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Looking backward, looking forward

2015 Presidential Address

LYNNE McCLURE

Thank you for that introduction, Peter. I'm very honoured to be here talking to conference.

In preparation I have been looking back at what previous presidents took as their theme, and it was usually to do with whatever part of mathematics they were passionate about. Well, I'm passionate about maths too, but there's something else about which I am equally passionate and which I intend to take as part of my theme. So I'm going to break with tradition and deliver an address in three parts.

Let's start with some maths. Could you make sure you have someone to talk to? Move to someone who looks friendly if you're not already partnered up. Here's the task. Could you spend a few minutes getting to grips with it?

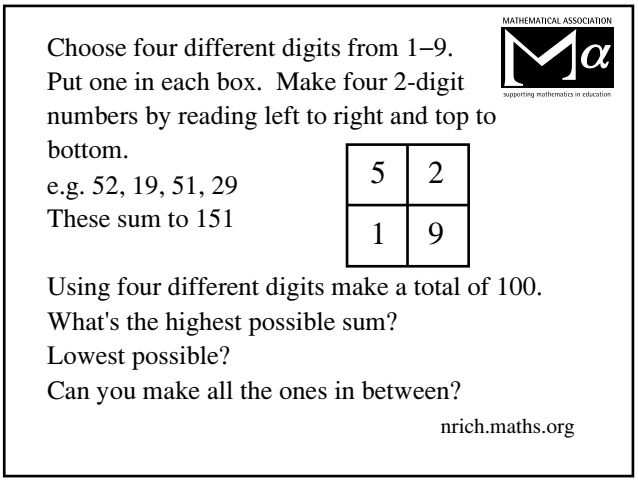

FIGURE 1

Adam, what did you get as your largest sum? 357? Can anyone beat that?

How do we know that's the biggest – could someone justify that please?

What about the smallest? Could someone justify that please?

The task then asks you to think about all the numbers in between – could you spend a few moments thinking about that.

OK so what do we think? Is it possible to make them all? How do you know?

So one of my questions to you is, does this task, and if so how, contribute to fluency and understanding, the theme of the conference? (There then followed a discussion between key members of the audience about the meaning of the words ‘fluency’ and ‘understanding’.)

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The reason I wanted to start with some maths is partly because I enjoy it but partly because I knew that a rich task such as this would provoke excellent mathematical conversations – and that's just what happens at MA conferences. Those interactions are to be enabled and encouraged and one of the best places to do that is at a conference such as this. Which is why it's such a shame that there aren't as many people here as we wish there were. I'll return to that later.

So that's the first part.

I said I had been looking back at the history of the MA and I realised I knew much less than I thought I did. I wonder whether you know any more than me – here's a short quiz. (At this point the questions were displayed and after a short time, the answers.)

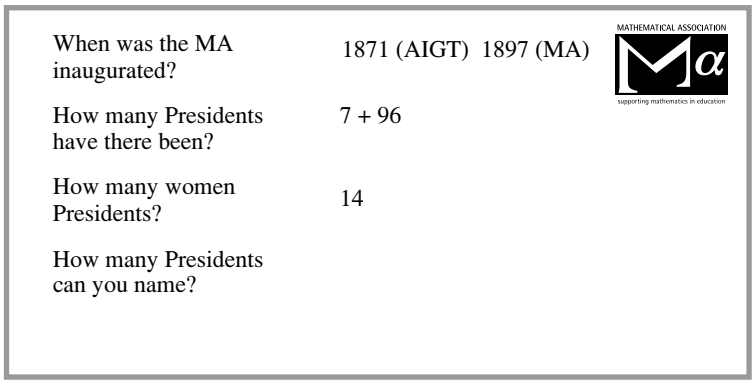

FIGURE 2

What surprised me most was the list of eminent names that preceded me, many of whom I had heard but mostly without knowing very much about them. So I've chosen a few to share and whilst I talk about them, briefly, I'll give you a sense of what was going on in British education at that time they took up office. What is amazing to me is that with few exceptions they were all eminent mathematicians in their own right, but were totally involved with determining how mathematics could best be taught.

When the Association for the Improvement of Geometrical Teaching began (for that was the original title of the MA) primary schooling had just become compulsory. There were many secondary schools for boys, mostly private, but only thirteen girls secondary schools in the whole country. Teaching maths in secondary schools to these privileged students was therefore mostly at a high level. The first president, T. A. Hirst, was a mathematician and a physicist, and later, as with many of the MA presidents, went on to hold high office in the LMS. Both he and Alfred Lodge, the first president of the newly formed MA in 1897, therefore presided over an association which focused both on mathematics itself, and on mathematics education of the more sophisticated kind.

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In 1915 President Alfred North Whitehead wrote eloquently about maths education, counselling against 'inert unconnected ideas' and promoting teaching which concentrated on a few important concepts applied in different ways rather than learning small parts of lots of different topics. He also made it very clear that there had to be a better way of assessing an individual's ability than external tests – the first mention perhaps of coursework. In 1918 secondary schooling became compulsory to 14 so the audience for mathematics changed considerably and the teachers within the MA had to consider students who were less educated and certainly less privileged than previously.

In 1924 G. H. Hardy became president and so some ten years later did one of his colleagues, Eric Harold Neville. This was the era of Ramanujan, Littlewood, Russell – and the MA was a significant part of mathematical society at that time.

In 1944, selection by ability and the tripartite system of grammar, secondary and technical schools was introduced. The MA now had its attention turned to vocational mathematics.

It wasn't until 1951, 80 years after the beginning of the MA, that the first woman, Mary Cartwright, was elected as president. She was a force to be reckoned with and like many of her male predecessors rose to high ranks in the LMS and the Royal Society. Later that decade saw another astonishing president, Max Newman – a mathematician and teacher who contributed greatly to the codebreaking teams during the war, and, in the decade after that, Maxwell, Quadling and colleagues began work on the SMP project. That era saw a lot of changes in the way academics thought about teaching and learning, with the Plowden report, its emphasis on discovery learning, and the structural changes in the education system as comprehensive schools were introduced. Presidents now were those with a higher profile in mathematics education, such as Douglas Quadling, Hilary Shuard, Anita Straker, Margaret Brown. By now the MA was beginning to take a deeper interest in primary education and by 1988, with the advent of the National Curriculum, statutory testing, and the move from O levels and CSEs to GCSEs, the publishing arm of the MA was kept very busy.

And at that time members must have thought that life couldn't get any more hectic. But if we look at the changes that the last ten presidents have had to preside over, it puts all previous decades in the shade! Modular A levels (and ten years later the decision reversed), FMSN, Teach First, the setting up of the NCETM, the Rose and Williams reviews, maths hubs, academies, free schools, changes in accountability measures, yet another new curriculum and finally, all students to be in training or education until they are 18 (and to all study some mathematics).

Such a lot of change for teachers – and the MA is here to help. So why are so few teachers here at conference, and why do so few teachers see us as relevant enough to join us? The MA is lucky in that it has money in the bank. But a secure bank balance and an association with no members means we have frittered away opportunities to do something significant, make a

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difference and secure the future of the MA.

This was the theme at the Council Awayday in June. Lots of excellent ideas came out of the two day meeting and some of them have been implemented. We know that the biggest problem we have is in being way behind the times with our digital strategy and that has become an urgent set of actions, now underway. We set our sights on the next ten years and developed some aspirational aims.

In ten years' time the MA will be:

- An efficient, responsive, transparent and financially viable organization with a clear vision of for whom the MA exists.

We aim to:

- Be first choice for a vibrant mathematics community (locally, nationally, internationally);
- Develop and communicate informed opinions to government and public regarding mathematics education;
- Increase collaboration where appropriate with other relevant organisations;
- Support and enhance teaching and learning including through high quality publications, classroom research, resources and professional development;
- Exploit effectively all channels of communication, including modern technology.

What I'd like to do now, as the third part of my address, is to invite you to feed in your thoughts into the next meeting we will have, one year on.

(Small groups then worked on the following questions and answers were recorded.)

What we do well

- Good community feeling, especially at conference
- Branch meetings
- Good range of journals, *Gazette* being exceptional
- Maths is at the centre of what we do
- Excellent at responding to government consultations
- Conference is always well organised
- The Primary Challenge is well done
- Publications and resources are a high standard
- We enable diverse groups of people to contribute to writing, become involved with committees, contribute to masterclasses etc

What we could do better

- Appeal more to classroom teachers, offer more PD
- Be more up to date, have a higher profile, develop a USP

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- Maintain our membership, work to keep branches open
- Use modern technology eg in paying for conference, website
- Have a more evident voice to the public
- Support more primary involvement.

What are the threats to the MA?

- Dwindling membership
- Age of the existing members (mostly)
- Continuation of two subject associations with same audience
- NCETM and other free PD
- Pressure of teachers so they don't have time/see the need for meaningful PD

What opportunities are there for the MA?

- Amazing historical legacy – make more of this
- Benefit from experienced colleagues
- Involve maths undergraduates, ITE, local authorities, maths hubs, MAST – work with all of these
- BCME is always a good opportunity
- Social media, press releases when we make a response to government initiatives
- Interactive workshops
- PMC – why aren't all the schools members?
- Primary journal – we're the only subject association that has one
- Electronic newsletter

Thank you for your thoughtful input on that. It's good to hear from members about what we need to do better as well as what we are doing well. We will share these at the awayday and develop actions from them. Actions speak louder than words! What actions can you take to support your association?

Not everyone has the time or energy to join a committee or run a conference. But everyone can do something – for example talk about the MA positively, work to secure one other membership besides your own, bring someone to conference, support your local branch or set one up, but most of all get involved to some degree or another.

Thank you for affording me the honour of being your president this year. I have enjoyed it but know there is so much to do to secure the future health of the MA. To Peter Neumann every good wish for an enjoyable and productive year. We'll be behind you!

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