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Book review: 'Are mathematicians human?'

Alan Turing's Manchester

Jonathan Swinton

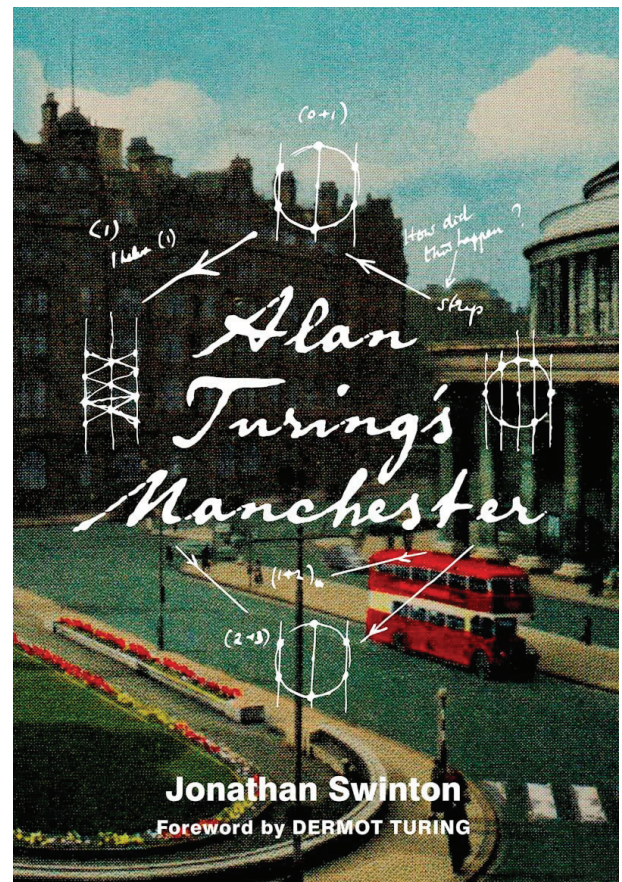
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For many laypeople, Alan Turing is probably the most famous modern mathematician. After all, whilst Andrew Wiles may have offered a proof of Fermat's Last Theorem, his portrait is not to be found on a £50 note, he has not been the subject of a Hollywood movie featuring Benedict Cumberbatch and Keira Knightley, and his name has not been given to the dual carriageway leading to Manchester City's Etihad Stadium. Turing's role in the decryption of the German Enigma code at Bletchley Park during the Second World War, his prosecution for homosexuality in 1952 and the mystery surrounding his death in 1954, all mean that he is now well-known to millions of people, this reviewer included, who may be a little hazy about the exact meaning of Riemann's zeta function or the mathematics of biological morphogenesis.

Turing was born in 1912 and was educated at Sherborne School, King's College, Cambridge, and Princeton University, where he was awarded a Ph.D in 1938. He spent the war years at Bletchley Park, was employed at the National Physical Laboratory in London from 1945 to 1947, where he produced one of the first designs for a stored-program computer and then returned to Cambridge for a year before being appointed, in 1948, as Reader in Mathematics at what was then the Victoria University of Manchester. There he worked on the development of computers and was also paid as a consultant by Ferranti, the Manchester-based weapons and electronics firm. He also continued to publish on more theoretical questions, including the famous 'Turing test' for what would count for a computer to be considered 'intelligent', and eventually turned to research in mathematical biology.

At the time that Turing arrived in Manchester, many academics lived in Victoria Park, to the south of the university, but he first lived in a lodging-house in Nursery Road, Hale, before moving to a semi-detached house in Adlington Road, Wilmslow, in 1950. Two years later the 39-year-old Turing began a relationship with the unemployed Arnold Murray, who was twenty years his junior. When Murray



revealed that it was one of his acquaintances who had burgled Turing's house, Turing reported the crime to the police but his subsequent admission that he and Murray were in a homosexual relationship led to his prosecution for 'gross indecency' and his submission to chemical castration as an alternative to imprisonment. He died in 1954 of cyanide poisoning, with his death being ruled as suicide at the time even though it may actually have been an accident, perhaps as a result of the inhalation of cyanide fumes from an apparatus he possessed which he used for gold-plating. He was cremated at Woking where his ashes were scattered. There is now a statue of Turing in Sackville Park in Manchester and blue plaques commemorating him on the building where he worked at the university and on the house where he died.

Jonathan Swinton, the author of *Alan Turing's Manchester*, is a biomathematician who has 'lived, worked and loved' in Manchester for over twenty years and his lavishly illustrated book is an extremely readable introduction to Turing's time in the city. It is certainly interesting to read of the reaction of those moving from Oxbridge and southern England to the rain, fog and grime of post-war Manchester. For instance, having arrived at Piccadilly Station (or London Road, as it then was) and taken a bus up Oldham Road, mathematician Mary Lee Wood resolved that 'never, never, never' would she live in this 'ugly place', although the offer of a job as a computer programmer at Ferranti's subsequently changed her mind! Turing himself wrote to a friend that he tried to avoid going into 'mucky' Manchester as much as possible although he did take the Canadian physicist, Malcolm MacPhail, whom he had met in Princeton, to see the Barton Swing Aqueduct, which takes the Bridgewater Canal over the Manchester Ship Canal, when MacPhail visited him in 1950.

At times, members of Manchester Geographical Society may have wished for a bit more emphasis in Swinton's book on Manchester as a place. For example, although we are told on page 154 that Turing first met Arnold Murray outside the Regal Cinema on Oxford Road, it is only in an endnote on page 188 that we learn that the Regal is actually now the Dancehouse. Rather than focusing on Manchester as a place, Swinton's book chiefly concentrates on the relationships between the people in the circles within which Turing lived and worked. These included Max Newman, the head of the maths department who

offered Turing a job; Newman's wife, Lyn Lloyd Irvine, who was unsettled at an early date by the prospect of what we now call Artificial Intelligence; and Freddie Williams, the engineer who had built the computer which Turing came to Manchester to use. The intellectual ferment provoked by the development of computer technology is captured by Swinton's description of the seminar organized in 1949 by the philosopher, Dorothy Emmet, who was then the university's only female professor, at which both Turing and Newman spoke and which addressed, amongst other things, the question of whether computers could think in the way that humans did. When Turing claimed that computers would cope with contradictions by backtracking until they identified the source of an error, Geoffrey Jefferson, a brain surgeon and professor of surgery, objected that this was not how humans thought, to which Turing replied that this was certainly how mathematicians thought: 'it was at this point that the murmur "but is a mathematician human?" was heard in the room'.

Those readers wanting a more detailed account of Turing's life will still probably turn to Andrew Hodges's *Alan Turing: The Enigma* (1983), which is the standard biography of him. Nevertheless, *Alan Turing's Manchester* deserves to find a wide audience, including not only those who want to know more about the economic, social and intellectual life of post-war Manchester or about Turing's biography and scientific and mathematical achievements but also those with an interest in the history of a wide range of academic disciplines including maths, physics, engineering, biology, computing and philosophy.

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