The Curious Incident of the Dog in the Night-time

Reviewed by Helmer Aslaksen

The Curious Incident of the Dog in the Night-time
Mark Haddon
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If you have spent the last two years on a planet where this book has *not* been a runaway bestseller, and you have no clue what it is about, then you are in for a treat.

The novel is narrated by a fifteen-year-old boy who introduces himself as follows: "My name is Christopher John Francis Boone. I know all the countries of the world and their capital cities and every prime number up to 7,507." One night Christopher discovers that the neighbor's dog has been murdered with a garden fork. Sherlock Holmes is one of his heroes, so he decides to find out who killed the dog and to write a book about it. In the process he discovers the truth about the estrangement of his parents.

The Hound of the Baskervilles is Christopher's favorite book, but the curious title of Christopher's story comes from the Sherlock Holmes short story "Silver Blaze":

> "Is there any point to which you would wish to draw my attention?"

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> "To the curious incident of the dog in the night-time."

> "The dog did nothing in the night-time."

> "That was the curious incident," remarked Sherlock Holmes.

The Curious Incident is at once gripping, touching, and funny. That's great, you might say, but why is it being reviewed in the *Notices of the AMS*? Is it because the main character is a mathematical prodigy? Is it because he suffers from Asperger's Syndrome? Or is there another reason?

The portrayal of mathematicians in popular media is not always flattering, to say the least. The book and movie *A Beautiful Mind* [6], for example, left many mathematicians with mixed feelings. Yes, it's great to see a movie where the hero is a mathematician and is played by a Hollywood hunk, but does it reinforce a stereotype of mathematicians as the ultimate "mad scientists"? Many friends told me they understand me much better after seeing the movie. I have a strong urge to point out to them that I have not yet been diagnosed with paranoid schizophrenia. But I usually play it safe, smile, and say "Thank you!"

The main character of *The Curious Incident* also has mental problems. He suffers from Asperger's Syndrome, or high-functioning autism. The syndrome is named after Hans Asperger, a Viennese pediatrician who described the condition in 1944. He noticed that many people with mild autism excel in mathematics and science. According to

James [4]: "Very briefly, the criteria for Asperger's include severe impairment in reciprocal social interaction; all-absorbing narrow interests; imposition of routines and interests on self and others; problems of speech, language, and nonverbal communication; and sometimes motor clumsiness. The casual observer may notice an aversion to direct eye-contact, peculiarities of expression, difficulty in coping in social situations, and an obsession with a particular subject, such as computer science."

There are several interesting articles about Asperger's Syndrome among mathematicians, physicists, and computer scientists. A good starting point is the paper by James [4]. In [1], the authors diagnose the Fields Medalist Richard Borcherds. The book by Baron-Cohen [2] has a whole chapter about Borcherds. The article by Ochert [3] gives a fascinating picture of the Berkeley Mathematics Department.

One might very well ask: "Do we really need another book about a 'crazy' mathematician?" I feel that there is a fundamental difference between *The Curious Incident* and *A Beautiful Mind*. Paranoid schizophrenia is an extreme condition, and hardly any mathematicians see themselves or their colleagues in the descriptions of John Nash. However, I believe that many of us will relate to some aspects of Christopher's behavior. There are fortunately few mathematicians who suffer from full-blown autism, but many of us have some of the traits to a lesser extent, and some even argue that a dash of autism is essential for success in mathematics. (After reading the book, my wife told me that Christopher reminded her of me. I don't feel bad about that. I am just happy that I have an understanding and supportive wife who can appreciate somebody with a high Systemizing Quotient [2]!)

One thing I admire about the mathematical community is our tolerance towards unconventional behavior. What I liked best about *A Beautiful Mind* was the way the mathematical community supported Nash. I recently visited a university where a famous professor is known to have Asperger's Syndrome. I asked some of my friends there how he was doing. They looked at me in total confusion. What did I mean by "How is Professor X doing?" He had recently had dinner at the home of one of them, and there was nothing wrong with him as far as they could tell. It was a bit unfortunate that he had spent most of the dinner under the table reading *Encyclopaedia Britannica*, but they did not think of that as a sign of any problem. So while other people might be appalled by some aspects of Christopher's behavior, most mathematicians would feel quite at home with much of it. Borcherds once said in an interview that every department he had ever visited had at least one person who was clearly more strange than he.
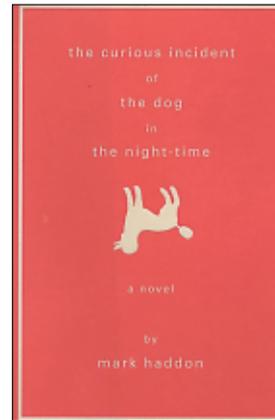
I am sure that many of us will be touched by various parts of Christopher's story. One of my favorite parts is when he says (end of Chapter 71): "Then, when I've got a degree in Maths, or Physics, or Maths and Physics, I will be able to get a job and earn lots of money and I will be able to pay someone who can look after me and cook my meals and wash my clothes, or I will get a lady to marry me and be my wife and she can look after me so I can have company and not be on my own." I do not know about the "earn lots of money" part, but fortunately there are a lot of understanding and supportive spouses who can accept the sometimes peculiar habits of a mathematician.

In another part of the story, Christopher struggles to be allowed to take the A level mathematics exam. He attends a "Special Needs" school, and nobody from his school has ever taken any A level exam. At first the school does not want him to do it. But his father goes to the headmistress and says (Chapter 71): "Christopher is getting a crap enough deal already, don't you think, without you shitting on him from a great height as well. Jesus, this is the one thing he is really good at." I was so happy for Christopher that he had an understanding father, and their falling out at the end was the saddest part of the book for me.

When the book was reviewed in the biggest newspaper in Singapore, the reviewer recounted the trauma she had felt while taking the A level mathematics exam, and how fascinating it was for her to read about somebody who desperately wanted to take the exam. She found herself cheering for Christopher taking the exam, even though it had darkened her own life for years.

So why does *The Curious Incident* deserve to be reviewed in the *Notices*? In my opinion, it is because the book contains some real mathematics. Mark Haddon once said in an interview [7}: "[I]f you enjoy math and you write novels, it's very rare that you'll get a chance to put your math into a novel. I leapt at the chance." He sure did! There is an appendix that contains Christopher's solution to his favorite A level problem: "Prove the following result: 'A triangle with sides that can be written in the form $n^2 + 1$, $n^2 - 1$ and $2n$ (where $n > 1$) is right angled.' Show by means of a counter example, that the converse is false." Christopher originally wanted to put the proof in the main text, but his teacher, Siobhan, told him to put it in an appendix (Chapter 233). "And I was going to write out how I

answered the question except Siobhan said it wasn't very interesting, but I said it was. And she said people wouldn't want to read the answers to a maths question in a book, and said I could put the answer in an *Appendix* which is an extra chapter at the end of a book which people can read if they want to. And that is what I have done." I guess most mathematicians need some editorial help! His writing is not as smooth in the proof as in the other mathematical explanations, and I do not think any of us would complain about relegating the proof to the appendix.

The book's chapters are numbered using prime numbers, which is why the first chapter is Chapter 2, and why Chapter 71 comes after only about fifty pages. Christopher of course includes a clear explanation of the Sieve of Eratosthenes. In addition there are nice discussions of the Monty Hall problem, the logistic equation, Conway's soldiers, chaos theory, and several other mathematics, logic, and physics topics. They are all explained in a clear and understandable way.

I am passionately involved in mathematical outreach, and I would say that Christopher is a natural at it. Many mathematicians wax lyrical about the beauty of mathematics, but when asked to share that beauty with the general public, they are apt to use on phrases like "let X be a projective variety over a field of characteristic p". It really bothers me that some mathematicians do not care enough about our profession and the public to try to find some link between what they do and what the public can relate to. One of my main goals in mathematical outreach is to show that the beauty of mathematics is all around us. We should not be afraid of starting to talk about mathematics to anybody, anytime. Are you concerned about how to pick the right topics at the right level and present them in a clear and understandable way? Then *The Curious Incident* is a good book for you. Just do it the way Christopher does it!

The Curious Incident of the Dog in the Night-time is not just another story about a "crazy" mathematician, but a compassionate tale of mathematical outreach. And when was the last time there was an honest mathematical proof in a book on the *New York Times* fiction best seller list?

References

[1] SIMON BARON-COHEN, SALLY WHEELWRIGHT, VALERIE STONE, and MELISSA RUTHERFORD, A mathematician, a physicist and a computer scientist with Asperger Syndrome: Performance on folk psychology and folk physics tests, *Neurocase* **5** (1999), 475–483.

[2] SIMON BARON-COHEN, *The Essential Difference: The Truth about the Male and Female Brain*, Perseus Books Group, 2003. Chapter 11 is available online at `http://leitl.org/docs/a-professor-of-mathematics.pdf`.

[3] AYALA OCHERT, The mathematical mind: Madness, genius, and what mathematicians are really like, *California Monthly*, April 2002, `http://www.alumni.berkeley.edu/Alumni/Cal_Monthly/April_2002/The_mathematical_mind.asp`.

[4] IOAN JAMES, Autism in mathematics, *The Mathematical Intelligencer* **25** (2003), 62–65.

[5] ALEX KASMAN, Mathematical fiction, `http://math.cofc.edu/faculty/kasman/MATHFICT/`.

[6] SYLVIA NASAR, *A Beautiful Mind: A Biography of John Forbes Nash Jr.*, Simon & Schuster, 1998.

[7] DAVE WEICH, The curiously irresistible literary debut of Mark Haddon, `http://www.powells.com/authors/haddon.html`.