



# Lichfield Science & Engineering Society

PATRON

Ian Dudson CBE

H.M. Lord-Lieutenant of Staffordshire

PRESIDENT

Dr Zsuzsanna Nagy

MD, MA, DPhil

CHAIRMAN

Carol Hannam BSc

December, 2015

Dear Member,

Richard Miller Yardley OBE, President 2005 – 2007, Chairman 1991 – 1996 died in September. I am sorry that I have to start another letter in such a sad way but Richard was a stalwart of the Society. He came to lectures to the end and always asked a question which explored and tested the metal of the speaker. We shall miss him and must be thankful that he decided to put so much effort into this Society which we now enjoy.

Happier news is that Committee Member Mark Richards won the regional and national finals of the 2015 IET Present Around the World competition but was narrowly beaten into second place in the world final. Obviously his attendance at LSES events since the age of twelve has done him good, other young Members please take note.

## Monthly lectures

The September meeting very nearly wasn't. Dr Christopher Case, Oxford Photovoltaics, had answered all emails very efficiently up until 2nd September when he disappeared from the radar. Apparently on annual leave until the day before the meeting, we were stalled with a sinking heart! Professor Henry Snaith, Oxford University, saved the day and persuaded not one but two speakers to come and enlighten us on the mysteries of Perovskite. Dr David Moore and Maximilian Höerantner delivered a tandem lecture which explored the history and structure of Perovskite and finished with the cutting edge details of the efficiencies achieved when silicon and Perovskite work together in a solar cell. Researchers in Korea have attained more than 30% efficiency under laboratory conditions. Max's charity supplies electricity, via solar cells, to rural Indian village schools which are not served by the national grid.

There were 139 Members and 5 visitors present.

In October 126 Members, 2 students and 3 visitors made up the audience for Dr John Cassella to deliver his lecture 'Death and Murder – their detection using scientific techniques'. Once again we had a double bill as Dr Cassella brought his PhD student, Georgio Blom, who gave us the details of his research. Both were trying to find means of identifying where a cadaver had lain in the soil by collecting and identifying traces of substances which could accumulate there during decomposition of the body, substances which would remain even when there were no traces of the cadaver left.

December brought us into the main auditorium where we were taken around Sellafield with Matthew Aukett, Systems Engineer. He made us realise just how big and numerous the facilities at Sellafield are and brought to our notice the massive problems looming with the decommissioning of the redundant facilities at the 50 year old plant. We are very grateful that Matthew was prepared to travel through the flooded countryside to deliver his lecture. There were 153 members and 5 visitors in attendance.

May I remind you that recordings of these lectures are to be found in the Members' Area of the website, the password for which is Newton and it is case sensitive.



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### **The 26<sup>th</sup> Erasmus Darwin Memorial Lecture**

Professor Dame Wendy Hall presented this prestigious lecture to an audience of 423, of which 85 were students, after a most difficult journey from Southampton. Dame Wendy was formally trained in pure mathematics but now is more interested in the sociological aspect of Computer Sciences. Through her description of the Evolution of the World Wide Web we were led to realise that it is irrevocably changing our lives. The Web developed from the internet for the sharing of documents and should be a tool for good but the scale and speed with which it has changed aspects of our lives has been phenomenal and there has been a complete underestimation about what people would want to do with it. The capability we have in this country today has been a huge force in the world. The open and free nature of the Web must be preserved, encouraged Dame Wendy, and we must learn how to keep people safe within that environment. Business and governments need to know how the whole digital ecosystem works, whilst the web observatory is encouraging researchers all over the world who are observing the web – the ecosystem we are creating – to share things between laboratories.

Dame Wendy tweeted 'Quite a Gala Evening' and it was!

### **Giant Leaps Forward**

To tweet or not to tweet, that is the question? Or maybe just to twitter for a start. 'Oh no', I hear you moan. I know, but it had to happen. We have been dragged by Mark into the modern age and can now be followed @LichfieldSES

### **Discussion lunch**

Our grateful thanks go to Mary Hutchinson, an Advanced Nurse Practitioner at NHS Birmingham East and North who led this interesting discussion between 21 delegates, on 'Urgent Care Centres – everyday access for unscheduled care'. Mary encouraged us to be aware that we are very well served here with our general practitioner services but to remember that there are places all over the country where people are much less fortunate. In these areas it is essential that the public can access medical care without a huge waiting time. In these centres - some of which have access to GPs, others are nurse lead, some found in the High Street and others next door to emergency departments – quite often the nurse saves the day.

### **Annual Dinner**

Aston Wood sparkled in welcome for 112 Members and their guests as we gathered in October for our annual dinner. We were graced by the presence of our Patron, Her Majesty's Lord Lieutenant of Staffordshire, Mr Ian Dudson, President Professor Rex Harris and incoming President Dr Zsuzsanna Nagy. Rex inducted Zsuzsanna into position after addressing us for a short while extolling the virtues of the Society. He was presented with a Society paperweight to mark his tenure and Vera was given flowers. The speaker, Dr Eleanor Blakelock from Birmingham Museum and Art Gallery, gave a short, snappy account of the Staffordshire Hoard and brought us up to date with the theories that are now held about it and the work which is being undertaken, in an ongoing effort to find out more. Eleanor's particular interest lay in the gold and its composition.

### **Visits**

And I thought an engine was taken, put into a chassis and driven either quickly or slowly depending on whether the driver was Hamilton or me. The visit to Gibson Technology, previously Zytec, put paid to that idea.

Here we saw engines being either built or reconditioned by hand to the exacting standards of their racing class. Bolts secured parts of the engine which would be removed at the end of the race to allow checks to ensure that the engine had not been compromised by cheating. The first



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company to develop an engine for Renault outside France gives a complete package, with their design engineers being mostly English. We were some of the privileged few to see an engine running during a 24 hour simulation of the Le Mans track. It was very noisy in the laboratory, when one door to the engine room was opened it was exceedingly noisy and when a second connecting door was opened it was absolutely deafening. The exhaust pipes were literally red-hot. A whole car, painted and polished to perfection, was there for all to see. It was obviously difficult to get into, but how anyone ever gets out again remains a mystery to me.

At the beginning of December Mitutoyo hosted a second visit, as interesting as the first but this time with mince pies. Twenty Members saw world-class metrology ranging from automatic co-ordinate measuring machines to hand-held digital micrometers which measure down to half a micron.

As reported in previous newsletters, the visit to Coventry Air Traffic Control is very interesting. Many of you have already been there but not on November 5<sup>th</sup>! The views were spectacular, we watched the only plane due to leave during our stay become airborne and once again the staff were eager to talk and to share with us their expertise. Yet another visit took place on December 7<sup>th</sup> and two more are planned for the New Year, which should accommodate all those Members who applied back in December last year.

The application form for next Spring's visits is enclosed with this mailing, return it early please.

### **School lecture**

On February the 10<sup>th</sup> we look forward to filling the studio with students to hear Professor Lambert repeat his lecture 'Rise of the Superbugs: the end of antibiotics'. We have over 200 applications already so there has to be a cull! Admission is by ticket only, so any student out there wishing to attend **must** acquire a ticket from Education Officer Jenny Arthur.

### **In closing**

I hope that you have enjoyed the first term of this year and that you have found interest in the lectures we have organized for you.

Now it is time to take a rest, especially your committee which once again I have to thank for their tireless commitment to pushing us forwards. I wish you all the compliments of the season. Wherever you are and whatever you do, I hope that you are happy and at peace, that you are warm and relaxed and return refreshed to the lecture on Thursday 14<sup>th</sup> January, 2016. Unfortunately the arranged speaker cancelled in mid-December but as soon as we have another speaker on the same topic or a different speaker on a different topic we'll e-mail Members and update the website. If you are one of the few who don't have access to either then please telephone me.

I shall be there, hope to see you.

Carol Hannam  
Chairman