

MIKE HEATHER 1940-2022



Michael Ambrose Heather was born on 25 October 1940 in Southampton, the eldest of three brothers, the younger ones being David and Noel. He attended the King Edward School, Southampton (KES) from 1952-60, during the headship of Dr Stroud.

Michael's education was typically diverse, setting the scene for his later life. Taking an ICI transfer scholarship he changed from Classics and Divinity (Greek Text) at KES to do Physics as an undergraduate at Durham University. He continued with physics, achieving an educational diploma in the subject at Trinity College, Cambridge, before doing his doctorate on 'Gravity Waves in Water' at Loughborough University. He later put himself through the Law Society's exams to qualify and practise as a solicitor in NE England and gained a Fellowship on Artificial Intelligence (AI) and Law at the then Newcastle Polytechnic around 1976, based in the Law Department.

Michael travelled widely around the world during his fellowship, talking on the potential for AI in the emerging technology to handle legal problems and to automate the handling of legal texts. He appreciated the disruption that AI was going to cause in existing protocols but also correctly identified that the technology existing at the time was not adequate to deal with many real-world problems, in spite of the prevailing hyperbole. It was during this appointment that he started his collaboration with Nick Rossiter (NR), then a programming adviser on databases in the Computing Laboratory at Newcastle University, on the handling of the UK Statute Law with a textual database system SPIRES. This project involved many shared lunchtimes, culminating in a prototype application and some publications, including a technical report which was always regarded as one of Michael's favourite milestones [1].

On the completion of his fellowship, Michael was appointed as a senior lecturer in law at Newcastle Polytechnic with special responsibility for Information Technology (IT). He maintained this position until his retirement around 2005. Michael's interests in law extended well beyond IT: ethics, normative theories and jurisprudence. The last of these, the philosophy of law, was a subject he researched and taught to undergraduates. He was popular with students for his challenging approach to all areas of law and his willingness to sit down and discuss problem areas directly with them. He published widely on many aspects of law, including natural language, pragmatics, semantics and syntax, from the 1970s through to the 1990s [2]. His experience with the many problems in describing multi-level systems in all walks of life led naturally into his love affair with abstract mathematics.

Category theory was to dominate Michael's professional life from the late 1980s, when he first became acquainted with such mathematics and sought to apply it to many real-world problems. Typically he first studied with the leading experts in the application of category theory by attending workshops over weekends, such as the 'Logic for IT' initiative given by Harold Simmons and Andy Pitts in the series sponsored by SERC, the Science and Engineering Research Council. Category theory did not advance as rapidly in universal research as many had hoped, including Michael, who attributed this to the continued domination of the subject by pure mathematicians,

resisting attempts to adapt the subject for applications. He was never deterred by criticism, using his experience as a lawyer, to provide a vigorous defence of his approach, or a reasoned attack on others.

He published approaching 300 papers in his time at Northumbria University (promoted from the Polytechnic in 1992), many with his long-term collaborator (NR) [3] but a significant number on his own, involving philosophical aspects of law [4]. He was never happier than writing abstracts, putting over the bare bones of the argument. Often the subject matter of a conference was dissected quickly into a categorical concept. Michael had an internal view of category theory, honed from real-world applications, that was always a valuable source for publications, promoting consistent architectures for difficult subject areas, such as system theory, natural language processing and interoperability.

Far from retiring from research on retirement from his position as a lecturer, Michael opened a new area in his research, that of the work of Alfred North Whitehead, a philosopher who had developed in the 1920s an informal theory of categories, based on process, following on from his failure with Bertrand Russell to construct a coherent formal set theory. Michael was always scornful of what he considered flat set-theoretic solutions and found Whitehead's publications to be a source of inspiration, for their introduction to an informal category theory, pre-dating the formal version of Eilenberg and Maclane in 1945, for their elevation of process as the single substance, matching the arrow of category theory, and for the religious dimension, matching his own beliefs. Michael was a frequent and respected attendee and speaker at international Whitehead events [5], literally right up to his death. Another strong interest was the work of Thomas Harriot, the early English mathematician. He frequently attended meetings of ANPA, where he enjoyed the freedom to present his philosophical views on categories and to debate vigorously all aspects of natural philosophy [6,7].

Mike had strong interests in religion and in charitable activities which led to his commitment to *pro bono* work with the marginalised. This included active support for

the mentally ill, the latter being an area of support he began in his years at KES. He died on 20 September 2022 at Totnes, leaving his Anglo-Swedish wife of 58 years, Elizabeth, sons Stephen and John and 5 grandchildren.

Nick Rossiter

April 2023

References

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