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Peter Michael Neumann OBE

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Peter Neumann was a major figure in UK mathematics during a career spanning over 50 years. His parents, Bernhard and Hanna Neumann, were group theorists, so it was perhaps inevitable that Peter would become a specialist in the same area. A notable occurrence, and a sign of things to come, was the publication in 1962 of a joint paper with his parents which gave rise to the concept of an NNN group. There can be few instances in mathematics of three members of the same family co-authoring a paper. His parents spent many years in Australia and Peter maintained strong links with that country throughout his own professional life.

Virtually all of Peter's career was spent in The Queen's College Oxford, from Junior Research Fellow in 1964 to an Emeritus Fellow of the college on his retirement in 2008. During that time he supervised around 40 doctoral students, many of whom went on to become professional mathematicians while others enjoyed successful careers elsewhere. Teaching undergraduates gave him great pleasure too. Those lucky enough to have small group supervisions with Peter derived the benefit not only of his mathematical expertise but also of his knowledge in other areas. Peter was a stickler for detail and this extended to things like grammar and punctuation. (Otiose spaces at the beginning and end of bracketed sentences or phrases were one of his pet hates.) It was entirely appropriate that the University of Oxford gave him a Lifetime Teaching Award in 2008.

Peter held high office and positions of responsibility in many of the UK's professional bodies for mathematics. He served on the Council of the London Mathematical Society (LMS) in a number of roles, notably as editor of various journals. He also chaired a committee that produced an influential report in 1992 entitled *The Future for Honours Degree Courses in Mathematics and Statistics*, which led to the introduction of 4-year MMath courses (5-year courses in Scotland).

Another string to Peter's mathematical bow was the history of mathematics and he served as President of the British Society for History of

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Mathematics. On his retirement he embarked on a major project to examine in great detail the work of Évariste Galois. The fruits of this research led to a book which will be an essential reference for all those interested in the achievements of Galois during his tragically short life. It also provided a splendid example of Peter's outstanding scholarship.

Peter always had a keen interest in the mathematical education of young people. When the United Kingdom Mathematics Trust (UKMT) was set up in 1996, Peter was a natural choice for its first chairman, a position he held until 2004. His role was crucial in establishing the fledgling organisation and starting the evolution to its current state. From the start, the core business of UKMT has been its UK-wide Challenges. Peter's hope was that the total number of entries would eventually reach one million. That target has not yet been reached but he was perhaps reasonably pleased that the total was increasing towards 800,000. The biggest challenge (as opposed to the Challenges) during his chairmanship was when UKMT undertook to run the 2002 International Mathematical Olympiad (IMO), after The Philippines, which had been the original host nation, had to pull out quite late in the day. Nowadays the IMO is a huge event and various crises had to be overcome. Fortunately, thanks to Peter's hard work, tact and diplomacy, the event was a success and greatly enjoyed by the participants from no fewer than 84 countries. After completing his spell as chairman, Peter continued to be active in UKMT activities such as summer schools, team challenges and the vetting of competition papers. That UKMT is now such a well established and highly respected organisation owes much to Peter's stewardship in the early days.

The Mathematical Association (MA) was delighted when Peter accepted the invitation to be its President in 2015-16. The high spot of the presidential year is the annual conference when the President has considerable input to the programme. Naturally Peter's conference in 2016 was held in Oxford and was most enjoyable. Among other things, Peter led delegates on tours of the Andrew Wiles Building, the new home of the Mathematical Institute of the University of Oxford. He also managed to negotiate favourable rates for accommodation, much to the delight of the MA Treasurer!

It is often said that there is a correlation between mathematics and music. Peter did not necessarily subscribe to that view. Nevertheless he was a talented violinist who would perform at musical evenings which formed part of quite a few conferences. He also liked cryptic crosswords and was astounded that anyone could complete the one in *The Times* without filling in the grid.

Peter received a number of awards in addition to those already mentioned, including the Senior Whitehead Prize from the LMS and the David Crighton Medal, awarded jointly by the LMS and the Institute of Mathematics and its Applications for services to mathematics and the mathematical community. It was not surprising, and a source of great pleasure to friends and colleagues, that Peter's achievements were further recognised by the award of an OBE in the New Year's Honours list in 2008, for services to education.

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Peter passed away a few days before what would have been his 80th birthday. During his long professional life he enriched the lives of many people, not only mathematically but through his consideration and kindness. Many will also have enjoyed social occasions at his home and in college where he was a most generous host. He leaves a legacy of which his family can be immensely proud.

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Peter Michael Neumann – his early years

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Peter was the second of five children born to Bernhard and Hanna Neumann and, though born in Oxford, he spent all of his school life in Hull, starting at Bricknell Avenue Primary School and then getting a scholarship to Hymers College. It was here that he was particularly inspired by one of his teachers, Roger Wheeler, and they remained friends after Peter left and went to Oxford.

Mathematics was always part of the Neumann household, with students from the university being welcomed to evenings of chat, puzzles and fun. In summer, it was not unusual for the full family of seven to spend a fortnight cycling to and from Scotland or elsewhere in the UK so that Bernhard and Hanna could attend conferences. One such was the Mathematical Colloquium organised by the Edinburgh Mathematical Society at the University of St Andrews every four years. As the children grew older, they, too, would attend selected sessions. Music was also part of family life, with several of the children playing different instruments, so that chamber music could be played, or recorder ensembles with descant, treble and even a bass recorder.

For several years the family was split, with Bernhard working in Manchester University while Hanna kept the family going, as well as working at the University of Hull. Bernhard would come back for alternate weekends and the vacations, sometimes by train but often by bike. For Peter's final year at Hymers College, Hanna had also managed to find work in Manchester so the family left Hull but, to finish his schooling, Peter lodged with another mathematical family, John and Beryl Shepperd and their children.

He started his undergraduate years at Queen's College, Oxford, and it was when there that he met and subsequently married Sylvia, also a mathematician. After doing post-graduate work at Merton College he returned to Queen's as a Fellow for the rest of his working life. He and Sylvia had three children, followed eventually by ten grandchildren and their first great-grandchild is a recent arrival!

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