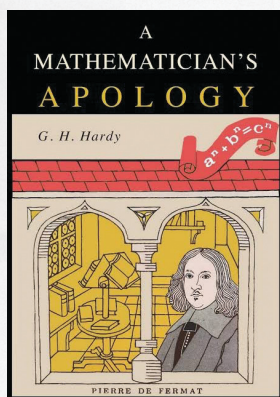


Book Review: A Mathematician's Apology, by G.H. Hardy

Reviewed by Paraj Modi



The title 'A Mathematician's Apology' strikes the readers unusually. Why is a mathematician as great as G.H. Hardy himself, apologising? The entire book is but an apology, which aims to offer a defence in pursuit of mathematics. Published in 1940, this apology stands relevant in most respects even today. Originating from one of the finest mathematicians as Hardy, this apology invokes realisation of passion in one's conscience, especially in students as myself.

Hardy begins by proclaiming that writing this book is nothing but a '*melancholy experience*'. His justification of this phrase explains the true pursuit of a mathematician - '*to add to mathematics, and not to talk about what he or other mathematicians have done.*' The entire book is written with a striking element of truth and utmost honesty. Hardy unhesitatingly calls this piece of writing a '*confession of weakness*' of a mathematician which may provoke scorn by other mathematicians.

Hardy adopts a unique approach throughout the book - wherein the readers can feel as if Hardy is talking to them. He asks questions, analyses what their answers may be, opines on them himself and then leaves it to the readers to understand the ideas as they like. Hardy questions, "*Is mathematics 'unprofitable'?*" He then goes on to explore the possible answer to it, "*In some ways, plainly, it is not; for example, it gives great pleasure to quite a large number of people. I was thinking of 'profit', however, in a narrower sense.*" He ends by specifying his notion of profit, thereby prompting readers to think.

Hardy believes that mathematics is a '*young man's game*' — that age is indeed an influential factor in determining the success of any mathematician. He aids his claim through the life stories of Galois, Abel, Ramanujan, Riemann, etc. Although age might be a limiting factor, Hardy does not forget to mention the permanence and

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timelessness of mathematical achievement. He writes, *“In these days of conflict between ancient and modern studies, there must surely be something to be said for a study which did not begin with Pythagoras, and will not end with Einstein, but is the oldest and youngest of all.”* Somewhere, the transcendental nature of mathematics is being reflected here. We are divided by boundaries, but an art form, as beautiful as mathematics, connects us all universally and appeals to all equally.

This piece of work is essentially relevant for fellow students in high school, because Hardy’s reflections on what the youth should do, are particularly substantial. He says that the youth must be ambitious — it is after all, this ambition that drives all worthy discoveries or inventions - whatever their area of interest might be. Moreover, this book brings along with it an excellent opportunity to interpret what beauty of any sort may be like. Hardy fondly mentions, *“It may be very hard to define mathematical beauty, but that is just as true of beauty of any kind — we may not quite know what we mean by a beautiful poem, but that does not prevent us from recognising one when we read it.”* Through such assertions, Hardy forces the readers to appreciate the aesthetic appeal of mathematics.

Hardy goes on to explain what, according to him is the ‘utility’ of mathematics, and what ‘significant’ mathematics is. This analysis was my most favourite part in the entire book. Hardy says that any serious mathematical idea must have *depth* and *generality*. These two characteristics may sound exactly opposite, but indeed, Hardy has an argument to make!

Drafted across several separate essays, the book is not only an insightful read, but also a spiritual experience any art lover would love to have. As Hardy constantly draws analogues between chess, mathematics and poetry, the book has something

to offer to everybody. While most ordinary readers may think that this book would have a lot to deal with complex mathematics — it is an utter misconception. This book is but a brief introduction meant for common people to dive into the realms of divinity through mathematics.

Hardy was undoubtedly a fabulous mathematician, but this book also proves him to be a lucid writer - who expresses his thoughts with unflinching clarity and paramount honesty. He has a rhythmic knack of writing when he writes, *“Chess problems are the hymn-tunes of mathematics”* or *“A mathematician, like a painter or a poet, is a maker of patterns. If his patterns are more permanent than theirs, it is because they are made with ideas.”* These philosophical notes portray Hardy as a devoted thinker with much depth.

But the mystery persists — what is the apology exactly for? During one of the insightful discussions with my mathematics teacher, he expressed that the apology is to the people who are not really fascinated by mathematics. Hardy, as a torch-bearer of the mathematics community, apologises to those people as they cannot perceive the profound inexplicable beauty of mathematics. As Hardy likes to say it, *“Immortality may be a silly word, but a mathematician has the best chance of whatever it may mean.”*

Post Script from the Reviewer

I am grateful to my mathematics teacher for recommending this and other books like *‘Fermat’s Last Theorem’* by Simon Singh, and *‘Uncle Petros and the Goldbach’s Conjecture’* by Apostolos Doxiadis. Just as I have thoroughly enjoyed reading these literary marvels pertaining to mathematics, I believe the youth of my age would enjoy doing so as well. This would not only broaden perspectives but also bring clarity regarding the choice of one’s career.



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