David Monk (1932-2022), Doyen of the International Mathematical Olympiad

David was born in Manchester but grew up in Gatley, Cheshire. He was soon seen to be a gifted child and won a scholarship to Manchester Grammar School. There he excelled in a wide range of subjects and showed a particular interest in languages, studying French Latin and Greek. Although he retained this interest throughout his life, he decided to concentrate on Mathematics. Having gained distinctions in Pure Mathematics, Applied Mathematics and Physics, **he was awarded a scholarship to Trinity College, Cambridge.** Before going up to Trinity there was National Service, for which he was enlisted in the Royal Army Educational Corps, whose members were referred to as "Schoolies".

David went up to Trinity in 1951. He relished the academic challenge and joined various societies, notably The Archimedeans and the Philosophical Society. He gained his BA in 1954 and his doctorate in 1958. His thesis was entitled *The Geometry of Flag Manifolds* and his supervisor was J A Todd.

David's first job was as an Assistant Lecturer at the University of Hull and then in 1960 he moved to a lectureship at the University of Edinburgh where he stayed until his retirement in 1992 as a Senior Lecturer. David was an outstanding teacher whose lectures were a model of clarity with the utmost attention to detail. The solutions to tutorial questions were beautifully produced in his distinctive handwriting and placed in a reading room where students could copy them out (usually in much less beautiful handwriting!).

David enjoyed his time at the University of Edinburgh where, rather than writing research papers, he was able to develop his lifelong interest in mathematical competitions for high school pupils. In 1967 the UK took part in the International Mathematical Olympiad (IMO) for the first time. David was involved from the start, being Deputy Leader of the UK team in 1968. He went on to attend the IMO four times as Team Leader and four more times as Deputy Leader. **Many of the young people with whom David interacted over the years went on to study at Trinity and thereafter embarked on highly successful careers in academia, industry and business.**

David was probably best known for his extraordinary creativity and ingenuity in composing interesting and challenging problems. As recently as 2016, two of his problems were used in the British Mathematical Olympiad. Some of his problems have been used in the Balkan Mathematical Olympiad, the Romanian Master of Mathematics and the Gulf Mathematical Olympiad. However, it was in the arena of the IMO that David achieved international renown. He was the author of 13 problems that were chosen to appear on IMO papers, making him the most prolific composer of IMO problems in the world. (To put this in context, as many as 200 problems can be proposed by participating countries in any year but only 6 are used in the competition.) David's achievements were recognised in 2018 by the receipt of a Paul Erdös Award from the World Federation of National Mathematics Competitions.

David kept a meticulous record of his problems in a little pocket book, again all in his own neat handwriting. One section contains his famous "Background Problems" which were used at the **annual camps at Trinity** for prospective IMO team members. David attended these camps regularly and **he loved being back at his old college.** However,

perhaps the most remarkable section is headed "Problem Ideas", of which there are no fewer than 203(!). Some of these ideas might lead to IMO problems in the future so that David's legacy can live on.

David's marriage to Isobel brought him many years of happiness. Together they indulged his love of travel which stemmed from his trips to IMOs all over the world. Isobel died in 2019 and David's last years were spent in a care home. Although Covid restrictions made life difficult, he showed great resilience and remained as sharp as a tack right up to the end. He loved tackling sudoku puzzles in his daily paper and watching *Countdown* and *The Repair Shop* on television. He was a true gentleman and the essence of kindness.

On a personal note, David gave me my very first mathematics lecture at the University of Edinburgh in 1964. Little did I realise that I was to be taught by a future giant of the Olympiad scene.

David Monk died on 3 October 2022, aged 90.

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