



**Review: [Untitled]**

Reviewed Work(s):

*The French Mathematician.* by Tom Petsinis

Tony Rothman

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# REVIEWS

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*The French Mathematician.* By Tom Petsinis. Walker and Company, New York, 1998, v + 426 pp., \$24.

*Reviewed by* **Tony Rothman**

It is not uncommon in our society for a celebrity to read a novel, recognize herself in one of the characters, and sue the author for defamation. The plaintiff's position in such cases is surely peculiar: On the one hand she must argue that the offending character is real; on the other hand, she must argue that the character is not real enough. While reading Tom Petsinis's new novel about Evariste Galois, one wonders throughout whether Galois would be pleased with this portrait or would call his lawyer. Galois is not forthcoming. As his advocate I would be tempted to advise him to call not a lawyer, I think, but a book doctor. However, this case is one for the jury to decide.

Galois's life, straddling as it did fact and fiction, naturally lends itself to novelization. Most mathematicians and scientists are familiar with the outlines of the story. A mathematical prodigy, Galois came of age in the aftermath of the Napoleonic empire. He twice failed the entrance examination to the prestigious *École Polytechnique*, where he expected to study mathematics, and enrolled in the *École Normale*, only to be expelled as a revolutionary firebrand. Arrested on two occasions for seditious activities in the wake of the 1830 revolution, he spent eight months in prison, was released in April 1832 on the advent of the great cholera epidemic, and a month later managed to get himself mortally wounded in a duel. The night before, he wrote out his scientific last will and testament, annotated his papers, and bequeathed his legacy—group theory—to the world. He was twenty years old.

One of the great romances of science, Galois's life has been the inspiration for a dozen novels, plays, and films. My own 1982 MONTHLY article [4] was actually the outcome of research for a play about Galois and the Russian poet Pushkin, whose life followed a similar trajectory. Petsinis has evidently followed the general outline of my article. Gone is the Galois of E. T. Bell's *Men of Mathematics* [1], who is done in by the massed forces of stupidity arrayed against him and the shadowy political intrigues of Bell's imagination. Gone also is Leopold Infeld's Galois, hero of the proletariat. Vanished as well is Infeld's pretense that his book [3] is actually a work of "faction," a nonfiction novel. No, Petsinis has written a work of fiction, and he has no obvious ax to grind. He has attempted to portray a troubled youth living in turbulent times, a victim as much of his own personality as of external misfortunes. *The French Mathematician* aspires to be a believable portrait, both psychologically and historically.

It is personally gratifying to see one's work transmogrified and so transformed passed into the future, and as a rule one should review the work that has been

created, not the one that hasn't been created. Nevertheless, my feeling on putting down *The French Mathematician* remains that Petsinis might have done better to pen a different book. I am not speaking of historical accuracy. There are many points one can quibble with—the book jacket copy gets the age of Galois at his death wrong, which does little to instill confidence; the ages of Galois's instructors are incorrect, and so on. I may myself have misled Petsinis about Galois's opponent in the celebrated duel. In my MONTHLY article I followed Alexandre Dumas, who stated that Galois's opponent was Pescheux D'Herbinville, a fellow republican. D'Herbinville figures here as Galois's adversary, though thankfully no dark plots, agents provocateur, or prostitutes are invoked, merely jealousy and honor. Well before the 1989 version of my article [5], however, I had been informed of the work of André Dalmas [2], who presents a clipping from a Lyon newspaper dated several days after the duel. The clipping identifies Galois's opponent as L. D., initials that do not match any of Galois's acquaintances. Nevertheless, judging from the article, the most probable opponent was Vincent Duchatelet, one of Galois's best friends. The duel itself seems to have been a grisly version of Russian roulette: the adversaries had both fallen in love with the same girl, but “because of their old friendship they could not bear to look at each other and left the decision to blind fate. At point-blank range they were each armed with a pistol and fired. Only one pistol was charged” [5].

No, historical accuracy is not the issue; this is a novel. At issue is verisimilitude—Petsinis strives for it—and literary achievement. Increasingly I am convinced that God does not reside entirely in the details. To the contrary, the success of a work is largely determined by the basic decisions an author makes at the outset, most importantly: What is the book about? But also such large stylistic decisions as: Will the book be told in first or third person? Present or past tense? Petsinis has decided to tell the story from Galois's own perspective. This decision results in a threefold hurdle that is almost impossible to surmount: He must get inside the head of an adolescent; he must get inside the head of an early 19th-century adolescent; and he must get inside the head of an early 19th-century adolescent who happens to be a mathematical genius.

Petsinis is either very brave or very foolhardy to have made the attempt, and if the effort has been only partly successful, that hardly comes as a surprise. To me what is most convincing are the frequent references early on to Pindar, Catullus, and Hugo, not to mention Archimedes, Euclid, and Pythagoras—classical literature and mathematics that any child of Galois's generation would have been immersed in. What is sometimes believable as well is Galois's black-and-white outlook on things. During the first part of the novel, which takes place at the lycée, Evariste is only 15, and a black-and-white worldview comes, as they say, with the territory.

But here the decision to tell the story in the first person does not serve. Galois's writings are hardly voluminous and he was certainly not a happy young man—the word “detest” leaps off his pages. Petsinis's Galois detests everyone and everything—he says so often. Without any other substantive characters in the book to balance such pronouncements, Galois's story quickly becomes a one-note performance. There is little sign of the great affection for his parents and relatives that Paul Dupuy, Galois's original biographer, describes and that is evident in his letters. To be sure, a constant danger of a first-person narrative is that the subsidiary characters will fade into the background. That is precisely what happens here. Evariste's mother, who was responsible for his early education, was by all accounts an intelligent, lively woman even into old age, and one who saw religion

in the light of ethics. Petsinis has portrayed her as something of a religious fanatic. “Your father has turned from God, she glares. Paris! The new Babylon! The haunt of the Evil One! The source of atheism! I fear the Apocalypse is at hand! The signs are there: crime, debauchery, chaos! Don’t go back, Evariste. Stay here and help me lead your father back to God.” I am sure Petsinis chose this portrayal to prepare the way for her break with Evariste, which did take place when he was about 20. But it seems so unnecessary, and the dialogue ludicrous, when her son’s behavior is itself enough of an explanation.

By the same token, Galois’s father, the liberal mayor of Bourg-la-Reine, is a mere cipher. Women other than Galois’s mother, to the extent that they figure at all in the book, are mostly prostitutes standing in doorways (Galois detests the thought of sex; only mathematics is pure), and the July revolution consists mostly of crowds chanting the usual slogans: “Freedom of the press!” “Liberté, égalité . . .” Somewhat strangely, Galois himself appears as a reluctant revolutionary who turns from mathematics to politics only after his father commits suicide in the wake of a Jesuit plot against him. True, the choice allows for the character’s evolution, but it does contradict everything anyone has written about Galois—and the passion evident in his own writings.

Which leads to the second hurdle Petsinis faces: is this a 19th-century Galois? Partly. As I have said, the milieu Petsinis has created strikes one as credible. On the other hand, the sense of verisimilitude is occasionally shaken by some of Galois’s internal monologues, which sound surprisingly modern:

If I focus on the point, the line proves an illusion. Astonishing that something so intangible should be the basis of all geometry! In a flash, I see the indivisible point as the seed of creation. Perhaps the universe exploded from the primal point. Perhaps God is the primal point. Perhaps the soul is nothing more than a point.

Similar references to the fate of stars and to the nature of space and time do sometimes make Galois seem more like a 20th-century astrophysicist than a 19th-century mathematician. The problem is again exacerbated by the first-person narrative. We are able to see Galois only as he sees himself, not as others see him. In this instance the effect is not to bring Galois alive. Here is Petsinis’s Galois describing the famous Preface to his work he wrote while in prison:

I also managed to write a four-page preface to the book that would contain my collected work . . . I denounced patronage and attacked the Academy for losing my manuscripts . . . This was followed by a summary of the two papers I had reworked. . . .

I then went on to denounce Poisson and the examiners at the Polytechnique. Even though I had reason to believe the scientific fraternity would greet my work with a condescending smile, I persisted in trying to have my work published. . . .

Finally, I tackled the question of why readers found my work so difficult, even incomprehensible, and concluded it was due to my inclination to dispense with formalisms and calculations.

Here is some of the original:

I tell no one that I owe anything of value in my work to his advice or encouragement. I do not say so because it would be a lie. If I addressed

anything to the important men of science . . . I swear it would not be thanks. I owe to important men the fact that the first of these pages is appearing so late. I owe to other important men the fact that the whole thing was written in prison, a place, you will agree, hardly suited for meditation, and where I have been dumbfounded at my own listlessness in keeping my mouth shut at my stupid, spiteful critics . . . . The whys and wherefores of my stay in prison have nothing to do with the subject at hand, but I must tell you how manuscripts go astray in the portfolios of the members of the Institute, although I cannot in truth conceive of such carelessness on the part of those who already have the death of Abel on their consciences.

Is there any question which is the living Galois?

One is left feeling that a more effective strategy might have been to surround Galois by a group of third-persons trying to make out this character, refractory by Petsinis's own admission. Be that as it may, the sharpest issue raised by *The French Mathematician* centers on the portrayal of a mathematician. Art is of course enriched when it can find inspiration in science and mathematics. But is what we have here a convincing portrait? As a mere theoretical physicist, I have no special expertise. Nevertheless, I find it peculiar that any mathematician would be engaging in mathematical metaphors while dying, as Galois does:

I embraced that fatal sphere with my whole body. Dreams, memories, even the mathematics I had cherished and set down in my last will and testament—all receded. I am reduced to a singular point; in an instant I am transformed to  $i$ .

$i$  = an imaginary being

But Petsinis's Galois compares and contrasts everything with mathematics, even his true love: "Our fingertips touch. I summon all my courage to look into her eyes. There I am, circumscribed by her pupils. And in that instant  $\pi$  reveals its perfect proportion and is reduced to a chaos of digits, the Republic is created and destroyed, I am extinguished and reborn."

Well, perhaps I've never known a mathematician of Galois's caliber, but I find this pretty laughable. And this brings me to the main point. What *The French Mathematician* shares with its predecessors is the intention to portray a mathematician as a thing apart. It is an intention that Hollywood would appreciate; its typical scientists are direct descendants of Frankenstein. Strange that both the scientific and nonscientific communities seem bent on keeping scientists and nonscientists as distant from each other as possible. When Andrew Wiles announced his proof of Fermat's last theorem, the *New York Times* portrayed him as a man who had locked himself in an attic for seven years. Having been a close friend of Wiles during much of that time, I can state categorically that he is a man of broad literary interests who was an avid film-goer and was not above going out for a beer on Saturday evenings; he could also find work as a romance counselor.

One can't help suspect that there is some deep-seated need on the part of both the scientific and the nonscientific communities to maintain their separation. The result is not only a great deal of misunderstanding about what science is, but also a real antipathy between scientists and others—especially between scientists and artists. The situation is analogous to existing divisions in the publishing domain: literature is divided into genres, and each genre must have standard devices.

(Suspense novels must contain the prerequisite amounts of sex, violence, and endings that result in an explosion, narrowly averted.) Editors tell you this. Any novel that doesn't conform to these conventions is deemed unbelievable. And so the reality of the genre has replaced the reality of the real world.

In some respects the relationship between the sciences and the humanities long ago fell into the pattern of genre fiction. This is unfortunate and does not adequately reflect the reality of the world. In fact, mathematics and science have influenced art more, perhaps far more, than is usually acknowledged. In the late 19th century, speculation on the meaning of the "fourth dimension" was extremely popular and influenced the work of futurist and suprematist artists, who in turn influenced world architecture through Bauhaus. Einstein's relativity prompted artists and musicians of the 1920s to speculate on the nature of space and time, which resulted in the machine esthetic. Marcel Duchamp's famous "Large Glass" in Philadelphia was actually based on his musings about physics. Some historians argue that Girard Desargues invented projective geometry as a result of concern with perspective in art.

And so on. That is the way civilization is created, not by streams running each in its own course, but by streams coursing together. I can't help think that it is long past time on the part of both writers and scientists to emphasize their commonality of experience rather than their separateness of existence.

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5. Tony Rothman, *Science à la Mode: Physical Fashions and Fictions*, Princeton University Press, 1989. Chapter 6 is a revised version of [4] containing new material; it is also available at <http://titan.iwu.edu/~trothman>.

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#### *Reviewed by* **Bonnie Gold**

In the early years of this century, Platonism (by which I mean the belief that mathematics is the science of certain mind-independent, non-physical objects with determinate properties) was dethroned as the dominant philosophy of mathematics. Since then, there's been a struggle to replace it with an alternative that avoids the philosophical problems of Platonism while accurately reflecting the working mathematician's daily experiences of doing mathematical research.