

Promoting microbiology in schools and colleges for more than 50 years

CHAIRMAN'S ANNUAL REPORT 2020-2021

Summary

Although intended activities were limited by the effects of the Covid-19 pandemic, the 32nd MiSAC competition for 2020, *VaccAid: Fighting Infection*, funded by MiSAC, took place with an extended closing date which delayed the results being announced until 2021. The 33rd MiSAC Annual Competition for 2021, *Fungi and Climate Change*, was sponsored by the British Mycological Society, though the closing date was also extended. Pages on the MiSAC web site were updated. MiSAC continued to offer authoritative advice to schools, colleges and other organisations in the UK and abroad, including continued collaborations with schools in SE Asia. The Committee was unable to hold face-to-face meetings and conducted business electronically.

Covid-19 pandemic

The normal activities of MiSAC continued to be adversely affected by the Covid-19 pandemic. Although several planned activities were delayed, the 32nd MiSAC Annual Competition for 2020 was completed and the 33rd for 2021 was launched. In place of face-to-face meetings, the routine work of the committee was conducted by e-mail communication.

MiSAC 32nd Annual Competition 2020, *VaccAid: Fighting infections*

The 32nd competition was sponsored by MiSAC, drawing on income kindly provided by the generosity of MiSAC's annual sponsors. The aim of the competition was to increase an understanding among teenagers of how vaccines work and their uses in controlling infectious diseases in children. As a result of the pandemic and the shutdown of schools, and following discussion with many teachers, the closing date for the competition was extended from 6th April to 31st October 2020, a provision used by 30% of the entries. Under the circumstances, and thanks to the resilience of the school community, the response was very satisfactory. The outcome of the judging & the report on the competition is included in this Annual Report.

The object of the competition was to produce information for a social-media web site (*VaccAid*) to explain to teenagers how immunity provides protection against diseases caused by microbes. The entry had to be divided into two equal 'pages'. The first 'page' was to be devoted to the science of the immune response, the different types of vaccine and how they work, with examples of relevant diseases. The second 'page' was to provide more information about one vaccine or group of vaccines chosen from those featured on the first 'page' that is offered to children up to 15 years old. Ideas for suitable areas of information were suggested and examples of relevant web sites and guidance on what makes a good social-media page were also provided. The entry had to be presented on one A3 sheet (or two A4 pages attached side-by-side) and prepared either by computer or hand written.

As usual, there were two entry groups, KS3 & KS4 (Secondary 1/2 and 3/4 in Scotland). The competition yielded 57 group entries from 51 schools (50 in England, Wales and Scotland and 1 in Thailand), i.e. 6 schools submitted entries for both groups. In total, there were 330 separate entries consisting of 134 in the KS3 (S1/2) group and 196 at KS4 (S3/4). This is the first time that the number in the KS4 group exceeded that in KS3. Group entries by no more than 4 members were permitted which enabled a total of 583 students to have the experience of contributing to the competition, 130 of which entered during the closing date extension. Analysis of the results indicated that the later submissions had not gained an advantage from the longer time made available for preparation.

The judging panel consisted of members of MiSAC and Dr Gillian Roberts, a microbiologist and former secondary science teacher. On account of travel restrictions, a virtual judging system was devised that was compatible with MiSAC's limited administrative facilities. Entries exhibited a good overall understanding of the principles, practices and significance of vaccination. Among the wide range of diseases chosen for the second 'page', the two most popular, about one-third each of the entries, were MMR and 3-in-1 or 6-in-1 vaccinations; the next most popular was HPV which was chosen by about one-sixth of entrants. Some entries referred to the concept of herd immunity and several made reference to the controversial views of Andrew Wakefield on MMR vaccination and autism.

Many submissions, both hand- and computer-produced, achieved high standards of presentation, an important consideration because, in addition to assessing the scientific aspects of the entries, the judges look for entries that meet the requirements of the competition. Therefore, it is important for entrants to take careful note of the specifications. Credit was given for designs that were in the style of a social-media web site, presentation of material that is both informative and entertaining for teenagers, and enriched with relevant photographs, diagrams and data. Money awards totalling £1,270 were made to prize winners and their schools, and

several entries were awarded a commendation. Students who did not receive an award were presented with a certificate of entry to acknowledge their work.

It was encouraging to receive appreciative comments from teachers regarding the benefits that students gained from taking part and the interest and enjoyment that was generated. There were reports of the competition being used in virtual learning schemes during lockdown and of other applications such as using the knowledge gained as a basis for later work on *Coronavirus* and engaging students in deciding which entries should be submitted when more than the permitted 10 had been prepared. We also thank teachers for their care in recording full identification details on the back of each entry which eases the task of administering several hundred entries, many of which are the work of several students' joint efforts.

MiSAC warmly thanks teachers for their support and participating students for making the competition a success, and also all concerned for their patience in the long wait for the outcome of the judging. Winning entries can be viewed on the MiSAC web site (www.misac.org.uk).

Prizes and commendations were awarded to students from the following schools.

Key Stage 3 Group: *First Prize* - Jessica Adams & Scarlett Unwin, St Nicholas' School, Fleet, Hampshire; *Second Prize* - Emily Wong, Colchester County High School for Girls, Essex; *Third Prize* - Grace McAlliney, Allerton Grange School, Leeds; *High Commendation for Design:* Marcy Bryce, Jane Curry, Shaneka Hapuarachichi & Rebecca Jennings, St Margaret's School for Girls, Aberdeen.

Key Stage 4 Group: *First Prize (Joint)* - Ivy Gao & Zoe Mosa, Treorchy Comprehensive School, Rhondda Cynon Taf, Soumya Sen, Truro School, Cornwall; *Third Prize* - Olivia Stanbury, King's College School, Taunton, Somerset; *Commendations:* Rose Stafford, The Community College, Bishops Castle, Shropshire; Ben Kittoe, King's Ely, Cambridgeshire; Rachel Cowell, Mariya Josy, Jiya Kuriakose & Aleksandra Pluskota, St Bede's Inter-Church School, Cambridge; Harry Danielsen, Truro School, Cornwall.

MiSAC 33rd Annual Competition 2021, *Fungi and Climate Change*

The 33rd MiSAC Annual Competition is being funded by additional special sponsorship generously provided by the British Mycological Society (BMS) as part of the celebrations of its 125th anniversary. The chosen topic is *Fungi and Climate Change*. Students are required to prepare information for a social-media web site on climate change, aimed at teenagers. A flyer to advertise the competition and provide background information has been publicised; this can be downloaded from the MiSAC web site (www.misac.org.uk). The closing date for the competition has again been extended to 31st October in view of the continued uncertainties surrounding Covid-19 infections. The judging of the entries and award of prizes will occur in the

autumn of 2021 and be reported in the 2021-22 Chairman's Annual Report.

MiSAC web site

Work has continued with Indent Design Ltd to update the site. The annual competition page now includes details of the prize winners of the 2020 competition, a slideshow of their entries and a report of the outcome of the judging. The Copyright web page, stimulated by publication of the 50th Anniversary Articles Collection, has been updated to emphasise that MiSAC publications are Open Access articles and published under the Creative Commons Attribution, Non-Commercial, No Derivatives License: CC-BY-NC-ND.

Advisory work

The Chairman referred an enquiry on the use of microbiology in industry as part of applied science coursework on biotechnological industries to *MiSAC Practical Activities 1: Microbial technology*. He advised CLEAPSS on an enquiry about studying soil microbes by reference to the principles of appropriate culture methods with particular reference to *MiSAC Practical Activities 2: 'Pick your own' soil bacteria*. In a new overseas development made through the NCBE, he had preliminary discussions with a student at the University of Zelona Gora, Poland who is undertaking a PhD on biotechnology education in UK schools.

The Treasurer expanded her work in SE Asia which led to a request by the SE Asia Ministries of Education Organisation (SEAMEO), which is part of UNESCO, to draw up a Memorandum of Understanding with MiSAC at its STEM Education Regional Centre in Bangkok. The project involves an invitation to develop projects for use in Thailand and other SEAMEO Regional Countries, by designing and delivering a microbiology workshop to enable hitherto-untrained university lecturers to train secondary school teachers. As the planning of such a course has been severely affected by the pandemic, the Treasurer has been asked instead to arrange a series of webinars or videos aimed directly at school teachers, based on the MicroCamp which was run in 2017. The aim is to produce units on different types of microbes and their useful products and handling microbes safely in the classroom. The final video will involve a competition along the lines of the MiSAC Annual Competition which the Treasurer has promoted for several years in a number of SE Asia countries.

Future activities

The judging of the current 33rd MiSAC Annual Competition *Fungi and Climate Change*, kindly sponsored by BMS, will take place in the autumn. The topic for the 34th Annual Competition for 2022, sponsored by MiSAC, will concern the microbiology of food & drink production and preservation. The flyer to advertise the competition, titled *Microbes made my lunch*, is under preparation.

As far as possible, some activities intended for 2020-21 that could not take place because of the effects of Covid -19, will be reinstated. E.g., a microscopy workshop for teachers and technicians, arranged in association with the Quekett Microscopical Club, and contributions to the forthcoming Association for Science Education Annual Conference.

Finance and sponsorship

MiSAC finances remain relatively healthy, thanks to prudence in expenditure and the much-appreciated increased support from its annual sponsors:

- *British Mycological Society (BMS)*,
- *CLEAPSS*,
- *Microbiology Society (MS)*,
- *NCBE*,
- *The Quekett Microscopical Club (QMC)*,
- *SSERC*.

Their generosity provides an annual financial contribution, meeting rooms and laboratory facilities.

MiSAC had limited expenditure this year because of cancellations caused by Covid-19. Costs to sponsors of the annual competition have been reduced by requiring schools to print the certificates that entrants receive. This was reported last year, and appears not to have caused any problems with participants. It will therefore become the standard procedure.

The annual return was made to the Charity Commissioners.

MiSAC Committee

Rachel Exley, University of Oxford, came to the end of her period as the representative of the Microbiology Society (MS). Tansy Hammarton, University of Glasgow, has recently been appointed to take her place. Rachel made a very strong contribution to the work of the committee, particularly as co-editor with the Treasurer of *MiSACmatters: 50th Anniversary Articles*, published to celebrate MiSAC's 50th anniversary in 2019. She also promoted the work of MiSAC to the MS membership. As well as adding to MiSAC's existing links with school education in Scotland through SSERC, Tansy hopes to use her special interest in parasitology to broaden MiSAC's range of expertise.

In July 2021, Kate Andrews retired from her position as Head of Professional Learning at SSERC. She will be replaced on our committee as the representative of SSERC by Annie McRobbie, Education Manager for Biology. In addition to thanking Kate for keeping us abreast of developments in microbiology education in Scotland, we appreciate her help in furthering publicity of the MiSAC annual competition.

Committee membership 2020-2021 (with affiliations)

Chairman: John Grainger, MBE
(University of Reading)
Vice-Chairman: John Schollar (NCBE)
Secretary: John Tranter (ASE)
Treasurer: Margaret Whalley (BMS)
Lay members: Nathan Smith (BMS)
Jason Harding /
Ai-Linh Tran (CLEAPSS)
Rachel Exley / Tansy Hammarton (MS)
Phil Greaves (QMC)
Kate Andrews / Annie McRobbie (SSERC)

Acknowledgements

MiSAC is most grateful to its sponsors for their continued support. The generous amount of voluntary time, willingly given by the MiSAC Officers and the other Committee members, is also gratefully acknowledged. In addition, we greatly appreciate the work of the Honorary Auditor.