Yusuf, Stoke Newington, London
Packer Simon, Kenilworth, Warwickshire
Parry John, Glenealy, Co. Wicklow
Patterson Neil, Ballymena, Co. Antrim
Pepper Callum Thomas, Spalding, Lincs.
Perrin Brian J., Corby, Northants.
Pounder Alan, Codicote, Herts.
Powell Gerald, Battle, East Sussex
Ransom Justin Michael, Solihull, West Midlands
Rowland John, Driffield, East Yorkshire
Ryman, Michael Clifford, Bishopsteignton, Devon

Salaam Malik, Feltham, Middlesex
Sedgemore Richard John Walton, Hackney, London E9
Shapiro Sheldon Barry, London, W1
Sheehan Deborah N., Wilmar, Minnesota, USA
Singleton Jason David, Bournemouth, Dorset
Smith Barbara Jean, Stourbridge, West Midlands
Spears Royston, Hastings, East Sussex
Stamos Mark, Southsea, Hants.
Swinscoe David, Stoke Newington, London N16
Turnbaugh Wendy, Newmarket, Suffolk
Walkden Anthony John, Wickham Bishops, Essex
Walkden Joan Margaret, Wickham Bishops, Essex
Watford Colin, St. Albans, Herts.
Wigmore Edward James, Newbury, Berkshire
Wildi Markus, Basel, Switzerland
Williams Daniel, Newtownards, Co. Down
Woodbridge Stephen, Farnham, Surrey

Society elected on 2005 October 26

Herschel Astronomical Society, 128 Langley Road, Slough, Berkshire, SL3 7TF