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## REMS Visits Extensive Programme Continues

**REMS visit to Harwich 12 May 2011  
To see Trinity House, Buoy yard and Harwich Town**

We were welcomed by the Town Crier on behalf of the mayor, townspeople and the Harwich Society.



The Town Crier with some of us. (Photo Harwich Society)

We visited the headquarters of Trinity House (Tower Hill) on 7 February. Today, our visit was to Trinity House and Buoy Yard in Harwich, their operational base. Paul Howe, their communications officer, gave us a brief history of the organisation before we donned hi-vis jackets and helmets to look at the buoys. Their job is to provide navigational aids to shipping in English and Welsh waters. There is a similar organisation for Scotland and Ireland. The history goes back to 12<sup>th</sup> century and the first charter was given by Henry VIII in 1514. Today all the aids, lighthouses, ships and buoys are automated with no lighthouse keepers, etc. Every 5 years the buoys are returned to the yard for cleaning, repainting and updating. The lights, telemetry and controls are all powered by solar cells with diesel backup on the larger installations. These are remotely run-up once a week.

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If a ship collides with a buoy it often has to be replaced and repaired, and we saw some buoys with large patches welded in them. The large ones, type 1, are enormous, the heavy steel floats being about 12 feet high and the superstructure another 20 feet or so. These are the primary guidance buoys. Smaller ones are used to mark wrecks, etc.

To service these and the light ships & houses, they have two rapid intervention vehicles. THV Alert was alongside during our visit. If a wreck occurs or other hazard happens, they go to the site and put down marker buoys, often within 24 hours if necessary. The regular maintenance is done by a larger ship – the THV Patricia. The smaller boats cannot manage the type 1 buoys. This larger ship also has 6 double cabins that the public can use on cruises of 3 days to 2 weeks, watching the work.

We then went to the control room of the organisation where all the navigational aids are monitored, and their control and maintenance planned. They send out alerts via GPS when incidents occur. This can be as often as once a week. They also monitor the GPS positions of light houses and send out alerts if the accuracy is inadequate.



Above Left: The Control Room



Above Right: A marker buoy,

After a good lunch at the Crown Post Restaurant we met the Harwich Society guide, Tony Whitmarsh. He took us around the town and explained the history. Two notable places are the first electric cinema in the UK (1906) where the projectionist enters the building from the roof because the earlier acetylene projectors caused many fires. The cinema is still used for films and concerts and has an electric Conn organ of about 1910 (<http://www.dneal.force9.co.uk/conn73/models-t.htm>).

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**Left:**  
The Electric  
Cinema  
(Photo by Neil  
Griffin)

**Right:**  
The Conn  
Organ



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The other remarkable building is a 4-man tread mill crane that was used in the Navyard wharf, one of two left in Europe – the other is in Gdansk. It was at the end of a pier so that goods could be transferred from a ship on one side to a boat on the other by the pivotable jib.



**Above:** The Tread wheel (Photo *Neil Griffin*)

The two original guidance lights (the high and low lights) are also there. These were used to guide ships into the harbour until the channel silted up. The town is small, pleasant and quiet, with many ancient houses remaining.

Photos by George Freeman unless otherwise stated.

## Studying Materials with Neutrons

Kent Centre 17 May 2011



**Above:** Prof Skipper (left) & Dr C Isenberg

It is 75 years since James Chadwick won the Nobel Prize in Physics for the discovery of the neutron. In this talk Professor Neal Skipper of UCL described how modern neutron sources, such as the ISIS Facility at the Rutherford Appleton Laboratory, can be used to investigate biological and physical materials. Topics discussed included order and excitations in materials, imaging (for example, in engines), seeing magnetic structures, and phase changes in matter. Applications of such work include the storage of hydrogen, which could have a big impact in a future hydrogen-based economy.

## REMS Visit Painshill Park

14 April 2011



Painshill Park is an 18th Century (Grade I) Landscape Park with follies created by Charles Hamilton from the 1730s. Most of the buildings have been restored but unfortunately the house was sold for apartments when the money ran out.



Group at the Turkish Tent (Photo by John Temple)

We were very privileged to have Jan Clark as our morning guide as she is very knowledgeable and had lots of prints of the 18<sup>th</sup> century garden. We went along the path that 18<sup>th</sup> century visitors would have taken which went from one folly/statue/vista to another with new vistas opening each time.

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## Call for Nominations - Branch Secretary

The 2011 London & South East branch AGM will take place at 1800 on Wednesday 8<sup>th</sup> June in the Rutherford lecture theatre at The IOP, 76 Portland Place, London. The committee would be happy to answer any questions you may have. If you cannot attend the AGM but would like to ask a question please email me in advance at

[londonsoutheast@physics.org](mailto:londonsoutheast@physics.org)

The AGM will be followed by the lecture 'The Genius of Michael Faraday' given by Professor Sir John Meurig Thomas FRS.

**After three enjoyable years it is now time for me to stand down so we are inviting nominations from Fellows and full Members for the position of branch secretary.**

Duties include:

- \* Taking minutes at committee meetings held about four times a year in London. Travel costs are reimbursed. We usually coincide committee meetings with lectures.
- \* Producing an annual report for the Institute on the branch's activities.
- \* Handling registrations for London Centre lectures. This involves replying to emails and updating a spreadsheet.
- \* Booking rooms at Portland Place and advising on delegate numbers.
- \* Liaising with speakers, members and the Institute
- \* Handling enquiries.

This role is a good opportunity to work with and meet people with an interest in physics. It is also very satisfying to be involved with something that promotes physics at the local level. The call for nominations and nomination form will be sent to members by email. If in the meantime you would like to know more about what is involved or register your interest please contact me at [londonsoutheast@physics.org](mailto:londonsoutheast@physics.org)

**Len Lewell**  
**Branch Secretary**

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The Grotto (above) is world famous with its running water and pendants of calcite crystals. Unfortunately, some of the interior still needs restoring but all the structure is ready. They are hoping for Lottery Heritage money to complete this and to rebuild a bridge over the lake. They also hope to rebuild the Temple of Bacchus which fell down after the supporting pillars were removed. The pediment was papier-mache. Their statue of Bacchus is at a NT property and as they cannot have it outside, Painshill is hoping to have it back in the new building. The water wheel and pump for lifting water from the River Mole to the lake is still there and in working order but it was not running during our visit. The tour took 2½ hours and we did not have time for everything, notably the tower and hermitage. We saw some baby Grebes on the lake hitching a lift on their mother's back. Regrettably the photographs do not show them, just a bump under the wings. The vineyard, similar to the one in the 18<sup>th</sup> century, produces wine which is on sale in the cafe. I liked their rosé. After a good lunch in their cafe, we were shown the walled garden with its American collection of plants by Cath Clark and Karen Bridgeman, again volunteers and very knowledgeable. In the Georgian Period a few plant importers had arrangements with collectors abroad to send seeds and plants for their English customers. One was a farmer in Philadelphia called John Bartram. They arrived in boxes which were sent onto the customers so they were never certain what would be in them. The seeds were wrapped in oiled cloth and the plants were in separate compartments. There are replica boxes in the garden; about 2 ft cube. They had trouble with the Venus fly traps as they all died until they cut holes in a standard barrel and 1/3 filled it with peat in which the plants were placed. There was great correspondence about the insectivorous plants. Most of the summer flowering plants are American in origin.

## Outreach Workshops

Doing Outreach and Extending Your Outreach are one day workshops which aim to give Institute members an introduction to physics outreach and enable participants to develop their own outreach and public engagement ideas.

The workshops are open to Institute members and are free of charge. Limited travel bursaries are available where travel and/or accommodation costs would otherwise prevent attendance. The Institute of Physics is investing in this initiative as we are committed to improving public awareness of physics and its impact on society.

### Workshop details: -

#### **16 June 2011: Doing Outreach (Institute of Physics, London)**

An introduction to public engagement and outreach activities for members wanting to build confidence and find out how to get involved.

#### **10 November 2011: Extending Your Outreach (Institute of Physics, London)**

An introduction to public engagement and outreach activities for members wanting to build confidence and find out how to get involved.

#### **22 November 2011: Doing Outreach (Institute of Physics, London)**

An opportunity for members with some experience of taking part in public engagement and outreach activities to work with others to develop ideas for their own events, consider ways of reaching different audiences and discover what funders are looking for. For more information about the workshops and the travel bursaries and to book your place at a workshop please visit

[www.iop.org/outreachworkshops](http://www.iop.org/outreachworkshops)

**Caitlin Watson**

Head of public engagement at the IOP

## REMS at Lords

A bright Spring morning on 7 April 2011 saw 28 REMS members and guests assemble at Lords cricket ground.



The Lords tavern opened specially early for coffee before we entered the famous ground at 11am. We were met by our guide who had conducted us round Twickenham last year.

First stop was the museum to see the urn containing the “Ashes of English Cricket”. The urn is surprisingly small and our guide explained how it had come about, and the doubts as to what the urn might actually contain, there being no plans to open this sacred object for DNA analysis!

From there we entered the changing rooms for the home team and visitors. Compared to the modern examples at Twickenham and Wembley these had a delightful charm and were reminiscent of a school gymnasium or traditional golf club. Modern showers and medical facilities were, of course, adjacent. The ground staff member who looks after the changing rooms was available and told us how the players have lockers, and that there is a strict hierarchy regarding the seating arrangements.

From here we entered the famous Long Room and saw how the players have to pass through the members when going to the wicket – and when returning!

Finally we went out onto the balcony and marvelled at the modern stands. Though matching up to a degree these are all individual and built at different times.

The new floodlights for evening games were in evidence, but to satisfy the neighbours, they can be retracted to the height of the stands when not required.

Opposite the pavilion the Media Centre resembles a giant white chocolate Easter egg propped up on pillars. Due to maintenance work we were not able to visit this section.

The party then had to walk quickly to Little Venice to catch the London Waterbus to Camden Lock. Most members went to the recommended Wetherspoons Ice Wharf pub for a late lunch, rounding off the day with the Camden Lock craft shops or a stroll through Camden Market before catching the waterbus back to Little Venice.

## Upcoming REMS Events

Contact John Belling for full details.  
[john.a.belling.secrems@gmail.com](mailto:john.a.belling.secrems@gmail.com)

### 16 June

Down House-home of Charles Darwin

### 7 July

AT Home (at 76 Portland Place)

### 16 July

London Loop Walk 16

### 24 July to 29 July

Paris Trip

### 18 August

Buckingham Palace

### 27 August

Capital Ring Walk 9

### 24 September

London Loop Walk 17

See details and a booking form at: -

<http://www.johnabelling.webspace.virginmedia.com/>

## Upcoming Branch Lectures

**8 June** IOP 76 Portland Place  
**Branch AGM** 6pm followed by The Genius of Michael Faraday at 6.30pm

**14 June** at the Open University  
Science on a Small Scale –  
Nanoscience in the Past, Present and Future

**4 July** William Penney Theatre, AWE  
The View from Saturn: Images from the Cassini Spacecraft

Details at: -

<http://www.iop.org/activity/branches/south-east/lse/calendar/index.html>

## Professor Dame Athene Donald receives Lifetime Achievement Award



For her pioneering research in soft matter and biological physics and outstanding efforts to deal with issues around career progression for women in science, Professor Dame Athene Donald from the University of Cambridge has been presented the UKRC's Lifetime Achievement Award.

As part of the UKRC's Women of Outstanding Achievement Awards, which recognise the diverse contributions of women as leaders, innovators and role models in science, engineering and technology, the achievements of seven outstanding women were celebrated.

Athene's Lifetime Achievement Award, which follows a long list of honours, including the 2009 L'Oreal/UNESCO Laureate for Europe and the 2010 Faraday Medal from the Institute of Physics, was awarded last night, Thursday 5 May, at the Royal Academy of Engineering.

The Lifetime Achievement Award, which was sponsored by the Institute of Physics this year, was accompanied by awards for excellence in entrepreneurship, communication, leadership, and a new award for Tomorrow's Leaders.

Sir Peter Knight, incoming President of the Institute of Physics, said, "For a number of years, the Institute of Physics has pioneered a range of programmes to attract more women in to science, especially physics. But despite our best efforts, and those of other organisations, women are still seriously under-represented in the physical sciences and engineering. This means that many women may be missing out on opportunities for an exciting and fulfilling career. Equally, it means that science and engineering are missing out on a rich pool of potential talent.

"The Women of Outstanding Achievement Awards represent a valuable initiative to tackle this issue, by promoting outstanding role models for women in science, and demonstrating just how valuable a contribution they have made. IOP is delighted to support this year's event, through our sponsorship of the 2011 award for Lifetime Achievement."

This year's panel of judges included Lord Willis of Knaresborough, the Director General of the Institute of Directors Miles Templeman, and the Chair of Pharmaceutical Nanoscience at the University of London Professor Ijeoma Uchegbu. Lord Willis, Chair of the Judging Panel, said, "The range and quality of nominations this year was exceptional, demonstrating the breadth of women's contribution and impact across all areas of science, engineering and technology. I congratulate the exemplars chosen as winners in each category, along with the impressive women within the shortlist and the entire field of nominees."

The full list of winners can be found on the UKRC's website – [www.theukrc.org](http://www.theukrc.org).

Joseph Winters, Senior Press Officer, Institute of Physics

[On 30th March Professor Dame Athene Donald spoke at an L&SE branch meeting, see issue 5 (April 2011) of this newsletter.]

## Communicators Group

**Dr Maggie Aderin-Pocock** MBE, space engineer, tv broadcaster, science spokesperson and well-known physics ambassador to school-age students has agreed to speak at our Summer Meeting (8 June 2011) about her communication experiences and lend her support in launching our early-career Physics Communicators Award.

[http://www.cooltobe.me/cooltobe.me/Maggie\\_Aderin-Pocock.html](http://www.cooltobe.me/cooltobe.me/Maggie_Aderin-Pocock.html)

Communicators Group Summer Meeting 8 June:

**The Psychology of Communicating Science** book at

[http://www.iop.org/events/scientific/conferences/y/11/p/cg/page\\_50831.html](http://www.iop.org/events/scientific/conferences/y/11/p/cg/page_50831.html)

**This e-newsletter has been produced by The London & South East Branch IOP**

**The contents do not necessarily represent the views or policies of the Institute of Physics, except where explicitly stated.**

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## Science Master-Classes for Rickmansworth Pupils

Science and mathematics master-classes have been held in primary schools in Rickmansworth, Hertfordshire, for over five years. There are five primary schools involved in the group, which coordinated by St Joan of Arc Catholic Secondary School. The secondary school also sends four year 10 students to help as mentors to the primary children. Six year 5 or year 6 more able primary children from each school attend the sessions, either in mathematics or science, one morning per term hosted by one of the primary schools.

Sessions are presented by Professor Alan Davies from the University of Hertfordshire and Dr Diane Crann from The Royal Institution of Great Britain, our Hertfordshire Centre Representative. Mathematics sessions include Rainbows, The story of  $\pi$ , Stars and stripes, Chases and escapes, Circles and lines, Anamorphic art and Bubbles. Science sessions include Magnetism, A swinging pendulum, Optics – rays of light and Weather.

The weather equipment was supplied by Invicta Plastics Ltd initially for a Royal Institution Family Fun Day with a theme of weather in August 2010. After its use the master-class team chose to trial the equipment with a group of primary schools in Rickmansworth in one of their termly science master classes. Each of the five primary schools was given the following equipment:- Weather station (ref 080259)- Anemometer (ref 088059)- Weather vane (ref 087559)- Rain gauge (ref 084059)- English weather board (ref 151659).



**Above Left** Rickmansworth Pupils using the equipment to take measurements. **Above Right** Taking Temperature Measurements

The children were all very excited about collecting their own data and bringing it to the master-class. After an introduction to the morning's topic, the presentation was divided into a further four sections: temperature, humidity, air pressure and precipitation, clouds, then finishing with wind and tornadoes. During the master-class the children were all very enthusiastic, willing to answer questions and asking questions of their own. They really enjoyed using data they'd collected themselves and said how keen they were to go back to school to use the equipment again, knowing what all the measurements really meant.

Teachers said how much the children had enjoyed using the equipment and how the masterclass had brought the topic of weather alive, in a much more exciting way than is normal in a school lesson. The session was a very popular one and the schools have requested that it is repeated each year in the series.

Dr Diane Crann, Branch Hertfordshire Representative