A. C. Grayling's latest book claims that the modern mind emerged from a series of events which took place, and ideas which materialised, in the 17th century. The Age of Genius argues that the forces of democracy, secularism, enlightenment and science triumphed at this time over divine-right monarchy, religious faith, ignorance and tradition. This is a familiar thesis; it is essentially a reiteration of the core Whiggish idea of unidirectional progress, which has been successfully unpicked by decades of historians revealing contestation and an absence of preordained conclusions. Grayling's claim, in The Age of Genius, is that Whiggish historians had it right all along. He argues that religion is the enemy of reason, but that a handful of great, male thinkers unshackled the mind from its theocratic chains and thereby freed people to use their reason, understand the world, and develop a modern and scientific world view. This book contains a number of fascinating examples and descriptions, but fails to engage with historiographical developments, cherry-picks evidence from a small pool of authors, and makes numerous generalisations. The result is a simple repackaging of a well-worn and increasingly threadbare narrative.

The Age of Genius is separated into six parts. Part one is a short introduction which sets out the nature of Grayling's argument and provides a few short examples of the sweeping change portrayed by the book. For instance, Grayling suggests that the mindset of the audience observing the first performance of Macbeth in 1606 must have been wildly different from those people who saw Charles I executed in 1649. Shakespeare knew that the former would see the play's killing of a king as an upheaval of the laws of nature, whereas the latter formed a crowd in order to observe a legally sanctioned regicide. This example, however, is unlike the vast majority of evidence used throughout The Age of Genius. The Macbeth/Regicide comparison has, at its heart, an interest in how a significant group of people might have felt, and how they might have intellectually processed events in front of their eyes. By contrast, the preponderance of Grayling's evidence rests on selected quotations from elite authors. This approach is limiting in a work which makes such broad claims about revealing 'the epoch in the story of the human mind' (p. 4).

A key definition offered in part one explains Grayling’s justification for making such broad claims from only intellectually elite sources. He argues that 'The mind of a time is the joint output of leading minds of the time, in the form of their debates, ideas and discoveries. The story of the seventeenth-century mind is
accordingly the story of its leading minds and their interactions' (p. 5). In *The Age of Genius* Grayling makes claims about 'the modern mind' and 'the premodern mind' but the definition of 'mind' in question is restricted by the limited scope of the evidence Grayling considers relevant. The 'modern mind' which Grayling portrays the birth of in this period is not the mind of any individual author discussed in this book, nor is it a generalisation about how large numbers of minds may have been thinking. As the definition of 'the mind of a time' makes evident, Grayling's 'modern mind' is a patch-work of ideas appearing in the works of various elite authors, which were not brought together in the mind of any single individual and were not held by the vast majority of the population. Given these limitations, the reader is entitled to ask if the resulting depiction is indeed 'the mind of the time' or just a miscellany of conceptions with traces in select philosophical treatises.

Following the introduction, which suggests that Grayling's argument hinges upon thinkers and ideas, it comes as a surprise to find that part two (by far the longest section of the book) turns to the Thirty Years War. The given explanation is that 'Among the central facts explaining many of the seventeenth century's transformations and innovations are its wars' (p. 26). The reader might therefore expect that this lengthy section will analyse how the warfare of the period directly impacted changing ideas and produced ingenious technological developments. A considerable amount of space, however, is devoted to straightforward descriptions of battles, sieges, and macro-political events. That is not to say that links are not drawn between military-political events and other aspects of intellectual culture, but those links can be tenuous. Often implying coincidental relationships rather than cause and effect. For example, Grayling segues between warfare and medical innovation by explaining that 'Blood was spilled repeatedly in and because of New York, but the circulation of unspilled blood was not understood until the empirical work of scientist and physician William Harvey' (p. 62). Similarly, Grayling shifts focus to changes in schooling by noting that 'If 1635 was good from the point of view of ending the civil war aspect of the Thirty Years War, it was good for education and learning too' (p. 82). These transitions do not persuade the reader that the Thirty Years War had a relationship with intellectual change, on the contrary the social and philosophical developments seem to form an alternative, unaffected narrative away from the war. Indeed, Grayling seems to hit upon this point when he opens chapter nine with the statement that 'Away from the war history was proceeding along its many separate paths' (p. 89). Nevertheless, Grayling closes Part II with a restatement of his view that 'wars and ideas connect in many ways, directly and otherwise' (p. 114). The most important of these connections, for Grayling, hints towards the real target of enmity within *The Age of Genius*: religion. The Thirty Years War, we are told, 'permanently freed large parts of Europe from the attempted hegemony over thought and enquiry of the Roman Catholic Church' (p. 114).

With part three, 'The cumulation of ideas', one feels that *The Age of Genius* is getting to the mental changes given such weight of importance in the introduction. The first topic of part three – chapter 12, 'The intelligencers' – is the most rewarding section of the book. The chapter begins with an exploration of the man whom Grayling describes as 'the seventeenth century's closest thing to an internet server' (p. 118): Marin Mersenne. The Frenchman's work on mirrors, string tension, mathematical shapes, and prime numbers is brought to life by Grayling's engaging descriptions before the internet server simile is developed through an examination of Mersenne's considerable correspondence network. The chapter then continues to unpick early modern communication systems with an in-depth consideration of the Taxis postal system. Examining these figures within the early Republic of Letters, who are not well known to the majority of readers, provides a fresh perspective on a widely studied phenomenon and simultaneously allows Grayling to move analysis forwards – via a brief consideration of the Hartlib circle and Descartes' correspondence – to the 17th century relationship between the occult and natural philosophy.

The remaining three chapters of part three engage with various aspects of what Grayling groups together as 'magic and occult practices and beliefs' (p. 142). Newton’s famous obsession with alchemy is used to draw the reader into this world of beliefs that Grayling contrasts with 'real science' (p. 148) before discussion moves to the general nature of *magia*, *alchymia*, *cabala*. Grayling’s descriptions of Hermeticism will offer an excellent starting point for students of Renaissance intellectual culture and his narrative of the rise and fall of Paracelsus is another highlight. There is no question that Grayling’s writing has that rare quality of
bringing long-dead personalities starkly to life on the page. Equally vivid is his portrayal of Dr Dee, famous advisor to Elizabeth I, mathematician, astrologer, and occultist. Dee is pictured as a gullible victim of the grand alchemical and angelic proclamations of Edward Kelley, but he is important to Grayling’s story because the reputation he left on his death ‘helped fuel the last major outburst of occultism as a force in European affairs’ (p. 181). This final outburst was Rosicrucianism, which Grayling describes as ‘the last great gasp of an outlook that had overstayed its welcome in the intellectual economy of the age, and in that final fling demonstrated its vacuity’ (p. 183). Following a description of this enigmatic movement – if it was even something as organised as a movement – and of René Descartes’ potential involvement, Grayling concludes that 1620 marks the end of the heyday of magia, alchymia, cabala, Hermeticism, astrology, and the occult in all its forms. Not, he hastens to add, because everyone rejected those ideas at that single moment, but because Francis Bacon and Descartes started to think about method around this time ‘as scientists do’ (p. 204).

Method is therefore where Grayling begins part four, specifically with the empiricism of Francis Bacon found in his utopia The New Atlantis, in The Advancement of Learning, and in the Novum Organum Scientiarium. For the most part this description of Bacon’s stance is familiar, though the claim that ‘Bacon was urging something wholly new and indeed revolutionary’ (p. 215) with his empirical and collaborative methodology will strike readers as overly bold. Indeed, Grayling shows signs of recognising this with a brief aside about Georgius Agricola, who died in 1555: ‘one earlier thinker Bacon might have quoted with approval’ (p. 219). The traces of Baconian thought within Agricola’s De Re Metallica are brushed aside, however, because he was ‘a rare bird’ and ‘his adjurations came at a time when occultism was in flood’ (p. 219). This point hints again, like the Macbeth/Regicide example in part one, that the reception of these ideas and the extent of their wider resonance are surely an important component in a narrative about era-defining intellectual change. Grayling, however, rarely seeks evidence beyond canonical thinkers, making it unclear why he should brush Agricola aside while focussing on Bacon and therefore settle on 1620 as the hinging point. The first chapter of part four then briefly revisits Mersenne before concluding with an analysis of Descartes’ methods and philosophy of mind. Grayling recognises that a founding pillar of Cartesian philosophy is the drive to prove the existence of a deity. However, it is difficult to sustain Descartes’ place as one of ‘the midwives of the modern mind’ (p. 209) if religion (a pre-modern intellectual force in Grayling’s model) is at the centre of his world view. As a result, the chapter closes with the confusing statement that ‘a deity and its moral qualities aside, he [Descartes] is a central figure in the seventeenth-century revolution’ (p. 230). This approach of singling-out some aspects of writers’ views, whilst dismissing others, once again highlights Grayling’s desire to portray a simple narrative, even if the evidence is neither simple nor consistent with a story of progress.

The longest chapter of the book follows. Chapter 17, ‘The birth of science’, feels like an arrival at the most important aspect of Grayling’s thesis: the conflict between religion and science, and the latter’s overthrow of the former. This chapter is both polemical and dramatic. Grayling explains that ‘The stage was thus set for conflict between, on the one hand, a new world-view based on commitment to observation and reason unconfined by the requirement to square with religious doctrine, and, on the other hand, the authority of scripture and the Church’ (p. 239). He describes the heresy trial and subsequent execution of Giordano Bruno in 1600 as a ‘typically heroic act by the Church’ (p. 247). This chapter also contains a summary of Grayling’s straightforwardly Whiggish interpretation of the Scientific Revolution: ‘The history of 17th-century science moves seamlessly from Galileo to Harvey, Huygens, Boyle and the great achievement of Newton, taking the formation of the Royal Society in 1662 on the way. Theories that failed are left out of account because they are not signposts on the high road to the present’ (p. 253). The extent to which this narrative whitewashes contestation, complex motivations, and the impact of ‘failures’, whilst ignoring much of the last four or five decades of work on the 17th-century history of science is startling. What will perhaps surprise readers even more, though, is Grayling’s claim that some ‘parts of the world still await their seventeenth century and its offspring, the following century’s Enlightenment’ (p. 259). This form of forced comparison fails to engage with either Europe’s early modern period, or other parts of the world today, in anything like an appropriate social, cultural, or intellectual context. Though historians should enable their
research to have impact beyond the academy wherever possible – advising policy-makers for example – unsubstantiated comparisons between different cultures and nations, at different points in history, only undermines historians' claims of having wider relevance.

Part four concludes with a short chapter titled ‘War and science’, in which Grayling discusses some of the technical innovations brought about by warfare in the 17th century. Part five then casts the net wider than the scientific ideas which occupy the majority of The Age of Genius. Chapter 19, 'Society and politics', introduces the 'Glorious Revolution' of 1688, and casts it as a rejection of arbitrary, divine-right monarchy in favour of parliamentary government. Grayling describes it as a 'bloodless, middle-class revolution' (p. 279). The nature of this 'revolution' (and the fact that it was palpably not 'bloodless') is the source of vibrant debate amongst historians of late Stuart politics. It is, of course, perfectly within a historian's rights to select one of the interpretations of these events and to use that interpretation to buttress their argument, but it is intellectually dishonest to imply that this (outdated) interpretation is neither controversial nor contested. Except for one footnote pointing to Tim Harris' Revolution: The Great Crisis of the British Monarchy 1685–1720, the reader will search in vain for references to the vast swathes of historiography relating to these events. The chapter then compares and contrasts the political philosophies of John Locke and Thomas Hobbes. This section forms an interesting and reader-friendly analysis of the two thinkers, though the claims of the final paragraph, that the views of both men (and Baruch Spinoza) are 'secular' and written with a method that is 'par excellence the point of secularism' (p. 302) will no doubt strike readers as another case of forcing evidence to support narrative, rather than adjusting narrative to suit the evidence. Chapter 20 then concludes part five with a few brief points about 'Language and belief'. This chapter gives credence to one of Grayling's comments at the very opening of the Age of Genius: that 'there is no possibility of comprehensiveness' in a survey of this sort (p. 3). Part five as a whole, in fact, is far too short to provide an adequate discussion of topics as important and diverse as 17th-century society, politics, language and belief.

The book closes with part six, consisting of a single, short chapter titled 'Is it a myth?'. This section sees Grayling finally engage, at length, with the fact that he is reiterating a Whiggish myth about the early modern period in which science, reason, and enlightenment overcome ignorance and faith. However, Grayling shows no sign at all of wavering despite the decades of contrary opinions to his own. 'Well, think what you like', he retorts, 'the story indeed has the lineaments of an epic myth. But it is nevertheless true' (p. 323). This determination to stand by one's argument would be laudable if it were the case that Grayling had considered the works of those who disagree with him, and then concluded that the weight of evidence was against them. Unfortunately, and ironically, his immovability in the face of the considerable contrary evidence and historiography, which he avoids, smacks of a kind of faith that is reminiscent of the supposed adversary of his 'modern mind'.

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