

From accountancy to maths teaching

Charlie Stripp, MBE - MA President 2024 - 2025

I grew up in the late sixties, seventies and early eighties. Like many people from my generation I was the first member of my family to go to university. In those days, university fees were covered by the state and I also received a full maintenance grant.

I went to a large comprehensive school a few miles south of London. Although I didn't realise it at the time, the school maths department was quite progressive and we studied SMP maths for O level and A level. I'm convinced this had a major influence on my attitude to maths. I was fascinated by how mathematical ideas connected and 'made sense', and how I could use the maths I'd learned to work out things I hadn't been taught explicitly, in maths and also in the sciences, especially physics.

My parents grew up during WW2 and, like many people at that time, left school without formal qualifications. I seriously considered leaving school at 16, as many of my friends did, but was encouraged by teachers and my parents to stay on because I was a good student and enjoyed learning, especially maths and science.

I really thrived in the sixth form, taking A levels in Maths, Physics and Chemistry. I was encouraged to try for Oxford and applied for Physics. My school wasn't equipped to help me prepare for the entrance exams in maths and physics, but the headteacher, a Cambridge graduate (though not in maths or science), did provide support for the 'general' paper. This involved meeting in his office each Wednesday afternoon with two other students who were also applying to Oxford. This had a huge impact on me - we were encouraged to read books by authors I'd never heard of, including Plato and PG Wodehouse, and wrote and discussed essays on philosophical questions like 'Is stealing ever justified?' and 'Why should we save the whale?' This ignited an interest in philosophy, history and literature that has stayed with me ever since. I sat 4th term entrance exams and was called for interview, but wasn't offered a place. I was encouraged to try for 7th term entry but was impatient to move on.

My A levels went well and I went to the University of Nottingham to study Physics. I quickly realised I preferred the mathematical aspects and switched to Mathematical Physics. I also got heavily into rock climbing and mountaineering which, along with running, continue to be important to me, though I'm rapidly getting worse at them each year.

I enjoyed my university studies, but had little idea of what I wanted to do after I completed my degree. In the mid eighties it was easy for graduates with good maths skills to get jobs in finance, so I got a job training to be an accountant in Cornwall, where the dramatic sea cliffs meant I could pursue my interest in rock climbing. Soon after arriving in Cornwall I had a serious motorbike accident, which made me re-assess what I was doing with my life. The accountancy firm I was working for were great and kept my job open for me while I was recovering. Learning how to prepare accounts, understand aspects of taxation and business law, and working with local businesses was interesting, and the financial and legal knowledge I acquired became useful to me later, but my heart wasn't in being an accountant - I was missing maths! One of my friends was a student at the Camborne School of Mines and I discovered that I really enjoyed



helping him with maths; that's what first made me think I'd like to become a maths teacher. Eventually, I took the decision to stop being an accountant and enrolled on a post-graduate teacher training programme.

I trained as a teacher of maths and outdoor education at St Luke's College in Exeter and knew immediately that I'd made the right decision. One of my tutors was Neil Bibby. He was active in the Maths Association and encouraged his PGCE students to join. Neil also



encouraged his students to read around the subject and develop a strong interest in maths for its own sake. This reinforced my passion for maths. I still occasionally dip into 'The Mathematical Experience' by Reuben and Hersh, a book that he recommended to me as a PGCE Maths student back in 1989.

My experiences in the classroom and working with the MA

I was teaching throughout the 1990s, first at Colyton, a rural 11 – 18 state grammar school, which taught SMP at GCSE and A level, then at Exeter College, a large FE and sixth form college, which taught the MEI modular A level, then a new and innovative syllabus that incorporated modelling, coursework and use of technology. The maths departments at both Colyton and Exeter College were early adopters of the use of graphical calculators to enhance A level Maths teaching and I made extensive use of them in my teaching throughout the 1990s. Bob Francis, a colleague at Exeter College, was a national expert in their use and provided training for the rest of the maths department. I also used Autograph software and spreadsheets in my teaching. Helping students to understand the relationships between algebraic expressions, functions and graphs is key to developing their mathematical understanding, and dynamic graphing technology is a brilliant tool for helping students to make sense of these relationships. I can still recall the revelation I felt when I first saw the graph of the tangent field of a differential equation in Autograph and how it related to specific solutions.

At both Colyton and Exeter College I was fortunate to have very committed, highly experienced colleagues who shared my enthusiasm and helped me to develop both my teaching skills and my knowledge of maths. At Exeter College, I was encouraged to develop resources and courses, including materials for GCSE resit students, a statistics course for adult learners on an access course for social sciences, a programme to support students making the transition from GCSE to A level, a technology course for students taking the International Baccalaureate and formative assessment materials ranging from foundation tier GCSE resit up to A level Further Maths. While at Exeter College I also became involved in marking maths exams for the International Baccalaureate. For

some of my time at Exeter College I was very fortunate to have Jane Imrie (MA President in 2009), as my head of department.

Through Neil Bibby, in the early 1990s I became involved in the MA Teaching Committee and met Doug French (MA President in 2006), who had a major influence on me. Doug was a hugely committed maths educator and a deep thinker – if you are a secondary school maths teacher and don't have a copy of his MA publication 'The Creative Use of Odd Moments', I strongly recommend you get one – it's full of rich ideas for use in the classroom that provoke curiosity and encourage mathematical thinking. When I first joined the MA Teaching Committee, the other members were all much more experienced than me. As the youngest member of the committee I often found my thinking being challenged and I learned a lot about both teaching and maths.

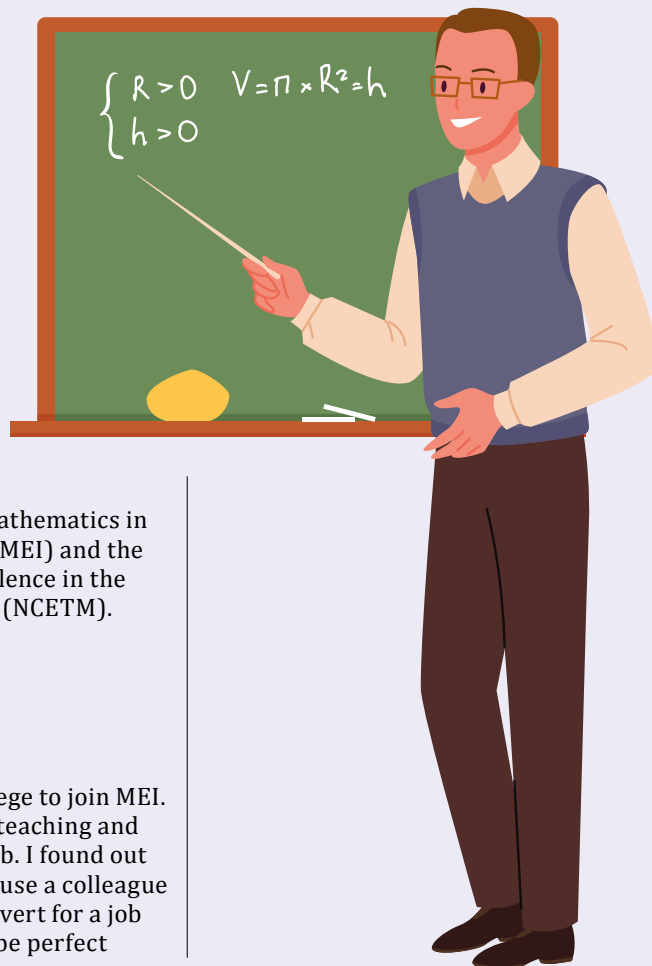
I eventually became Chair of the Teaching Committee and a member of the MA Council. Through the Teaching Committee, I was involved in discussions about curriculum and pedagogy with thoughtful, expert MA colleagues. I was also involved in writing MA publications: 'Pig and Other Tales' (using accessible articles from The Mathematical Gazette as the basis for comprehension activities for students), 'Are You Sure?' (an introduction to mathematical proof), and 'Problem Pages' (enrichment problems to stimulate mathematical reasoning). These experiences widened and deepened my perspective on maths education and were an important preparation for my later work with Mathematics in Education and Industry (MEI) and the National Centre for Excellence in the Teaching of Mathematics (NCETM).

Work with MEI and the NCETM

In 2000, I left Exeter College to join MEI. I was really enjoying my teaching and had no plans to change job. I found out about the job at MEI because a colleague told me they'd seen an advert for a job that they thought would be perfect

for me. A colleague recommending you get a job elsewhere could be taken in at least two ways! The job was to develop and lead a 3-year pilot programme, funded by the Gatsby Charitable Foundation, to enable more state educated students to access AS/A Further Maths qualifications. This was a cause my colleague knew I was passionate about as I'd been working for several years to expand AS/A level Further Maths participation at Exeter College. I applied for the MEI job and was fortunate enough to get it. At that time, A level Further Maths participation numbers were low (around 5k, compared to 15k now) and students educated in the independent sector were greatly over-represented in the Further Maths cohort, while most state schools and colleges did not offer their students the opportunity to study Further Maths. This was clearly unfair and I was keen to find ways to enable more state educated students to study Further Maths. The pilot project involved me in working with schools and universities around England, and in developing the initial prototype of what later became MEI's 'Integral' online teaching and learning platform.

I had intended to work for MEI for three years and then go back to teaching, but the pilot went well and funding was



extended. In 2005, the success of the pilot led to the government providing funding for MEI to set up the 'Further Mathematics Network', which later evolved into the 'Further Mathematics Support Programme' and then the 'Advanced Mathematics Support Programme'. MEI has developed, led and managed these successive programmes continuously since 2005.

Roger Porkess was the driving force behind MEI for many years. I learnt a great deal from him, gaining a much greater appreciation of curriculum and qualification design, the applications of maths and statistics, and the importance of maths education to empower people in their life and work, and as informed citizens. When Roger retired in 2010, I was delighted to be appointed as the next MEI Chief Executive.

My work with MEI has enabled me to gain considerable experience in maths

curriculum development, maths teacher CPD, developing teaching and learning resources, and maths assessment at secondary school and post-16 level. This work has spanned GCSE Maths, A level Maths and Further Maths, GCSE Maths resit and Core Maths.

In 2013, following Professor Dame Celia Hoyles's retirement from the role (a hard act to follow!), I became NCETM Director, whilst continuing as Chief Executive of MEI. This led me to take a proper interest in primary school maths, something I quickly realised I should have done much earlier as it greatly improved my knowledge of how children learn basic mathematical concepts and would have made me a better secondary school and post-16 maths teacher. As NCETM Director I have played a leading role in the development of the Maths Hubs programme and the NCETM's Teaching for Mastery pedagogy.

Government funding for both the AMSP and the NCETM came about as a result of Professor Sir Adrian Smith's seminal 2004 report 'Making Mathematics Count'. I'll say more about this report later.

Throughout my career, I have been, and am, very fortunate to work with passionate and hugely committed colleagues. I think all of us are motivated by common values about the importance of maths and maths education, and the principle that all young people should be able to access an excellent maths education, whatever their background. These values align with the purpose of the Maths Association: *'The Mathematical Association exists to support and promote confidence and enjoyment in mathematics for all.'*

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Plans for my time as MA President

It's both an exciting and a challenging time for maths education.

8



The good news is that the importance of the mathematical sciences (maths, computing, statistics and data analysis) to society - to support economic growth, and help to understand and address global challenges like climate change and pandemics - is appreciated more than ever before. Politicians across the spectrum understand the value of maths education to support individual and national prosperity. The recent announcement of significant government funding (£900 per student) to encourage schools and colleges to offer Core Maths qualifications to post-16 students who have achieved a grade 4 or above in GCSE Maths has removed a major barrier to increasing maths participation to age 18. Furthermore, developments in technology have the potential to enhance maths education in unprecedented ways.

The key challenges, as they have been for many years, are that many people in our society have a negative attitude to maths and maths education; the UK has a chronic shortage of secondary and post-16 mathematics teachers; and we have a poor track record of using technology to enhance teaching and learning in mathematics.

These challenges were identified in Professor Sir Adrian Smith's 2004 report, 'Making Mathematics Count', and in his 2017 'Review of post-16 mathematics'. We haven't successfully tackled them yet, but if we are to develop the maths education provision we need for our country to thrive, we must find ways to address them.

In my time as MA President, I hope to engage maths teachers and others involved in maths education with thinking about how these challenges might be addressed.