



ANNUAL REPORT 2017-2018

MATHEMATICAL ASSOCIATION



supporting mathematics in education

President's Report

There are two things that I feel I must say. First how grateful I am to have been elected President of The Mathematical Association. I have had the most wonderful year. It has been a pleasure and a privilege to meet a sample of all the many different people involved in mathematics education in the UK. In travelling around to branches, schools, meetings with groups of trainee mathematics teachers and attending conferences the length and breadth of the country I have met such dedicated professionals and enthusiastic young mathematicians to know and understand that at grass roots, mathematics as a subject is alive and well and in very good hands. But that state of affairs needs to be nurtured intensively, it cannot be taken as a given.

Second, is to hope that in return for such a wonderful year I have been able to give back something to The Mathematical Association and have helped to take it forward to meet the challenges that are posed to professional associations, like our own, in the current climate. Amongst these challenges are the centralisation of education so that control of all aspects is focussed in the DfE; the concomitant isolation of schools, either as individual entities or as members of academy trusts that live and potentially die by their Ofsted inspections; falling membership of professional associations such as our own as teachers find their workloads and the need to fulfil government driven initiatives completely absorbing of their time and energy; and the recruitment and retention of teachers at all levels and in all subjects, but particularly mathematics.

In order to try to get to grips with some of these challenges Council held a Blue Sky weekend on the 17th and 18th of June 2017. A major outcome of that weekend, initiated by my predecessor ennie Golding, was to start the ball rolling on a move to see if it was possible for the five classroom facing subject associations to come together to form a single subject association for mathematics, perhaps ultimately not dissimilar to the Association for Science Educators (ASE). The initiative has been considered positively by the other four associations. All the associations have consulted with their members through a variety of fora. Discussions between the associations have taken place in the forum of Meeting of Mathematics Subject Associations (MMSA) and have been supported by the Royal Society. This will be a long, slow, deliberate and, for some members of the five associations, painful process. Members of each of the associations will need to be consulted at every stage. But there is a prize to be won if this coming together is achieved, a single, independent voice through which to represent to government the views of the profession on



mathematics education policy and the concerns of teachers of mathematics at all levels throughout the system.

Some of our discussion over the Blue Sky weekend focussed upon what I believe in the language of the market is called our “unique selling point”, the fundamental basis upon which we “sell” our association to potential members. For me, the single most important outcome of this discussion was the fact that we are independent of government and tasked with representing the views of our members. This independence is a crucial factor for us in the current climate. In talking with teachers it is not always appreciated that the organisations with which they work on a daily basis are in fact government funded and are there to do the bidding of government. NCETM is funded by government to lead, amongst other things, the current drive towards teaching for mastery. It in turn funds the Maths Hubs to do its bidding. Even the Chartered College of Teaching (CCoT) is funded by government, although for a limited period by which time it must have established itself financially through membership fees. Our independence needs to be something which we trumpet loudly to our potential members.

But the year has seen The Mathematical Association gain the ear of ministers and the DfE. A small delegation from the Joint ATM/MA Primary Group led by Alison Borthwick

had a productive meeting with Nick Gibb, Minister for Schools. Similarly following the 60-second survey of schools concerning the expected uptake of A-level Mathematics and Further Mathematics post the new GCSE, a small group consisting of David Miles, Jennie Golding and myself met with DfE officials to discuss the survey and its outcomes. The agenda for this meeting was ours and we found the DfE in listening mode. In the background to these conversations has been the Smith Report and government papers, Green and White, on the country's industrial strategy. At the very heart of these papers has been mathematics and the desire of government to increase the up-take of mathematics at all levels post-16. Conversations have taken place in many fora, including JMC and BCME, but whether the government is able or willing to listen to what the sector is telling it is another matter.

And one of the things the sector has been saying repeatedly to government is that unless it finds a way to improve recruitment and retention amongst teachers of mathematics, it's very laudable aims re the up-take of mathematics and the consequent benefits for the economic well-being of the country will not be met. It is common knowledge that recruitment targets are not being met. The so-called freeing-up of the market has not seen increased recruitment. Indeed in some quarters it is argued that the very wide variety of routes and sites where initial teacher education/training takes place actually discourages recruitment by appearing to reduce the professional status of teaching as well as being extremely confusing for applicants.

With recruitment so dire, retention is even more important. In conversations it has been said that government is looking at ways of reducing the workload of teachers. Such a reduction cannot come soon enough. NFER research on recruitment and retention shows this to be one of the major causes of teachers across all subjects and age-ranges leaving the profession. I would urge all who read this report to go to the NFER website and look for this research. Teachers of mathematics are in the top three or four subjects in every category, whether it is reasons for leaving or failure to recruit.

But there is more than just workload to be considered. A professional workforce needs to be treated professionally and that means a right to subject orientated in-service professional development and to be able to attend that professional development wherever it may take place. NCETM and the Maths Hubs network would argue that they provide such professional development, but not all schools work with their local hubs and amongst those schools that do, release from school to attend is often difficult if not impossible to arrange. Having made an individual school the unit of the education system, one should not be surprised if some of those units choose to make decisions in keeping with what they see as their own best interests rather than the greater good.

I wrote at the beginning of this report that the grass roots of mathematics education were in good health but that state of affairs could not be taken as a given, it needed to

be nurtured intensively. We, The Mathematical Association, must be the independent guardians of mathematics education. We must work hard to nurture our subject and be prepared to speak directly to government about vital issues such as the recruitment and retention of teachers of mathematics, the need to reform the recruitment process, reduce teachers' workload and ensure the right of teachers to subject orientated professional development throughout their teaching careers. No small task but collectively one that I am sure we are up for!

Tom Roper (President 2017-2018)

Chair's Report from Council

This is my third annual report as Chair of Council and it is briefer than last year! It has been a busy year but one which I have enjoyed immensely and I treasure the support of my colleagues, without whom The Mathematical Association would not flourish.

Council met four times since the last AGM, in June, September, December and March. In between those times Standing Committee met four times to deal with any unexpected business, or items that Council delegated to them.

Membership is always a concern. Renewal notices were sent out on February 1 to those who had not renewed and a further reminder was sent out early in April. We would be delighted if each member could encourage someone to join during the coming year: membership is the life blood of our association and we need fresh blood so that we can keep up-to-date with current thoughts and needs.

The MA continues to work with the ATM. Over the past four years we have worked closely together on BCME9 under David Martin who chairs the BCME Committee of the JMC, of which I am the Secretary. Marcia Murray and Bill Richardson are also on this committee. Cherri Moseley has written a report on BCME under her role as Chair of Conferences and this appears elsewhere in the Annual Report. Next year there will be just one joint conference from April 15 to 18 2019 at Chesford Grange, Warwick: *Mathematics, Collaboration, Creativity*. We work closely with other organisations as well as the ATM and there was a meeting at BCME9 for MA members to express their views about the possible formation of a single subject association.

The various committees are a vital part of the MA. Reports on their activities can be found in this Annual Report.

Based on suggestions received by members last year we invited Professor John Horton Conway and Professor Hugh Burkhardt to become Honorary Members. At the March 2016 Council meeting it was agreed that we have a procedure for appointing Honorary Members and so once again I had great pleasure in asking members at the AGM for written proposals that include a case made for their suggestion, to be received by 15th May so that Council can consider and make its decision at the June Council

meeting. An "Honorary Member" is 'any person who has made a distinguished contribution to mathematical education or who have provided outstanding service to the Association'. So, suggestions are welcomed at any time, but will be considered each June.

There are quite a few changes to Council this year. Rachel Horsman is now timed out as Chair of Teaching Committee. Julia Brown is timed out as Chair of Professional Development and takes on the Chair of Membership. Chris Pritchard moves from Secretary to Member without Office to replace Barry Lewis. Jennie Golding takes on the role of Secretary now she is no longer the Immediate Past President. Michael Fox is timed out as Chair of Publications and Bill Richardson takes on that as acting Chair in the interim. Tom Roper takes a very active interest in MA affairs and moves from President to Immediate Past President. He is succeeded as President by Mike Askew. At the AGM we welcomed Ems Lord as our President Designate, Sue Southward as Chair of Professional Development and Mel Muldowney as Chair of Teaching Committee.

Finally, I have now completed my third year as Chair. It is a great privilege and honour to work with all the MA members and mathematics teachers in one way or another. It has turned out to be even more time consuming than last year but has been both enjoyable and, at times, challenging. My sincere thanks to all members of Council as well as members of all the committees and subcommittees who give up a great deal of their own time preparing for, travelling to and attending meetings and generally furthering the aims of the Association. I should also like to thank Marcia Murray and her staff at HQ for all their support and hard work behind the scenes. Our membership owes them a great debt of gratitude. The force ($F = MA$) is with us all.

Peter Ransom (Chair of Council)

Branches Committee

The Branches Committee met twice during the year, once in October 2017 at HQ and also immediately after the MA Council meeting, again at HQ, in March 2018. At the October meeting reports were received from committee officers and appointments were made to officer roles for the year April 2018 to April 2019. Those appointed were me as Chair, Rob Smith (Vice-Chair), Paul Harris (Secretary), Cindy Hamill (Treasurer) and David Myers (Youth Activities Officer). Discussion then centred on publicity with reference to branches and branch events. The proposal of a branches' committee bursary for the 2018 BCME9 conference was discussed and approved. Branch representatives then gave accounts of their recent events and outlined their upcoming events. The short meeting after MA Council in March consisted of approving the minutes of the October meeting, discussing matters arising and receiving reports from committee officers.

There is a tremendous amount of work done by the local branch organisers. They do this work on a voluntary basis and devote much of their time to ensuring that events happen and run smoothly. It would be a great shame if their work was not given as much publicity as possible. So

we have placed great importance on the regular updating of the Branches section of the MA website, and the Branches section of *MA News*, throughout the year. The editions of *MA News* throughout the year have contained details of many branch events. Email alerts have always been sent from HQ to MA members about upcoming events in their locality. Marcia Murray (Senior Administrator) and her colleagues at HQ, together with David Pountney (*MA News* Editor), have worked with me and done an excellent job in this regard. Details of future branch events are advertised in the *MA E-Newsletter*, compiled previously by Chris Pritchard and currently by Lucy Rycroft-Smith, which is emailed to members each month. Twitter messages about upcoming branch events have been sent out by Rob Smith (Vice-Chair of Branches Committee) and David Miles (MA Treasurer).

There are currently ten MA local branches. The branches are Birmingham, Cambridge, East Midlands, Exeter, Gloucester, Liverpool, London, Meridian (based in Reading), Sussex and Yorkshire. The organiser of Gloucester Branch retired from that role in July and so no events were organised there this year. Seven of these ten branches are Joint Branches with the ATM. The branch locations give a good geographical spread across England. It is a great credit to the local organisers that a total of 29 branch events took place during the year. Fewer events were organised during the Summer Term 2017 partly due to both organisers and delegates preparing for public examinations. Branch organisers are also preparing their programmes for the following academic year during this period. During the year three members of MA Council gave talks to branches. The Council members were Jennie Golding, Chris Pritchard and Tom Roper. There is the prospect of two new joint branches emerging in Sheffield and in Surrey.

David Myers is the Youth Activities Officer on Branches Committee. He was confirmed in this role at the Branches committee meeting in October 2016. David organised a mathematics family problem solving evening in July 2017 for students, parents and grandparents in Hartlepool. The venue for this seminar was High Tunstall College of Science. The evening was very successful and David wrote a report on it which is featured, on page 11, in the February 2018 edition of *MA News*.

Branches Committee continues to try and encourage local branch members to attend Annual Conference. This year branches were invited to nominate members who had never been to an Annual Conference before to apply for a bursary of £499 to cover the cost of one delegate place. Stephen Shackleton, a secondary school teacher based in Leeds, was successful in his nomination and subsequently attended BCME9 at the University of Warwick. Stephen's report of his experiences at the conference is due to be published in *MA News* and elsewhere as appropriate in an attempt to further promote the advantages to members of attending. It is hoped that this bursary initiative will be repeated next year.

In summary the main focus this year has been on giving as much support as possible to existing MA branches. A

number of positive developments have taken place however. The figure of 29 branch events during the year is impressive in the context of Gloucester Branch being dormant for the whole year. As you will know this equates to an average of over three events at each branch. It is hoped that the proposed new joint branches in Sheffield and in Surrey will come to fruition. Updating of all matters relating to branches on both the MA website and in *MA News* was important as was giving as much additional publicity as possible to branches and their events. News of the family problem solving day in Hartlepool may yet inspire similar events elsewhere in future.

Keith Cadman (Chair of Branches)

Conference 2018 – BCME-9

In 2018 the MA Annual Conference formed part of BCME9. This joint conference of many UK Mathematical Associations was held from Tuesday 3rd to Friday 6th April on the main campus of the University of Warwick. The subtitle of the event was *Celebrating Mathematics Education*. It began at 13:30 on the Tuesday and ended at 13:00 on the Friday. Residents had the pleasure of three nights in a pleasant setting. Most delegates were accommodated in two of the nearby University Halls (Jack Martin and Arthur Vick), with some a little further away in Arden. The majority of the sessions took place in the Social Science, Humanities and Rootes buildings. Other conference events took place in the Arts Centre.

The programme was built around six plenary sessions, including Tom Roper's Presidential Address. The opening plenary was given by Professor Sir David Spiegelhalter FRS. His talk was called *Teaching Probability and Statistics in the Age of Data Science and Fake News* and in it he covered a huge range of interesting data sets and possible interpretations.

The second day saw Tom Roper's Presidential Address, *Adventures in shape and space*. This was Tom's swansong as President as his Presidential year finished at the close of the conference. Tom gave a very lively talk looking at many aspects of how mathematics affects life in the real world or sometimes in the unreal world. The highlight for many was a YouTube video which illustrated brilliantly how emperor penguins maintained the correct temperature in the depths of winter in Antarctica.

Dr Vicky Neale, the Whitehead Lecturer at the Mathematical Institute, University of Oxford and Supernumerary Fellow at Balliol College gave the evening plenary, *Closing the Gap: The quest to understand prime numbers*. Linking mathematics with rock climbing, Dr Neale reminded us that if you persevere, you can reach the top. She had us 'roaming the mathematical foothills' showing us the sights of the Twin Primes Conjecture. For those who fell behind or who were not present, all speakers/session leaders were invited to submit an article for publication in the BCME 9 proceedings, so there will be an opportunity to catch up at your leisure in due course.

Thursday saw Ruth Merttens' plenary, *Blocking – Profits and Perils of a Non-spiral curriculum. What we can learn*

from experience, research and scholarship. Practical ways to achieve mastery. Ruth gave her views on the current mathematics curriculum in England and the hot topic of mastery. She reminded us that all our classrooms are diverse, no class of children can all be working at the same level mathematically. She also focused on the need to play with numbers, to get a feel for how they work and to notice what they do. Later in the day, Berinderjeet Kaur gave the OUP Sponsored Plenary, *How the mastery approach works in Singapore secondary schools – what can the UK teachers adopt or adapt?* We learnt a great deal about how the Singapore school system works, with three routes through secondary schooling. The express, normal academic and normal technical pathways do rather call into question our mastery approach of whole class teaching. Effectively, the Singapore schools stream their children through the three routes, somewhat at odds with how the mastery approach is described in England. The DSR (development, seed work, review) instructional cycle was interesting and I look forward to reading about this in the BCME proceedings.

Dr Hannah Fry, Senior Lecturer in The Mathematics of Cities at UCL gave a very interesting after dinner talk. Her focus on human behaviour displayed through some very interesting data sets kept her audience enthralled between the main course and dessert.

The closing plenary was given by Professor Paul Ernest, emeritus professor at Exeter University of the University of Nottingham. His title was *Mistakes Make Mathematics: Errors are Essential in Education*. He spent a good proportion of his plenary showing us how mathematics and mathematics teaching and learning is perceived within our society.

As well as the plenary sessions there were about 300 standard sessions and more than 50 research papers given. The former ranged from semi-formal lectures to very much hands-on activities. The latter were coordinated by BSRLM (British Society for Research into Learning Mathematics). Other events included the popular quiz, a taste of Maths Jam and the various AGMs. The Warwick Arts Centre housed the Publisher's Exhibition and the MA and ATM bookstalls.

The 2019 MA Annual Conference will be jointly badged with ATM and held at the Chesford Grange, Warwick.

Cherrie Moseley (Chair of Conference)

Professional Development Committee

During the year 2017-18 the Professional Development Committee welcomed several new members and managed to appoint a secretary for the first time in several years. We are delighted that Margaret Anthony has taken on this role. The committee met three times formally over the year during each half term break. We continue to look for opportunities to provide high quality professional development for classroom teachers in a climate where there is much competition from other providers such as the Maths Hubs and FMSP (to become the Advanced Mathematics Support Programme on 1 May 2018). These organisations are able to offer CPD at little

or no cost and there is still the challenge of teachers being released during the school day to attend CPD events.

As a committee, we organise our two main conferences on Saturdays so teachers do not need the support of their schools to attend. These are priced at a level where teachers can afford to pay themselves though some are supported by their schools who happy to pay the delegate fee as there are no cover costs associated with Saturday conferences.

Our Annual Scottish one-day conference took place on Saturday 30 September at Stirling University. Tom Roper led the keynote session on 'Mathematics Subject Knowledge, what is it good for?' This was a brilliant talk and set an excellent tone for the rest of the day, which consisted of 16 other sessions from which delegates could choose four. With 104 delegates, we were well short of our best ever delegate numbers (about 175) but were in line with those in 2016. Nonetheless, this event was another very successful one and we are grateful to Bill Richardson for his continued hard work to arrange these conferences.

The Primary Professional Development Day took place on Saturday 11 November at Wycombe High School and we were pleased that Debbie Morgan, Primary Lead for NCETM, was available to come and speak again as she is always very popular. The theme was 'Problem Solving and Reasoning' with Debbie's session focussing on 'Mastering Problem Solving'. There were seven other workshops on the day, from which delegates could choose three. Despite a very slow start to bookings, the last-minute rush meant we had 44 delegates plus speakers; not our best year but better than some of the earlier conferences. The ratings for the day were very high and we had some very positive feedback.

Plans are well underway for the 2018 Stirling and Wycombe events, which will take place in September and October. We are very grateful to our maths colleagues within and beyond the MA who are always happy to support these PD days by leading a workshop.

We were unable to schedule an A level Mechanics day this year, but hope to do so at some point during the next year.

During our October Committee meeting, we had a very useful and positive conference call with Kerry Hamilton from ATM which resulted in an agreement to promote each other's PD activities whenever appropriate. We will revisit this during the year with a view to promoting our Stirling and High Wycombe Events.

I am pleased to announce that Sue Southward, Deputy Maths Hub Lead for Cambridge Hub has agreed to chair this committee from April 2018.

Julia Brown (Chair of Professional Development)

Publications Committee

This committee's task is to oversee the production and monitor the sales of all MA written publications apart from periodicals and publicity materials. The details of our membership are laid down in the MA regulations: at most nine people, two of whom are on the staff of headquarters; the others must be members of the MA. Of these, four of them are ex-officio, holding some other office; but all seven have limits on how long they can serve. We have three meetings a year, at headquarters on Saturdays. Decisions at other times are made by email.

Everything we publish must be in accordance with the aims of the MA; in effect all publications must help in some way to improve the teaching and learning of mathematics and its applications. The profits we make must go to supporting MA activities and can be used to help pay the running costs of the Association.

Our publishing is a small-scale business: all stock is held at headquarters, and all orders are despatched from there; you will not find our books in bookshops. We cannot afford extensive advertising, relying on our catalogue, in print and on-line, as well as mentions in our periodicals. We do have occasional 'mailshots' to relevant groups of schools. Traditionally most of our sales have been to members or the schools where they teach, but we have extended our market by selling through Amazon. We still hold all the stock; Amazon takes the orders and handles the payments. But the orders are still sent out from Leicester. This has improved our sales, but not in any consistent way. Amazon does offer several different ways of handling sales, and we have investigated whether any of these would be better for us; but our monthly sales are too small for any change to be profitable.

After several successful years with new and attractive works that sell well, we have been rather in the doldrums over the past 12 months; some books that we hoped to bring out being delayed. Our best sellers continue to be the GCSE revision cards, and anything associated with the Primary Maths Challenge. Unfortunately for us, some commercial publishers have begun to sell their own version of revision cards, which they can actively market far more widely than we could ever do. There is, of course, no copyright in an idea, and their versions are different from ours. So the challenge is to find some new types of publication from which the MA can benefit.

During the year we heard with great sadness of the death of Sue Waring, who was a long-term member of the committee. Her knowledge of Primary level work was invaluable to us. She was also the author of *Can you prove it*, and the co-author of *Maths adventures with Twoo*.

There were also three resignations.

- Barry Lewis, formerly chair of the committee, had continued on the committee as Publisher, but decided to resign shortly before the AGM. He had professional knowledge of the publishing trade, and we benefited from his wide range of contacts; he also brought valuable ideas on design and marketing.

- Mary Ledwick is timed-out by the eight-year rule. She designed and produced the sets of GCSE revision cards, which have been by far the most successful of our publications since they first appeared. The MA would have been in much more serious financial difficulties without them. More recently Mary produced the *MA Calendar*, devising the mathematical work associated with the photographs that she selected from those submitted by members. She was a mainstay of the committee, rarely missing a meeting.
- I, too, have fallen foul of the eight-year rule. After Barry's period in the chair, I took over somewhat reluctantly, but now find that I must stand down.

I must thank the members of the committee for their work and support, and Carol Mackerness of the headquarters' staff, who kept the show on the road: minuting our meetings, dealing with printers and designers, compiling the statistics that monitor our sales, and dealing with most of the practicalities of our publishing work.

Michael Fox for the Publications Committee

Editorial Board

This is my first report since taking over at the 2017 AGM. With one significant exception, it has been a satisfying year though not without its challenges. The exception which is alluded to was the death in September 2017 of Sue Waring, Editor of *MA News*, after a very short illness. Sue took over in June 2007 succeeding Barbara Cullingworth and she was a loyal and hard-working editor who always gave of her best. She was an example to all and a hard act to follow. We are grateful to Peter Ransom who, as a former editor, produced the October 2017 issue and to Dave Pountney who volunteered to take on the role from February 2018. The first step on which I hope will be a long road.

The MA produces a range of journals for different audiences and with some variation in frequencies. It is appropriate to give a brief outline of each as follows:

The Mathematical Gazette, three issues of 192 pages, audience senior pupils and above, editor Gerry Leversha.

Mathematics in School, five issues of 40 or 48 pages, for teachers of pupils aged 11 to 16, editors John Berry; Chris Pritchard.

Primary Mathematics, three issues of 32 to 48 pages, for teachers of pupils in the primary sector, editors Cherri Moseley; Ems Lord; Vince Trakulphadetkrai.

Equals Online, three issues each a pdf of around 24 pages, for teachers working with special needs pupils, editor Alan Edmiston.

SYMmetryPlus, three issues of around 20 pages, for active young mathematicians, editor Peter Ransom.

Mathematical Pie, three issues of 8 pages, for those interested in mathematical byways, editor Wil Ransome.

MA News, three issues of 12 or 16 pages, for MA members, editor Dave Pountney.

Each of the editors is supported by a production team and sub-editors as follows:

The Gazette: Owen Toller; Nick Lord; Stan Dolan; Tom Roper; Colin Davis; Michael Fox; Andrew Jobbings; Adam McBride; Graham Howlett; Bill Richardson.

Mathematics in School: Grant McLeod; Tina Webb; Helen Oldfield.

Primary Mathematics: Tina Webb.

SYMmetryPlus: Oliver Saunders.

Mathematical Pie: Erik Gooding.

Equals Online: Lucy Cameron; Mark Clark; Peter Jarrett; Mark Pepper; Carol Buxton.

It is very pleasing to be able to report that all editions came out on time.

In addition to the work of those already mentioned, Janet Powell continues as the MA Advertising Manager. In the current financial climate it is proving harder to sell space in journals but Janet manages to produce a steady income.

As well as being able to say that, overall, processes were smooth, it is good to report some innovations. The main one is that, whilst retaining its paper issue, *Primary Mathematics* is available as a PDF as an alternative. To access it, members with a primary subscription, need to log on to the members area of the MA website and, lo and behold, access is available! It must be emphasised that it is there *only* for members with a primary subscription. We are currently investigating two possible extensions to this. The first is to other journals, with *Mathematics in School* likely to follow during 2018. The second enhancement is, rather than use a straightforward pdf, to use some page-turning software. A less dramatic innovation is to produce single sheet flyers for particular issues. This began with the March 2018 *Gazette* for which a sheet listing its contents complete with the digital object identifiers (DOI) which point to the online version managed by CUP and was followed by a flyer for the bumper issue of *MiS*. As well as providing information on one issue, each of these provides some information about items in the next issue to tempt those who do not subscribe.

So I wish to close with heartfelt thanks to all the editors and their teams for all the hard work they did in the past year and for all they will do in the months ahead. Should you have any comments or questions about our journals do please e-mail me on Editor-in-Chief@m-a.org.uk or write to me care of MA headquarters.

Bill Richardson (Editor-in-Chief)

Primary Mathematics Challenge

We were pleased to see an increase in uptake of the PMC this year. 1689 schools took part. We were pleased with

the spread of results for the November paper. 33% scored 16 or over and 74% scored 11 or over. (See below.)

Mark	0-5	6-10	11-15	16-20	21-25
% of pupils	3	23	41	23	10

We made a policy decision to increase the number invited to take part in the February Bonus Round, inviting 3291 pupils.

From the Bonus Round OMR sheets which were received in time to be entered into the February results, the distribution is shown here:

Bonus Round Marks

0-5	6-10	11-15	16-20	21-25
0	6	42	45	6

We decided to increase the proportion of award winners, so this year we awarded: 1016 bronze, 644 silver and 166 gold awards. The award winners receive lapel badges, which children can wear and display. Teachers tell us that they love them!

The website works well for schools ordering on-line. Earlier difficulties seem to have been ironed out and it now works very smoothly, making things easier for schools and for the MA office.

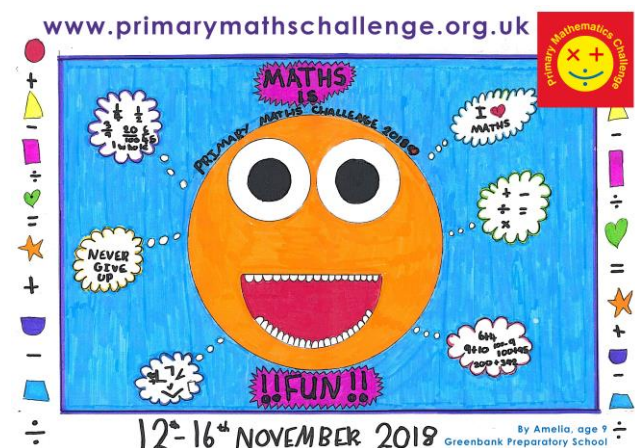
We have recruited new members to the problem solving team this year, but we are always ready to welcome enthusiastic younger members to the team.

Alex Voice works very hard to produce the papers each year. The triple fold layout has made it easier to fit in 25 questions with more generous spacing.

We have produced Problem Cards for classroom use which will be included in the MA publications before too long.

The team at MAHQ have, as ever, given tremendous support to the work of PMC. The feedback we receive from schools is very positive, with MA staff being praised for their courteous and helpful service.

Lesley Jones (Chair of PMC Management Team)



Library Committee

Wittgenstein Archive of Francis Skinner

Some progress towards a complete published edition of the Archive, edited by Professor Gibson, has been reported both by Gibson, himself and by an editor at the publisher, Springer. Difficulties causing delay have been identified but the promised copy for The Mathematical Association approval before permission to publish has still not been delivered.

Donations and Duplicates

Two donations of books to the Mathematical Association have yielded eighty new titles for the Library: 59 books from the late William Hall via his son Alan and 21 books from the late Sue Waring via Ray Huntley. Duplicate books from Sue Waring were added to the existing stock at MA HQ and around £50 has been raised by offering these books at local meetings in exchange for donations to the Library Fund. A Saturday morning joint MA/ATM meeting attracted over a hundred teachers and the duplicates included, for Library advertising, some not-for-sale rarities from the John Hersee Room collection. Duplication from the Hall collection was avoided by the use of photographs of the spines of over two hundred and fifty books on offer and located initially in Cumbria: a novel and labour-saving alternative to listing.

Relocation, Conservation and Cataloguing

Following the closure of an external library store, 55 MA books (published 1800 – 1850) have needed relocation. 42 books have been moved to the Special Collections, and 12 of these have received conservation work at a total cost of £370. 8 books have been returned to the open library shelves and 5 books have been added to the John Hersee Room collection at MAHQ. The editing of University Library catalogue entries has followed these movements. In addition, the listing of Special Collection books on the MA website has been updated.

Research Links

Through the internet, research interests in the MA Library have generated some unusual attention for the MA Librarian: Professor Rodney O'Donnell (Australia) researching the economist John Maynard Keynes; Professor Ann Colley (USA) researching the poet Samuel Taylor Coleridge; and Laura Greenstreet (USA), a relative investigating the life of William John Greenstreet (1861 – 1930), a towering figure in the MA history. Professor Colley's work included a two-day visit to the Special Collections including perusal of nearly forty manuscript copy books from the John Hersee collection, plus half a dozen selected books from the John Hersee Archive Room collection.

MMSA Development

The future for the MA in relation to all the other mathematics subject associations was raised at the Library Committee's annual meeting on 23/10/2017 and both the Librarian and the Archivist have since emphasised the need to keep and maintain both the MA's Library and the John Hersee Archive Room in Leicester.

Mike Price (Librarian, Chair of Library Committee)

Teaching Committee

As my final year as Chair of Teaching Committee comes to an end, I get the opportunity to reflect on the last twelve months.

Yet again the year has been busy for everyone. The new GCSEs have now been examined for the first time, new A levels are going through their first teaching. Times-table tests are around the corner and Functional Skills has gone through a review/rewrite.

The NCETM Hubs have welcomed more teachers from Shanghai and workgroups now exist for mastery for KS3.

Other organisations have offered a range of commentary including the Numeracy Essentials by National Numeracy and ACME who have released several reports, including one concerning CPD.

The Smith report was finally released. However, the Core Maths Support Programme and Underground Maths sadly, both came to the end of their funding periods.

Teaching Committee has welcomed new members; Sue Childs, Ed Southall and Carlo Rinaldi. We have also said our farewells and thanks to Dean Rowley and Emma Bell.

Teaching Committee, with support from its sub-committees, has responded to a number of consultations. These have included:

- The Primary Assessment in England consultation
- A letter regarding the ending of Underground Maths funding
- Supporting MMSA's response to the Functional Skills consultation

My thanks to all those who contributed to the construction of these documents, whether from the greater TC family or from Council. Our input to consultations is essential and only made possible by active members supporting the work of TC.

Primary Subcommittee Chair Alison Borthwick
tc-121@m-a.org.uk

The primary sub-committee has had a very busy and successful year. Amongst their normal meetings they have also met with Minister Nick Gibb (notes of the meeting can be found on The MA website). It is hoped that this will be the start of regular communication.

In meeting the subcommittee has covered many topics. Over the year these have included: The NCETM view of Mastery

- The big ideas in mathematics
- Foundational Number Sense Project between England and Sweden
- IMPULS lesson study model
- Updates on EYFS
- ACME professional Learning Report
- Cambridge Mathematics
- Handrails in division and algebra
- Updates from STA, including the KS1 and KS2 Expert panels
- Government Primary Assessment Consultation
- Proposal for the future of the MMSA organisations

11 – 16 Subcommittee Chairs Oliver Thomson and Steve Edwards

tc-132@m-a.org.uk

The 11 – 16 sub-committee's 60 second surveys continue to receive praise and several have been picked up by the press, interested in what members have to say.

This year's surveys have included one on teacher workload, one on maths teachers priorities and enjoyment, and one asking teachers to reflect on the new maths GCSE. The MA Calendar is now a firm favourite with members, and as ever the team would be glad to receive photos (in landscape) for inclusion.

The 11 – 16 sub-committee's work is currently centred around further 60 second surveys, The MA calendar and a detailed look at question comparisons between the June and November GCSE sittings.

Some concern has been raised about the ability of independent schools sitting IGCSE. There are suggestions that the language in these exams is easier, and that students in state schools (especially those with English as a second language) are being disadvantaged. The sub-committee is keen to hear from teachers with experience in this area.

Post-16 Subcommittee Chair Anne Baker

tc-129@m-a.org.uk

Again, the post-16 group have been discussing re-sits, grade 3s versus D, and Core Maths. Much time has been spent reading and considering the Smith Report. The group wait with baited breath for the new level 3 support to get up and running.

As ever a huge amount of thanks goes to the subcommittee Chairs and their members, to our small Advisory Group and to Council.

Rachael Horsman (Chair of Teaching Committee)

Membership Committee

The Chair of Membership resigned in November 2017 and the chair was vacant until the 2018 AGM so there is no report on membership this year.

Peter Ransom, Chair of Council

Vacant (Chair of Membership)

Publicity & Media Report

Thanks to the efforts of David Miles and Rachael Horsman, The Mathematical Association has continued to develop its public profile through social media networks. Since the last annual report, our Twitter followers have increased from 12,000 to 15,000 and our Facebook group members have increased from 1,750 to nearly 2,000. It's worth noting the potential impact of the high volume of positive tweets during BCME from David (tweeting on the MA account) and myself (tweeting on my personal account), plus the BCME podcasts I recorded with Craig Barton, which were downloaded by thousands of teachers. I hope that these efforts will attract more teachers to attend next year's joint ATM/MA conference.

Since joining Council in September I have overseen a few initiatives, including the launch of a website to capture feedback and comments regarding the proposed subject association amalgamation, and a new promotion which led to a high volume of book sales when launched in Kettering.

My thanks go to Lucy Rycroft-Smith for her ideas and input regarding publicity, and for taking on responsibility for producing e-News on a monthly basis. I'd also like to thank David Miles for all his advice and guidance, and for continuing to put so much effort into running The Mathematical Association Twitter account.

There is much work to do on the publicity front, and many opportunities to increase membership, publication sales and PMC participation. I look forward to working on new initiatives in the year ahead.

Jo Morgan (Acting Chair of Publicity and Media)

United Kingdom Mathematics Trust (UKMT)

The core activities of the UK Mathematics Trust continue to thrive. Overall, entries for the Mathematical Challenges increased. For those who like details, the specific figures were as follows: Senior Challenge 109 500 (from 2270 schools), Intermediate Challenge 273 610 (from 3351 schools) and Junior Challenge 317 190 (from 4114 schools).

For students who perform well in the Challenges, the follow-up competitions provide an extra opportunity to solve mathematical problems from the Junior Kangaroo and the Junior Maths Olympiad for Years 7 and 8 (and below) through the three papers that make up the Intermediate Olympiad Group and the Grey and Pink Kangaroos for Year 9, 10 and 11 to the Senior Kangaroo and the ultimate challenge of the British Mathematical Olympiad (BMO) and the opportunity to represent the UK in international mathematical competitions such as the International Mathematical Olympiad or the European Girls' Mathematical Olympiad.

As well as the individual competitions, the Team Mathematical Challenges have continued to flourish with over 1300 schools taking part in the Senior Team Maths Challenge. This culminated in a win at the National Final in February for Ruthin School following on from their title the previous year.

The Team Maths Challenge itself has also prospered this year and the final, at which 88 of the top young mathematical teams will battle out for the title, will take place in London on June 18th this year.

The UKMT also produce a set of Primary Team Maths Resources (PTMR) every year, to facilitate secondary schools organising and running their own team events for feeder primaries, and this year's materials will shortly be available for downloading from the UKMT website (www.ukmt.org.uk). The MA's Primary Mathematics Challenge is recommended as an additional enrichment event for primary children in UKMT's instructions for the

PTMR. On behalf of the MA, the UKMT once again marked the Bonus Round of the MA's Primary Mathematics Challenge (PMC) using our staff and optical mark reader and is happy to continue to do so in the future.

Two representatives from UKMT had a stand at BCME and a session was given by the Deputy Director. We also provided three full bursaries and three part-bursaries for teachers and UKMT volunteers to attend BCME.

UKMT has also run or plans to run many enrichment events including Maths Circles (2 day enrichment courses for Year 10 pupils – five of which have happened already this year with six more planned for later in the year) and four National Mathematics Summer Schools.

The Mentoring Scheme continues to support young people to develop their problem solving skills.

UKMT would not be successful without the support of its volunteers and helpers and thanks are due to all who help make it as successful as it is.

David Crawford (MA representative)

The British Mathematical Olympiad Committee

The venue for the July 2017 International Mathematical Olympiad was Brazil. The UK team came away with three Gold medals, two Bronze and one Honourable mention (awarded to a contestant for a complete solution to a question when no medal is achieved); this placed them ninth equal among 111 participating countries. At the Science Museum in September, in celebration of their success, Dr Vicky Neale spoke on "Closing the Gap: the Quest to Understand the Prime Numbers".

At the Balkan Mathematical Olympiad in Macedonia in May 2017 the UK team of six won four Bronze medals. In February 2018 at the Romanian Master of Mathematics competition there were two Silver medals, one Bronze and three Honourable mentions, placing the UK 7th out of 20 teams. The team for the European Girls Mathematical Olympiad in Florence this April achieved a notable success, coming 3rd out of 52 teams, with a Gold, two Silver and a Bronze medal.

The preparation for these international contests was via the British Mathematical Olympiad rounds 1 (in December) and 2 (in January), and the UK Mathematical Olympiad for Girls in October; together with training camps in Oxford, Hungary and Cambridge.

The Summer Schools are now all to be located near Leeds. All the Mentoring schemes apart from the Advanced are to be reorganised so that Junior, Intermediate and Senior form a continuum.

Preparations for the 2019 IMO to be hosted by the UK at Bath continue.

Philip Coggins (MA Representative)

Association Articles and Regulations

These documents can be viewed at:

<https://www.m-a.org.uk/articles-and-regulations>

The Council from April 2017 to April 2018

Presidents

President	Tom Roper
Immediate Past President	Jennie Golding
President Elect	Mike Askew

Officers

Chair of Council	Peter Ransom
Secretary	Chris Pritchard
Treasurer	David Miles

Chairs of Committees

Branches	Keith Cadman
Conferences	Cherri Moseley
Editor-in-Chief	Bill Richardson
Professional Development	Julia Brown
Publications	Michael Fox

Membership
Teaching Committee
Publicity and Media

Joyce Brown (until Nov.)
Rachael Horsman
Jo Morgan (Acting)

Members-without-Office

Ray Huntley	Barry Lewis
Elizabeth Glaister	Rob Smith
Cordelia Myers	Dave Pountney
Gerry Leversha	

The Company Secretary

Bill Richardson

Headquarters

The Headquarters Team during 2017-2018:

Senior Administrator	Marcia Murray
Finance Officer	Linda Medhurst
Membership Officer	Charnjit Seehra
Committees & Conferences	Carol Mackerness
Sales & Marketing & PMC	Alice Hall



THE MATHEMATICAL ASSOCIATION

BALANCE SHEET FOR THE YEAR TO 31 DECEMBER 2017

	Note	2017 £	As restated 2016 £
Fixed assets			
Tangible assets	11	333,288	339,498
		<hr/> 333,288	<hr/> 339,498
Current assets			
Stocks		23,294	25,921
Debtors	13	38,433	56,123
Cash at bank and in hand		186,709	235,825
		<hr/> 248,436	<hr/> 317,869
Creditors: amounts falling due within one year	14	(63,598)	(107,115)
Net current assets		<hr/> 184,838	<hr/> 210,754
Total assets less current liabilities		<hr/> 518,126	<hr/> 550,252
Charity Funds			
Restricted funds	17	6,500	6,500
Unrestricted funds	17	326,826	355,352
Revaluation reserve	17	184,800	188,400
Total charity funds	17	<hr/> 518,126	<hr/> 550,252

For the year ended 31 December 2017, the charitable company was entitled to audit exemption from an audit under section 477 of the Companies Act 2006.

The Council Members have not required the charitable company to obtain an audit for its accounts for the year in question in accordance with section 476 of the Act.

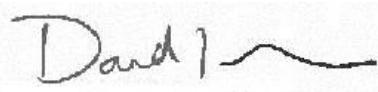
The Council Members acknowledge their responsibilities for complying with the requirements of the Companies Act 2006 with respect to accounting records and preparation of the accounts.

The financial statements were approved and authorised for issue at the Annual General Meeting and were signed on its behalf on 04/04/18.

Signed on behalf of the board of Council Members



.....
Mr P H Ransom
Chair of Council



.....
Mr D Miles
Treasurer

Date: 04/04/18

Charity Number: 1117838
Company Registration Number: 05729264