## ANNUAL REPORT 2021-22

MATHEMATICAL ASSOCIATION


Supporting mathematics in education

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## PRESIDENT

As I came to the end of my term of office as President I gave a lot of thought to the nature of the honour and the associated tasks and responsibilities. In most cases the person chosen to be the next President Designate receives a phone call from the current President after an election is held at the September meeting of Council. I'm sure that the most common emotions of the recipient of that phone call are pleasure and pride. After all, to be President of The Mathematical Association is a big thing! But would they know what is involved? I began to think that it would depend on their background. Was there any guidance on what to do? Perhaps some information was given by the current President in that phone call? There was certainly nothing in writing. So I set about filling that void. This is what I wrote:

Right back to the days of The Mathematical Association's precursor, the Association for the Improvement of Geometrical Teaching (AIGT), we have bestowed the honour of being the President on a respected mathematician, teacher, educationalist or populariser of mathematics, or on someone who falls into more than one category. Past Presidents includes the likes of J J Sylvester, Alfred North Whitehead, G H Hardy, Sir Arthur Eddington, Dame Mary Cartwright, Bertha Swirles (Lady Jeffreys), Douglas Quadling, Sir Michael Atiyah, Hilary Shuard, Geoffrey Howson, Margaret Brown, Sir Christopher Zeeman, Rob Eastaway, Peter Neumann, Marcus du Sautoy and Mike Askew.

On reflection, the category to which I belong, which I'll call 'teacherinsider' is not well represented in these names but certainly in the last twenty years teacher-insiders have been quite common. I'm no mathematician in the narrow sense that I can do very hard sums and since I don't contribute to pedagogical research, I'm no educationalist. It could be argued that I contribute to popular mathematics through my writing but first and foremost I am a teacher of mathematics and an MA-insider. I had led a group in Scotland in the 1990s that fed into the work of the Association's Teaching Committee, I had served on Teaching Committee for eight years before returning to chair it from 2009 and I had served as the Association's Secretary.

## PRESIDENT

I would have been seen as an insider, a known quantity, someone who for over a decade had sat around the Council table and contributed to the discussions that shaped the Association's course.

My predecessor teacher-insiders include Steve Abbott, Doug French, Jane Imrie, Peter Ransom and Bill Richardson, a group who know what a President typically does. Here are those tasks and responsibilities, as I detailed them in 'The Mathematical Association Presidency' document:

The President is obliged to

1. chair the Annual General Meeting,
2. deliver the Presidential Address,
3. submit the Presidential Address for publication in The Mathematical Gazette.

The President is expected to (wherever possible)

1. attend Council Meetings (3-year term; President Designate, President, Immediate Past President),
2. attend meetings of Standing Committee (2-year term; President, Immediate Past President),
3. write an article 'From the President' as the lead article for each of the three issues of MA News during the Presidential year.

But of course, on top of these actually rather few tasks, it is expected that a President will act as a figurehead, be seen, contribute freely and speak authoritatively, and a standard way of doing that is to give a series of talks around the country. This at least was the perceived wisdom prepandemic. When the covid crisis was at its height, face-to-face talks were in abeyance, so my mind had already turned to an alternative, writing an essay a month for The Mathematical Association's website. These essays have the overarching theme of the visual in mathematics. They feature a fair bit of geometry and a lot of history of mathematics, these being my recreational and research areas of interest respectively.

## PRESIDENT

As I write this report, they are just being pulled into a book, Focus on the Visual which begins with my eponymous Presidential Address. Perhaps you'll buy a copy and contribute to the Association's financial health?

Actually, as I took office in April 2021, the covid figures were starting on a downward trajectory. So I did manage, after all, to give presentations in Leeds, Liverpool and Manchester, in addition to some online talks. The last of these in-person talks was particularly memorable because I was greeted on entry by a 50-year old proffering a book and saying, "I believe this belongs to you." Some 32 years earlier, Tom Goodale had gone up to Cambridge to study physics. He'd been doing an advanced course on statistics with me at school and as it came to an end I had handed over my copy of Thomas Kuhn's The Structure of Scientific Revolutions as preparation. On that day in Manchester, Tom had travelled from Liverpool to hear me speak and to return the book, and this proved to be a memorable highlight of my Presidential year. Indeed, if Tom's surprise appearance was trumped at all, only the opportunity to make that phone call to Nira Chamberlain, inviting him to be the 2023-24 President and the privilege of giving the Presidential Address in Stratford-upon-Avon would be in contention.

Of course, the Presidential Address is delivered at the very end of the Presidential year. Whether it is a climax or a swansong depends on your point of view. (Swansongs must be fairly common in Stratford-uponAvon!) As with the essays, my address was on the importance of the visual in mathematics itself and in mathematics learning and teaching, and it was with great pleasure that my wife Audrey and my brother Hugh were able to attend as guests of the Mathematical Association.


Dr Chris Pritchard
President, 2021-22

# Mathematical Visions challenging and inspiring mathematics forall 

## Annual Conference 12 5 - 14 Hiphil 2022



Supporting mathenstics in educstion

# ANNUALCONFERENCE 2022 MATHEMATICAL VISIONS: CHALLENGING AND INSPIRING MATHEMATICS FOR ALL <br> Cherri Moseley Chair of Conferences 

The conference brought together many people with varying interests in the field of mathematics to deliver an engaging series of keynote and breakout sessions on a range of interesting and inspiring topics, including the evolution of mathematics for the future.

## KEYNOTE SPEAKERS



Dr Chris Pritchard MA President



Prof Anne Watson<br>Gannemathswatson



Susan Okereke<br>edothemathsthing

Chris Smith gaap03102



## The conference was opened by Jo Morgan

with her keynote address Strength in Numbers. Jo focused on collaboration in maths teaching. She explored a little of the history of The Mathematical Association, moving on to teachers collaborating by working together to adapt to changes to the curriculum, particularly in recent times. Methods of collaboration mentioned included creating and sharing resources and various sources of CPD such as networks, blogs, webinars and the more traditional courses and conferences, as well as in school CPD. As Jo commented, she has 'benefited from the expertise of others' and she shared some of those links with us.


## The second virtual day opened with Professor Anne Watson

What school mathematics can be ... really. Anne focused on the entry into unfamiliar problems. She was interested in how we approached a problem, asking us to consider questions such as, 'What concepts am I reaching for? How do I choose how to start?' Anne suggested that we might: Wonder before acting; Suspect there are simple ways; Seek and recognise patterns and relationships; Relate wholes and parts; Contemplate similarities; Use conceptual knowledge of differences, operations and distributions; Conjecture about possible effects of actions and Maybe want to make up some questions which are like these. Susan Okereke rounded off Day 2 with Numeracy in the UK and the Importance of Maths Teachers. Susan talked about her work to challenge the negative attitudes to maths in society and her aim to make maths more accessible to people who find maths difficult.

## Day 3 was face-toface in Stratford upon Avon

Opened by Dr Chris Pritchard's Presidential Address, Focus on the visual. Chris informed us that the role of the visual is central to learning mathematics and to teaching mathematics. Visual imagery, whether an external representation or an internal creation of the brain, often guides our attempts to discover, generalise and prove. Chris Smith gave the closing Keynote address, Mathematical (di)visions....and multiplications. This was a real treat. I would not have believed there were so many amazing mathematical songs, nor would I have believed I would hear all the delegates at a maths conference singing enthusiastically, 'Use a ruler, use a ruler,' as the chorus to one memorable song, as we did indeed wave rulers enthusiastically above our heads!

## A WORD FROM THE CHAIR

## - TOM ROPER

2021 WE HAVE MADE EXCELLENT USE OF ENABLING TECHNOLOGY TO PURSUE OUR CHARITABLE AIMS: IN DOING SO WE HAVE:

Successfully delivered our first on-line conference which attracted 1,100 delegates across 3 days and enabled many members who for a wide variety of reasons, for example family commitments, illness, inability to be able to travel, to once again attend an annual conference

Increased the number of schools participating in the Primary Mathematics Challenge and the First Mathematics Challenge, and for the first time, offering an on-line version of each

Delivered a programme of professional development webinars including a series specifically aimed at mathematics education in the area of special educational needs. The Equals team have been very much to the fore in this latter development.

We have increased our membership by 4\% through membership campaigns and our Twitter followers to over 32,000.

In a more traditional vein, we have added a set of A-level Mathematics Revision Cards to our publications portfolio.

We have continued to publish our journals, The Mathematical Gazette, Mathematics in School in School, Primary Mathematics and Equals Online. Members have received a full package publications, Symmetry Plus, Mathematical Pie and MA News. An online newsletter, e-News is circulated monthly to members and non-members.

We have also received a generous legacy donation from Dr. A.E.L. Davis of her outstanding personal collection of mathematics and related subjects books. These have made a significant contribution to the MA Library. Some of the duplicate copies are on sale today at the conference alongside our publications.

## All of this would not have happen without two sets of people.



The first of these are members of Council and I would like to thank them for their hard work and continued support over a difficult year. I have written to thank those who are leaving Council and those who will after election be returning in different roles. But I offer here my grateful thanks to those colleagues.

The second is out office staff without whom none of it would have happened and what is all the more remarkable is that there has hardly been a period in 2021 when the office has not been short staffed either through illness, COVID or staff leaving. So Linda, Alice, Amber and Sandi, please take a bow. You have been magnificent.

Tom Roper<br>Chair of Council

## EDITORIAL BOARD

# AS MY TERM OF OFFICE COMES TO AN END, I CLOSE WITH 

HEARTFELT THANKS TO ALL THE EDITORS AND THEIR TEAMS
FOR ALL THE HARD WORK DONE IN THE PAST YEAR (AND FOR ALL THEY WILL DO IN THE MONTHS AHEAD).


The Gazette continues to have a huge backlog of items. The team of sub-editors and checkers have worked very hard and issues have gone to the printers on time. The online version has been in place within three weeks and can be accessed through the members portal. the Gazette continues to be the most popular MA journal.

Mathematics in School celebrated its golden anniversary in November 2021 with an issue guest edited by Rob Eastaway. In fact the whole of volume 50 was celebratory, with Peter Ransom editing an issue with contributions from Past Presidents and Jo
 Morgan and Ed Southall also taking seats in the editorial chairs. Chris Pritchard and John Berry took the opportunity to look back over the journal's fifty years, and select articles for a book on investigations for Publications Committee (published May 2022). And all this was done whilst the production of the journal moved to Media Shed. The editors have found the change agreeable and the

Mathematical Association has reduced its overheads at the same time.

Primary Mathematics has had 3 issues during the year, edited by Ray Huntley (Senior Editor), Ems Lord (Editor) and Alison Borthwick (Guest Editor). The number and range of articles continues to be good, with contributions from teachers, teacher educators and consultants, and one submission was a joint article by a teacher and pupil. The move to Media Shed for design and production has been excellent and raised the quality and efficiency of each issue.

SYMmetryplus has had a great year. All the deadlines have been met, often with a few days to spare. Contributions from regular authors have been superb, so there is much material in hand, which has helped the production of a balanced magazine each term. A new editor, Oli Saunders, will take over at the start of 2023, as the current editor will then have completed 10 years in post. Oli has been the subeditor for a number of years (thank you Oli!) and has recently started to do some of the typesetting in preparation for


## M EM BERSHIP REPORT

## WE WELCOMED A NEW CHAIR OF MEMBERSHIP,

## JEMMA SHERWOOD, TO THE MA TEAM IN APRIL 2021

Jemma came with great ideas for growth and engagement and plenty of that has been put into practice.

We also welcomed another new member to the HQ team, Marketing and Communications officer, Amber.

Working as a first project, Amber created a membership recruitment campaign that ran for the last four months of the year, during which time we recruited 49 new members. Our membership recruitment rate for 2021 was $86.3 \%$ and the retention rate was $14.7 \%$ (compared to $12.5 \%$ UK average).

These rates show the resources and benefits we offer our members are moving in the right direction. In 2021 we asked members in a substantial survey, what they wanted from their membership, we continue to review and add to the benefits of membership and welcome all feedback to ensure we are giving our members what they want.

A replacement category of membership was introduced in September, replacing NQTs with Early Career Teachers (ECTs), Jemma hosted a webinar specifically for ECTs and trainees titled 'Hints and Tips for ECTs. The intention of this webinar was to provide new teachers with tools and tips to get through the first couple of years in their new job. This webinar was well attended and is also made available for all new subsequent ECT members.

There is still much development planned for the upcoming year, specifically focusing on Institutional membership and getting the benefits right for all our members.

MA on behalf of Jemma Sherwood


## PUBLICATIONS REPORT

THE PUBLICATIONS COMMITTEE HAS HAD ANOTHER BUSY BUT
REWARDING YEAR. NEW PUBLICATIONS IN THE LAST YEAR INCLUDE:


Pritchard, C. (ed.) and Berry, J. (ed.) (2022)

Experiencing Mathematics through Investigations; Ideas from 50 years of MIS.


IF I COULD TELL YOU ONE THING
Southall, E. (ed) (2021)
If I Could Tell You One Thing: A collection of pedagogical insights from mathematics teachers.


Pritchard, C. (2021)
A Square Peg in a Round Hole; Adventures in the Mathematics of Area.

This small but significant list represents a great deal of time and effort not only on the part of the authors and editors but the proof-readers, members of the Committee and HQ staff. The Mathematical Association is extremely grateful to all those who have written and, in any way, worked upon these publications.

They are selling fast and now that conferences are beginning to feature once again, it is more important than ever to have a supply of new and high-quality texts to excite and tempt MA members and new audiences alike.

Jill Trinder stepped into the role of Chair of Publications Committee and completes her first year in post. Jill has been warmly supported by her fellow Committee members for which she is very grateful.

Similar to Jenni Back's book, Hooked on Mathematics, which was launched via a webinar last year, subsequent book launches have continued to incorporate the use of social media and online platforms to reach a wider audience.

This manner of marketing has been enhanced by incorporating publications such as that edited by Ed Southall into this year's Conference thereby further raising the profile of this publication.

The Committee anticipate a busy but rewarding year to come.

## INTRODUCTION OF EBOOKS

Where appropriate, new publications are sold as a bundle of hard copy along with a pdf electronic copy and, for a slightly reduced price, books can be purchased as a pdfonly. This enables the MA to remain responsive to the needs and appetites of its book customers.

The Committee remains keen to continue to offer new and high-quality books whilst remaining alert to alternative options for the development of resources. This flexibility will mean that costs can be managed without sacrificing our access to potential publications.

## EBOOKS NOW AVAILABLE



Download our most popular books from the MA shop
www.m-a.org.uk/shop

MATHEMATICAL ASSOCIATION



## FIRST MATHEMATICS CHALLENGE

The FMC continues to grow from strength to strength as more and more schools are taking part in the Challenge. In 2021 we saw an increase in participation of schools; 314 in 2021 compared to 229 in 2020.

The FMC has been the first Challenge, run by the MA, to go either online or offering a paper download for schools to print themselves. This offers schools the flexibility needed to print and administer the Challenge at a time that suits them. Schools are given the certificates to download and print off for their pupils as they wish.

The Challenge took place between 21st June and 2nd July. This coincided with Maths Week London, who promoted the Challenge in return for us promoting them.

Once again, feedback was overwhelmingly positive, and the FMC team were very pleased to recruit two new members who will provide invaluable feedback for the 2022 Challenge.

We now look forwards to 2022 and hope to build our numbers and get the Challenge out to more and more schools. Our thanks are extended to all members of the FMC team for their hard work and dedication for getting this project off to a successful start.


## PRIMARY MATHEMATICS CHALLENGE

The PMC enters its 22nd Year as strong as
 ever. The covid affect on schools clearly hadn't dampened the enthusiasm of schools and pupils as we saw an increase in pupil participation this year; up from 45 k pupils in 2020 to 56k pupils in 2021

The PMC dipped its toe into online participation in 2020 and we took the decision to keep that going as there was a clear demand, with 15000 pupils taking part online. The online gives the teachers the freedom from marking the papers and they can access the results in real time.

We were glad to see the return of the Bonus Round too. Having cancelled the Bonus Round in Feb 2021 due to the pandemic, we were ready with alternative options for schools. We have now taken the decision that the Bonus Round will remain an online only Challenge.

We invited pupils scoring 19 and over in the November round, to take part int eh February Bonus Round. The scores and efforts of all the pupils taking part were incredible. It showed in their scores, 358 scoring 14-16 (bronze), 935 scoring between 17-20 (silver), and an incredible 400 pupils scoring 21-25 gaining a gold award. This is the most gold awards we have ever given out.

Pupils and teacher alike were understandably very proud, and these scores are a testament to their hard work and dedication in maths.

We now look forwards to 2022 and hope to encourage more and more schools and pupils to take part in the Challenges, as we also continue to adapt and improve the ways in which the Challenges are presented.

We extend a huge thank you to everyone involved in the Challenges, without them and their hard work, they would not exist.

## BRANCHES REPORT

There have been events from the Birmingham branch as well as the London and Liverpool branches. Greater Manchester and Stoke and Staffordshire branches had an event each and Cambridge branch had an online summer meeting. Yorkshire branch and Liverpool branch have their 2021-22 programmes organised with the latter having some popular lectures incorporating both online and 'physical' events as restrictions ease. It was good to see that a number of branches had taken up Chris Pritchard's offer of one of a selection of six talks either online or in person as appropriate.

Altogether there have been fourteen meetings throughout this year, which considering the difficulties faced having come through various lockdowns and restrictions has been excellent.


The volunteers who organise meetings for their local branches deserve many thanks for all the work they do in arranging the smooth running of these events whether they are online or in person. Thanks also goes to those at MA HQ who update the Branches sections of the MA website very quickly and efficiently, the monthly E-newsletter, as well as MA News, of which there are three editions, containing branch news during the year.

Branches Committee had its half yearly meeting in October by Zoom and it was excellent to have members representing newer, as well as more established, branches present. The recently formed Staffordshire and Stoke on Trent branch, as well as the newly renamed Gloucestershire branch, brought enthusiasm and a desire to enthuse others, whilst members from other more established branches were able to offer advice and suggestions, as well as connections to people and bodies who may be able to offer assistance. It was confirmed that someone in the Bristol/Avon region, who had recently joined the MA, was interested in setting up a new branch in the area

The suggestion of joining other branches' Zoom meetings at the present time was also an option given and it was noted that some branch meetings had seen a few extra people attending who would have been unable to otherwise.

The Branches committee agreed it would be good to offer a branches' bursary for the 2022 MA conference online for two days and in Stratford for one day. A recipient was forthcoming at the last minute and their article of the experience will be in MA News as well as on the MA website.

The financial set up of quarterly returns was still causing some issues and Branches have been asked to do these returns so that a full financial picture is available.

Cindy Hamill<br>Chair of Branches

## LIBRARY REPORT

MIKE PRICE

## Donations and Cataloguing:

Cataloguing by the University has resumed and been confined to the exceptional 2020 donation from the late Dr AEL Davis. Of over 400 new titles for the MA, two thirds have been added to the MA Library. The remainder remain boxed at MAHQ awaiting transfer. Another exceptional donation from the late Graham Hoare in 2021 has yielded around 150 new titles for the MA, also boxed and awaiting transfer. A third donation, from John Branfield, has added 80 more books to MAHQ, with 40\% new titles for the MA boxed for transfer. Smaller donations, with no duplicates accepted, have come from Gill Chester for the late Eric Barton ( 7 titles), and Eleanor Graff-Baker for her late father William (4 titles). Mary Walmsley (MA Archivist) is managing spreadsheet listing for all these donations.

Duplicate titles from the donations of Davis, Hoare and Branfield remain stored in boxes and crates at MAHQ awaiting disposal. Efforts to move on some duplicates from Davis have yielded modest results, through internet advertising, the MA 2022 day conference at Stratford, and transfer to the STEM Centre in York. But the bulk remains for moving on to a charity or specialist agency; recycling is a last resort.

## Conservation:

6 books repaired by Charles Nosworthy have been returned to MAHQ and 2 books to the University. 6 books from the Davis donation have also been repaired and returned in 2022.

Research links and Advertising:
The Wiley/Jisc project is near completion. All the digitisation, with metadata additions, has been completed and all the AIGT, MA and Hersee manuscript materials checked and returned to the University and to MAHQ. It remains to advertise and make accessible all this digitised material for the benefit of MA members. This material is currently stored by the University.

Twitter posts to advertise books in the MA Library have gone out for Charles Babbage (died 18 October 1871) and Ada Lovelace (her day celebrated every October); John Keill (born 1 December 1671); Johannes Kepler (born 27 December 1571); Hugo Steinhaus (died 25 February 1972) and Maurits Cornelis Escher (died 27 March 1972). Amber Richardson at MAHQ has ably managed these tweets.

## ASSOCIATION ARTICLES AND REGULATIONS

THESE DOCUMENTS CAN BE VIEWED AT:
www.m-a.org.uk/articles-and-regulations
THE COUNCIL FROM APRIL 2021 TO APRIL 2022:
PRESIDENTS:

| President | Chris Pritchard |
| :--- | :--- |
| Immediate past president | Hannah Fry |
| President Designate | Colin Foster |
| OFFICERS |  |
| Chair of Council | Tom Roper |
| Secretary | Paul Harris |
| Treasurer | David Miles |
| Branches | Cindy Hamill |
| Conferences | Bill Richardson Moseley |
| Editor-in-chief | Sue Southward |
| Professional Development | Jill Trinder |
| Publications | Jemma Sherwood |
| Membership | David Miles (acting Chair) |
| Teaching Committee | Jo Morgan |
| Publicity and Media |  |

## MEMBERS-WITHOUT-OFFICE

Elizabeth Glaister
Stella Dudzic
Nick Wilson
Gerry Leversha

## THE COMPANY SECRETARY

Bill Richardson
THE HEADQUARTERS TEAM DURING2021-2022
Executive OfficerFinance OfficerMembership andChallenges Officer Alice HallMarketing andCommunications Officer Amber Richardson

## The Mathematical Association

Statement of Financial Activities for the Year Ended 31 December 2021
(Including Income and Expenditure Account and Statement of Total Recognised Gains and Losses)

## Unrestricted funds <br> £

Restricted funds £
Total 2021
£

Total 2020
£
Income and Endowments from:

| Donations and legacies | 2 | 7,375 | - | 7,375 | 11,630 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Charitable activities | 3 | 305,067 | - | 305,067 | 243,688 |
| Investment income | 5 | 8 | - | 8 | 2,456 |
| Other income | 6 | 7,215 | - | 7,215 | 6,063 |
| Total income |  | 319,665 | - | 319,665 | 263,837 |
| Expenditure on: <br> Charitable activities | 7 | $(351,164)$ | - | $(351,164)$ | $(363,804)$ |
| Total expenditure |  | $(351,164)$ | - | $(351,164)$ | $(363,804)$ |
| Net expenditure |  | $(31,499)$ | - | $(31,499)$ | $(99,967)$ |
| Net movement in funds |  | $(31,499)$ | - | $(31,499)$ | $(99,967)$ |
| Reconciliation of funds |  |  |  |  |  |
| Total funds brought forward |  | 488,641 | 6,500 | 495,141 | 595,108 |
| Total funds carried forward | 18 | 457,142 | 6,500 | 463,642 | 495,141 |

All of the charity's activities derive from continuing operations during the above two periods.
The funds breakdown for the period is shown in note 18.

