

# Bertrand Russell: Lover, Husband, Mathematician, and Comic Book Hero

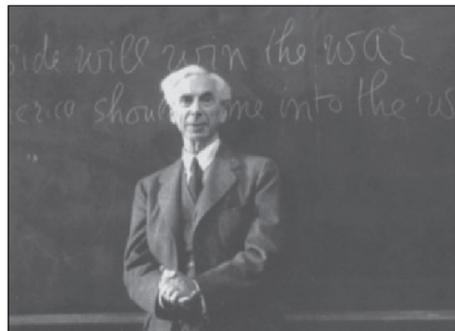
This month's cover images are panels from the book *Logicomix*, reviewed by Judith Roitman in this issue. We wondered what it takes to turn mathematical history into an interesting graphical novel. Some of our questions are answered on the book's website

<http://www.logicomix.com>

but several are not, so we submitted questions to the principal members of the group that produced it. The matters that most intrigued us were, to what extent was the book based on fact? What prompted the group to take on such an unusual and difficult project?

*The main narrative of your book is tied to an autobiographical lecture by Bertrand Russell given around the beginning of World War II. What is the main source for this story line?*

*Apostolos Doxiadis:* The event of the lecture itself was inspired by a photo of Russell in front of a blackboard in a lecture hall of an American university (not known to us) sometime in 1939, as well as what we could make of



**Bertrand Russell, around 1939.**

the text on the board. We knew that Russell was lecturing in the U.S. at the time and that by the end of September 1939 he had already abandoned his fanatical pacifist position in regard to the new war. We found in one of his letters the phrase that said roughly, "I am still at heart a pacifist, but the prospect of a Europe divided between Hitler and Stalin is too hard to bear." Otherwise, the occasion, the circumstances, the subject of the lecture, the actual lecture, the reaction to the lecture (picketing by isolationists), the lecture's content, and all the dialogue with the audience are invented. As for the narrative of Russell's life, we used mostly Ray Monk's biography, as well as Russell's autobiography, correspondence, and various autobiographical texts (*My Philosophical Development* and others). On the whole, we stayed very close to the events of Russell's life. We cut out a lot, for example the fact that he had an older brother, who was in fact the one who introduced him to Euclid, and his many love affairs up

to 1939. But we did not consciously deviate from reality, except in the cases mentioned in our Notes inside the book, especially in the case of inventing meetings with people (such as Frege) where there was only evidence for meetings of ideas through reading, writing, and correspondence.

Another major point of deviation from recorded history was in accentuating the interest of Russell in the developments in mathematical logic after WW I and his meeting with Wittgenstein in the Hague. Though he did visit the Vienna Circle in Vienna in the late 1920s and/or early 1930s and was one of their idols, there was no evidence that he followed developments in mathematical logic closely at this time. He certainly was not present (neither was Hilbert) at Gödel's announcement of the incompleteness theorems.

*Christos Papadimitriou:* We based much on Monk's biography and some (like the moment of epiphany about life and the world by Evelyn Whitehead's sick bed) on BR's autobiography (not a totally reliable source, because the man writes like the devil and can convince you of anything he chooses). But we favored plot over strict historical truth time and again. When my colleague Paolo Mancosu chastised these liberties, I was bold enough to respond, "But, Paolo, Marc Anthony never spoke at Caesar's funeral."

*Somewhere the origin of this project is attributed to the remark of Gian-Carlo Rota (in his book *Indiscrete Thoughts*), "It cannot be a complete coincidence that several outstanding logicians of the twentieth century found shelter in asylums at some time in their lives." But many people have remarked on the madness of some of your heroes. So if this origin story is true, maybe there was some preconditioning? Why were you reading Rota, anyway?*

*Doxiadis:* I studied mathematics back in the 1970s and was very much into it, as well as the Hardyesque, extremist version of math-for-art's-sake purist ideology. I was at Columbia but had friends at Princeton and often visited and went to the institute, where I absorbed, among other things, the Gödel mystique. I heard stories about Gödel (even saw him once in the lounge, wrapped up in layers of sweaters and coats) and read, in awe, Nagel and Newman's *Gödel's Proof*. Many years later, after the writing of my novel *Uncle Petros and Goldbach's Conjecture* (which to me was a novel about a hero in search of a great goal, not—as it was to many mathematical readers—a novel "about" mathematics), I began to think a lot, once again, about the world of mathematics and was in a sense drawn back into it, though never into active research. I had not stayed in any sense in touch with actual research or progress, but started to read again, fascinated, about the history and philosophy of mathematics. I also read many of the new (by now) mathematical biographies—I was always fascinated by mathematicians as people and relished the new wealth of material that appeared after the year 2000. I also have read most of the published books by well-known mathematicians that are autobiographical, or philosophical-epistemological (apart from the older

famous ones, like Poincaré, Hadamard, Wiener, Weil, Hardy; also later ones like Halmos, Hersh, etc.). Among these was Rota's *Discrete Thoughts* and *Indiscrete Thoughts*, which are particularly well-written and stimulating.

So the origin of the story, for me, is my interest in the story of the search for the foundations. But I never wanted to write the history of an idea. I am a writer and am interested in the stories of people—of specific, concrete human beings. I had read the lives of several mathematicians and a lot about the story of mathematics in the latter half of the nineteenth and early twentieth centuries. But it was Rota's comment that made me think again about the core of the story, the motivation and the pathology of the protagonists (not in the sense of "too much logic drove them mad," which I think is silly, but in the sense that a certain kind of personality was drawn to the task of foundational work).

*Papadimitriou*: When Apostolos and I met for the first time over lunch in the summer of 2001, he mentioned to me Rota's remark (I knew Gian-Carlo from my MIT days), and we confessed to each other our fascination with this story. Martin Davis' book *Engines of Logic* had just come out, and Apostolos was working on his wonderful play *Seventeenth Night* about Gödel. The idea to write something about the foundations quest came soon after, and the graphic novel idea soon after that. I reacted negatively to this one (I knew next to nothing about the genre), but I did become a believer soon enough. My special interest in this story is summarized in the last pages, namely, the amazing reversal that turned the spectacular failure of the foundations quest into the advent of the computer.

*Doxiadis*: I think it's important to say that we puzzled a lot about what would give this story unity, i.e., make it one story instead of many stories—a novel, as it were, rather than a collection of short stories. Russell and his life provided a natural answer to this, though we did not land on it until after some months of thinking and reading

about the material. To give him substance as hero/storyteller, we had to (partly artificially) keep his interest in the quest alive after 1918.

*Finishing this project must have taken a fair amount of concentration. How much work was it?*

*Doxiadis*: *Logicomix* took five years of full-time work to complete, and, yes, it involved a lot of concentration. For some it was really full full-time (mostly for Alecos and Annie). For me it was more or less half-time, in the sense that after a long synopsis we worked on with Christos, I wrote the script in ten-page batches, often with as much as two or three months in between—Alecos and Annie were taking much longer to draw and color than I took to write the script.

*Alecos Papadatos*: When Apostolos came in the studio to discuss his idea, Annie and I understood immediately that this tale was larger than mathematics as we knew it. Given that Apostolos was largely known as a gifted storyteller, we knew that the making of such a graphic narrative was going to be quite an adventure. And it was! Russell was a great character to draw. Full of passion and yet reserved, with a great sense of humor. There was a lot of work in representing his facial expressions and body positions and yet communicating what (probably) went into his mind, especially during his lecture scenes. Frege, Cantor, and Hilbert were great characters in the script and also fun to draw, but only Russell had this characteristic of being there and elsewhere at the same moment.

*Annie Di Donna*: When I think back to the trajectory of the project, I remember each of us carefully and methodically using precise narrative encoding, whether for the idea or the scriptwriting, character design, or the use of color. I often smile thinking that this encoding is mainly based on emotion, but they have a mathematical logic of their own.

*Is there anything special you'd like to comment on for an audience of mathematicians?*

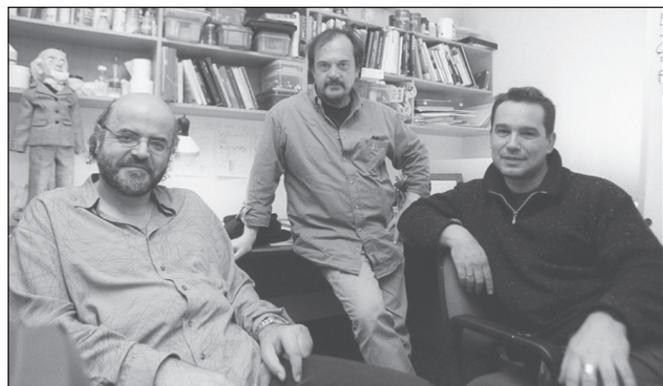
*Papadimitriou*: *Logicomix* is about an era of innocence when the absolute truth was something one could have hoped for, with Mathematics the brightest promise: "We shall know." In contrast, Computer Science was born (through Turing's 1936 paper) painfully aware of her own limitations. As a computer scientist who is functionally a mathematician (my day job is to prove theorems about computation), I have looked at the quest as the rich and tragic story that lies at the root of the duality of what I am and do.

*Doxiadis*: To me mathematical research is one of the most romantic endeavors in the world, and I wish that more mathematicians would remember this when they speak about mathematics to outsiders. The unmathematical hoi polloi don't know this, you see—in fact the great majority don't even suspect it. So someone must tell them!

—Bill Casselman  
Graphics Editor  
(notices-covers@ams.org)



The fourth principal member of the team, Annie Di Donna.



Christos Papadimitriou, Apostolos Doxiadis, and Alecos Papadatos—as cartoons and in real life.