

BOOKS & ARTS

Beyond the image of the tragic genius

Our stereotypical view of mathematicians shifted during the Romantic era from worldly scholar to tortured soul, explains **Jascha Hoffman**.

Duel at Dawn: Heroes, Martyrs, and the Rise of Modern Mathematics

by Amir Alexander

Harvard University Press: 2010. 320 pp.
\$28.95, £21.95

A lonely man flirts with madness in search of truth, but dies alone and misunderstood. Similar stories have played out in films about mathematicians from *Pi* to *Proof*. Where did the figure of the tragic mathematician originate?

According to historian Amir Alexander, author of *Duel at Dawn*, this characterization is inherited from the Romantic era, when “eccentricity, mental illness, and even solitary death” were regarded as virtues when applied to the likes of John Keats, Frédéric Chopin and Vincent Van Gogh. If mathematics must ultimately be justified as art, as British mathematician G. H. Hardy famously claimed, then it stands to reason that mathematicians should also be driven to the brink by their pursuit of the truth.

It was not always this way. In his previous book *Geometrical Landscapes* (Stanford University Press, 2002), Alexander maintained that seventeenth-century mathematicians, such as Isaac Newton and Gottfried Leibniz, were seen by their contemporaries as brave explorers on the seas of geometry. In *Duel at Dawn*, he takes up this thread at the turn of the nineteenth century, when the Enlightenment view of maths as a worldly pursuit yielded to the Romantic myth of tragic genius.

Alexander pierces the haze that has gathered around some great mathematical lives. He shows how the eighteenth-century French mathematician Jean le Rond D'Alembert — who collaborated with French philosopher Denis Diderot on the prime Enlightenment text, the *Encyclopédie* — acquired a reputation as a man who rose from orphanhood to pursue a pure and harmonious life in maths. Then the author reveals that D'Alembert was, in fact, an ambitious man whose “prolonged

and bitter disputes... managed to alienate all of his most prominent colleagues”.

Moving to the Romantic era, Alexander exposes the complex lives of a trio of martyred heroes. He shows how Norwegian mathematician Niels Henrik Abel and Hungarian geometer János Bolyai — despite their later reputations as prodigies spurned by the establishment — were well respected by their colleagues. The prime figure in the pantheon of mathematical martyrs, however, is the young and fiery Frenchman Evariste Galois. A teenage genius shunned by the great men of his age, Galois turned to radical politics and penned the founding document of modern group theory just hours before he was fatally shot in a duel at the tender age of 20. Or so the story goes.

In his painstaking debunking of this tale, Alexander demonstrates that although some of the legend is true — Galois was killed in a duel, and he did lay the foundations for group theory — he was not an innocent martyr to truth, as he has been depicted by generations of fawning biographers. Galois was a prickly rebel whose self-serving delusions and “paranoid and provocative behavior” lead Alexander to suggest that his early death was inevitable and, in a sense, self-inflicted.

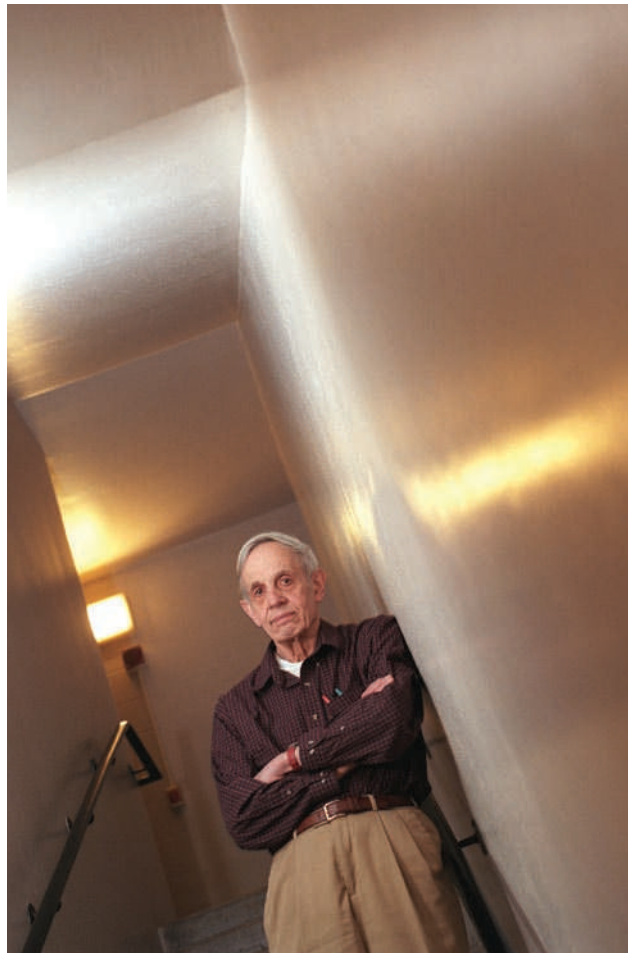
Not satisfied with dispelling myths, Alexander argues that such folklore arose in tandem with substantial changes in maths at the beginning of the nineteenth century. As the ideal of the mathematician shifted from worldly scholar to tortured soul, so did the pursuit of maths itself, from an Enlightenment effort to model the Universe to a Romantic quest for a hidden truth.

On the question of how much the stories have affected the history of this field, Alexander is cautious, saying that the myths and maths “went hand in hand”. He sometimes ventures further, arguing that the “new story of genius and martyrdom... legitimized and allowed for a new type of mathematical knowledge”.

It is strange that the Romantic archetype has endured, through twentieth-century mathematicians such as Kurt Gödel, Srinivasa Ramanujan, John Forbes Nash and, recently, Grigory Perelman, who solved the Poincaré conjecture in 2003 only to withdraw from maths and public life. Yet Alexander speculates that, in this era of computer-assisted proofs, the vision of the mathematical martyr might fade away to be replaced by a different stereotype — the power-hungry nerd.

Duel at Dawn suggests how preconceptions about the trappings of genius have radiated from art to maths. But its greater value lies in peeling back the layers of hagiography from figures such as Galois to reveal gloriously complicated men. ■

Jascha Hoffman is a writer based in San Francisco, California.
e-mail: jascha@jaschahoffman.com



John Forbes Nash's intellectual and personal struggles with mental illness were charted in Sylvia Nasar's 1998 book *A Beautiful Mind*.

REDUX/EVINE