



## **Education and Outreach Report for AGM 2020**

### **Period of Report July 2019 – November 2020**

#### **Kerry Thompson Report – July 2019- June 2020**

When I delivered my last AGM update at MMC in 2019 I honestly don't think I could have predicted how events would unfurl globally in early 2020. The impact of the COVID-19 pandemic has been far reaching and devastating and I would like to take a moment to acknowledge and sympathise with all those in our community and elsewhere that have lost a loved one or someone close to them. We look to the future with hope that the world as we knew it pre-COVID will be able to return. Despite the many devastating aspects of this pandemic, we also should look to the positives that have emerged from within the scientific community. I will discuss these briefly with respect to what the RMS Outreach and Education committee have been involved with, and contributed to, over this time.

Our planned March committee meeting and participation in the Big Bang Festival in the Birmingham NEC was on the eve of the global lockdown. Obviously in-person participation in both were cancelled, and I think we were one of the first sections to have their committee meeting hosted entirely remotely on the Zoom platform, which has now become so familiar to us all. I want to thank everyone for their cooperation and contributing to what was a very enthusiastic meeting. The committee quickly recognised and responded to the need for the provision of material, resources and links to parents, carers and teachers to assist with microscopy and science related activities in the home or in the limited circumstances where teaching in the school environment was taking place. This content was assembled in a matter of days and hosted on the RMS website. I would like to thank all the office staff and committee members, who volunteered tremendously useful suggestions, and for making this happen in such a timely manner.

The creation of links between global research groups and students to share data for collaboration and analysis was attempted and facilitated by the RMS. At a time when many academics were having to rearrange their research and impending summer projects, the RMS helped with the creation of a list of generous academics and groups willing to participate. I would like to thank all who responded to the call and for recognising the difficulty posed for students who were unable to access in-person laboratory projects. The willingness of the global community to work together to proffer solutions to many problems, including the provision of guidelines and suggestions for safe return to microscopy research facilities has been truly commendable, and once again I would like to thank all those in the RMS that collaborated to make these things possible.

I am delighted to report that Dr Sian Culley has been announced as the inaugural recipient of the Chris Hawes Award for Outreach and Education. Chris, who sadly passed away in July 2019, had such a huge influence in this branch of RMS work, and would surely have felt there could be no more fitting recipient of this award than Dr Culley.

Alongside her outstanding research activities, Dr Culley has made many contributions of national and international significance in the education of optical microscopy and outreach, particularly with under-represented and minority groups.

Her most prolific outreach achievement is her conception and realisation of an international database of female researchers to assist scientific and conference organisers in selecting excellent speakers for microscopy events, while maintaining a positive gender balance. This resource, supported by the RMS,

gives the details of more than 360 female researchers working in all areas of microscopy and at all career stages. Viewed more than 10,000 times, it has become the 'go-to' resource for microscopy conference organisers worldwide.

Less public, but equally important, is Dr Culley's engagement in local and national outreach and educational activities. Notably, this includes her role as Ambassador for the 'In2Science' charity, which provides research opportunities to A-level students from disadvantaged backgrounds.

I will now briefly report on our three constitutive pillars -

School Outreach and the MAK's, the RMS Diploma or CPD, and the Public Engagement.

### **1. School Outreach**

Currently, the MAK scheme has been paused as we try to establish a set of guidelines for safe use of the kits and how we can instruct the users to safely clean them. This is to protect both the users and also the equipment from accidental damage caused by the cleaning which would be necessary to prevent the transmission of the virus. Everybody involved with the scheme felt it was of paramount importance to take this time to ensure the safety of those using the kits, delivering them and maintaining them. I would like to thank the office staff, notably Jess Cole who worked throughout the night as lockdown loomed, for managing to ensure the safe return of the MAKs from schools into temporary storage. Despite this, the scheme continues to develop and grow and remains very popular. The current estimated number of children who have gained access to a MAK in the UK stands at roughly 117,000. We continue to work with County Print Finishers who do a wonderful job carrying out the restocking between visits to schools and maintain the essential quality and assurance checks to the highest level. Our partner academic societies (the Primary Science Teaching Trust, The Microscopy Society of Ireland, and the Scottish Microscopy Society) continue to avail of and participate in the scheme. In January 2020 the Microscopy Society of Ireland forged a new partnership with the Irish Bee Conservation Group. The MAKs will be part of an educational programme developed in conjunction with the partners to draw attention to the need for biodiversity, and its continued importance within our society. The programme also runs successfully internationally in Malaysia. All partners continue to provide invaluable feedback to the scheme and help immensely with the provision of education in the field of microscopy to junior scientists.

### **2. RMS Diploma**

The RMS Diploma continues to be popular and there are now six candidates (Chaired by Susan Brookes and reviewed by the Education subgroup). I would like to personally congratulate Jennifer Simpson on her RMS Diploma which will be officially presented at mmc2021. We have one new international application and a couple of candidates nearing completion. Again, this would not be possible without the support of the many mentors and external staff who contribute to its continued success.

We still await an update from the Science Council on licensing mechanisms and formats, for accreditation of the Diploma for Registered or Chartered Scientist Status.

I'm delighted to say that eight summer studentships were awarded to high calibre projects this year. Two projects each were funded under the Biological, Physical and Multidisciplinary fields. Due to the restrictions with access to many research facilities, the committee encouraged the

successful student applicants and their principal investigators to reformat their projects to ensure that research activities could still go ahead. We have drawn up new, clearer guidelines for the submission of the end of project reports and I'm looking forward to seeing the reports in infocus in the editions to come. To those who were unsuccessful this year, I would urge you to apply again next year.

This year the RMS training events, both long existing and newly proposed by the Training FIG, have been placed on hold or rescheduled until it is safe for researchers, students and staff to run these courses. We look forward to their resumption but in the meantime, we will continue to promote the wonderful online workshops and resources that are being provided and delivered by the microscopy and bio/image analyst communities including Neubias. We will be meeting shortly and starting to look at future courses and various virtual trainings.

### **3. Public Engagement**

The committee participates yearly in many public engagement events and science festivals. This year, as previously mentioned, we were due to attend Big Bang at the NEC so we hope to be back and represent the society with a bigger bang next year. Prior to that committee members participated in the following:

- Scientist for a Day at the National University of Ireland Galway
- Nottingham Festival of Science and Curiosity

Again, a huge thank you to everyone who was giving of their time and enthusiasm.

Finally, I will be leaving the committee in the capable hands of the new interim Chair Dr Alex Ball of the Natural History Museum London, as I go on maternity leave. I hope to see you all again at MMC2021 when, hopefully, the world has started to go back to how we once knew it. I would like to again thank all the members of this vibrant committee and all the RMS staff, who continue to be such wonderful support and a fantastic team to work with. See you in 2021.

### **Kerry Thompson**

#### **Alex Ball Report – June 2020 – November 2020**

First of all I would like to congratulate Kerry on the birth of her son, Theo. I wish her a joyful and restful maternity leave, with as few sleepless nights as possible! We look forward to her return next year.

Meanwhile, Dr Chris Hammond has offered his resignation from this committee after many, many years of tireless effort, tremendous support and very practical help and advice. Chris repairs the microscopes in the Microscope Activity Kits and has been instrumental in bringing much of the committee's ideas and initiatives to fruition during his time with us. On a personal note, Chris taught me on the RMS light microscopy school in Leeds and I have fond memories him guiding us through the "ginnels" on our way down to a very enjoyable tour of Leeds' architecture and hostelryes. We will be very sad to see him go, but no doubt he will continue to serve the wider RMS with his invaluable knowledge and expertise.

### **Update on the SEM**

Over the past few years James Perkins and I have been exploring the possibility of obtaining a portable SEM to use for education and outreach. We've had a few false starts and disappointments on the way, but this year we finally secured the prize!

At the end of May James and I were asked to put together a proposal for the Hitachi Global STEM outreach programme. We were able to reach out to contacts at the Institute for Research in Schools (IRIS) and the Angela Marmont Centre for UK Biodiversity at the Natural History Museum and to put forward a proposal which combined Research in Schools, Education, Citizen and Amateur Scientists and Outreach. Our proposal is rather simple, that the SEM be housed in the NHM, supporting Citizen and Amateur scientists and be available for loan to outreach projects during the school holidays, but in term time it should be available for loan to schools to support Research in Schools and STEM teaching. IRIS would provide assistance with matching schools to the project, the RMS would provide logistical assistance with shipping the SEM to schools and James and I would reach out to colleagues across the RMS for engagement with the programme.

Barely a month later we were to find out that our application had been successful and that the SEM was on its way. Since then James and I have been frantically preparing the ground and have put together a pilot programme occupying the SEM from September through to April of 2021 with schools already queued up for the post-pilot phase. Clearly we had been doing something right as at the end of October Hitachi informed us that a second SEM could be made available to the UK programme if we could submit a revised project outline. This was duly submitted and we found out at the beginning of November that we have secured a second SEM.

In this COVID-19 landscape, portable SEM plays a unique role in outreach as the microscopes are networked and can be accessed remotely from simple laptops or Google Chromebooks and can be linked to schools digital whiteboards for classroom activities. Hitachi's Global STEM programme is mature and resource rich relieving us of much of the stress of conceiving classroom activities and creating work plans and activity sheets. Furthermore, Hitachi provide the teacher training for us, remotely from their offices in California. For James and I this is the culmination of many years of dreaming and scheming and we are both now looking forward to the scheme taking off properly.

**Alex Ball**