Book Review

Uncle Petros and Goldbach's Conjecture
and
The Wild Numbers

Reviewed by Allyn Jackson

Uncle Petros and Goldbach's Conjecture
Apostolos Doxiadis
Bloomsbury USA, February 2000
ISBN 1-582-34067-6
$19.95 Hardcover

The Wild Numbers
Philibert Schogt
Four Walls Eight Windows, April 2000
ISBN 1-568-58166-1
$18.00 Hardcover

As their titles suggest, these two novels are about mathematics—or, to be more precise, they are about mathematicians. Neither book makes any serious attempt to explain much mathematics to the reader. Rather, they try to capture the passion and obsessiveness mathematicians have for their subject. In this regard both books present believable, albeit somewhat extreme, portrayals of what mathematicians are like, and both develop a good deal of drama and suspense. It is no serious criticism to say that neither book is a great work of literature; most novels are not. In fact, one of the strengths of these books is that they are content to stay on the level of good storytelling rather than straining for something more highfalutin.

Uncle Petros and Goldbach's Conjecture has attracted a good deal of publicity, in part because of a $1 million prize that its publishers (Bloomsbury Publishing in the U.S. and Faber and Faber Limited in the United Kingdom) have offered for

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the proof of the conjecture. It is heartening to find a serious sum of money being offered for such a worthy challenge. But it is also deflating to find that the rules for the prize (available at http://www. apostolosdoxiadis.com/rules.htm) read a bit like something on the back of a cereal carton. For example, it is difficult to understand why such a competition is open only to residents of the U.S. and the U.K. Would-be solvers must submit solutions to a recognized mathematics journal "before midnight" on March 15, 2002. Given a well-timed flash of inspiration, one could perhaps meet this deadline. But, the vagaries of journal refereeing being what they are, how is one to guarantee that one's solution is published, as the rules stipulate, "before midnight" on March, 15, 2004? And what is to stop an unscrupulous referee from demanding a cut of the prize money in exchange for sending in the referee report on time?

In any case, the book makes for more satisfying reading than do the prize rules. *Uncle Petros and Goldbach's Conjecture* tells the story of the narrator's uncle, a gifted Greek mathematician named Petros Papachristos, who pitted his strengths against Goldbach's Conjecture and lost. While Uncle Petros is fictional, a number of real-life mathematicians appear as characters in the book, such as Constantin Carathéodory, G. H. Hardy, J. E. Littlewood, Srinivasa Ramanujan, and Kurt Gödel. A mathematician reading this book likely already has a certain mental picture of the personalities of these men. In fact, it seemed to me that the author relied too heavily on the reader's possessing such associations, for these characters are not developed with much clarity or individuality.

By contrast, the character of Uncle Petros comes vividly to life. From his boyhood he is obsessed with trying to solve Goldbach's Conjecture, and he hones his mind and shapes his whole life around a search for a proof. Sure, his early efforts are fueled by the desire to impress a short-lived love interest, and he is not indifferent to fame and glory. But more than anything else Uncle Petros is driven by a desire to know and to understand the deep secret lurking at the heart of the simple-sounding conjecture. This single-minded devotion to a wild dream is what makes Uncle Petros an appealing and tragic figure. It is also what makes him a mathematician.

The nephew, who studies mathematics in college and later decides against making a career in the subject, tells the story of how, when he was a young teenager, Uncle Petros set him the task of proving Goldbach's Conjecture. Without realizing the difficulty of what he was attempting, the nephew spent a tormented summer trying in vain to produce a proof. Years later Uncle Petros explains why he discouraged his nephew from becoming a mathematician. The reason was not the nephew's failure to produce a proof that summer. No, the real reason was more serious. After struggling with the problem all summer, "You weren't even curious enough to ask the solution!" Uncle Petros cries. This is one of the most authentic moments in the book. In exchange for such moments one must endure the novel's somewhat contrived denouement, as well as the author's habit of using footnotes, which are an awkward device in a novel. But to my mind, the tradeoff is a good one.

The Wild Numbers also features a mathematician's struggle with an enormously difficult mathematics problem. But in this book all of the details are fictional, right down to the problem itself, called the "Wild Number Problem". The author even invents a dashing nineteenth-century mathematician, Anatole Millechamps de Beauregard, as the one who first stated the problem. The tale is told in the first person by Isaac Swift, a reasonably good 35-year-old mathematician at a nondescript university in the present-day United States, who nearly goes mad trying to solve the Wild Number Problem. In this book the supporting characters—such as the avuncular Russian mathematician Dimitri Arkanov, whose own once-bright mathematical star dims by the end of the story—are much better developed than the historical figures in *Uncle Petros and Goldbach's Conjecture.*

One of the most memorable characters in *The Wild Numbers* is Leonard Vale, who might be distressingly familiar to some scientists and mathematicians. Mr. Vale, as he is called in the novel, is a mentally disturbed, middle-aged former mathematics teacher who believes that he has solved many of the great outstanding problems in mathematics. Always clad in a tweed suit and carrying a large, old-style tape recorder, Mr. Vale attends mathematics classes at the university. After making frequent disruptions with bizarre questions and statements, he strikes a deal with the mathematics department whereby in exchange for his silence during classes he is permitted fifteen minutes each week with a mathematics faculty member. In these weekly meetings he presents his nonsensical writings, which he has heavily larded with as many mathematical symbols as possible. As Isaac's battle with the Wild Number Problem becomes increasingly desperate, he begins to see Mr. Vale as a benchmark against which to measure his own sanity.
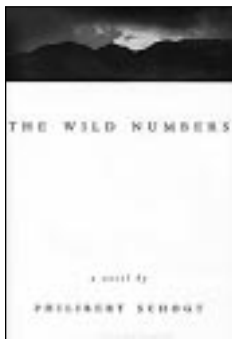
The fact that *The Wild Numbers* is entirely fictional seems to have freed the imagination of the author; *Uncle Petros and Goldbach's Conjecture* never quite reaches the same level of inventiveness. On the other hand, there is something to be said for putting a bona fide mathematics problem at the center of the book. Almost all readers will at some point ask themselves seriously, Why *is* every even number the sum of two primes? Or, as the novel has Ramanujan suggest, Is there an even number out there that is *not* the sum of two primes? Both novels show mathematics as an enthralling, creative adventure of the mind, one with the capacity to bewitch. In doing so, both capture something real about the subject.