
III. Where Does Science Come From?

Poe's Poet-Mathematician: Evariste Galois

by David Shavin

Poe's Dupin: "As poet and mathematician, he would reason well; as mere mathematician, he could not have reasoned at all."

Poe's Narrator to Dupin: "You have a quarrel on hand, I see," said I, "with some of the algebraists of Paris ..."

Charles Dupin (1819) on Descriptive Geometry

On the "general and purely rational geometry, of which descriptive geometry is only the graphic translation ... one's mind must be especially trained in this general geometry. One must be able to represent the shapes of bodies in space, and to ideally combine these shapes by the sole power of imagination. The mind learns to see inwardly and with perfect clarity the individual lines and surfaces, and families of lines and surfaces; it acquires a feeling for the character of these families and individuals; it learns to see them, combine them, and foresee the results of their intersections and of their more or less intimate contacts, etc. Thus the new geometry greatly strengthens the imagination; it teaches you how to grasp a vast collection of shapes quickly and precisely, to judge their similarities and differences and their relations of size and position ..." For example, regarding designing roads or railways through the countryside, "... engineering drawings are needed only for limited areas in which the best route to follow is easily



Evariste Galois

determined from the overall direction discovered by the geometric overview. It was this grand manner of considering the shapes of nature, which was discovered by the students of Monge ..."¹

I. Dupin, Poe's Poet-Mathematician

Aug. 20—In 1841, Edgar Allan Poe created the fictional character, the poet mathematician C. Auguste Dupin. He first appears in "The Murders in the Rue Morgue" (MRM), in which his "descriptive geometry" method succeeds in solving the crime, while the detailed and exhaustive methods of Police Prefect

G___ prove hopeless. In the previous year, 1840, Prefect G___, that is, the Police Prefect of Paris, Henri Louis Gisquet, had issued his *Memoires*, which included a curious dismissal of the violent death of Evariste Galois, one of the poet-mathematician students of Gauss' epic, *Disquisitiones Arithmeticae*.² The case is made here that Poe's poet-mathematician, in real life, was Galois, and further, that Poe's Dupin would secure justice for Galois.

1. Charles Dupin, 1819, "Historical Essay on the Contributions and Scientific Works of Gaspard Monge," translated by Larry Hecht.

2. "The Generation of 'Poet-Mathematicians': The Case of Niels Abel," by David Shavin, *EIR*, Vol. 44, Issue 30, July 28, 2017.

First, we look at Poe’s characterization of the particular genius of Dupin. In MRM, the first of Poe’s three “Dupin” tales, Poe challenges the reader with his Narrator’s (N’s) description of Dupin’s unique method of analysis. After walking together in silence for a quarter-hour, Dupin casually reads N’s mind with a line that seems to come from nowhere—that the actor Chantilly is indeed too short for the role of “Xerxes.” N is dumbstruck. By what power had Dupin divined N’s private thoughts?

Dupin explains his chain of reasoning: A stranger had bumped N, causing a brush with a pile of paving stones and discomfort to his ankle. A bit later on, upon encountering some advanced street paving, with “overlapping and riveted blocks,” Dupin noticed that N’s face brightened, and N murmured the word, “stereotomy.” (So, the art of three-dimensional cutting and fashioning—an element of descriptive geometry—can improve life, helping to avoid injuries from more backward alleyways.) The two of them had shared discussions on stereotomy, so the matter of the properties of constituent parts being developed from the characteristics of the larger dimensionality was a shared thought process. From their recent discussions about both Epicurus and “atomies,” or how the properties of the very small come about, the next part of their recent discussions was suggested.

This was, how the ancient Epicurus’ conjectures were in line with recent astronomical developments, that of the nebular cosmogony and the nebula of Orion! (Poe refers to a Dr. Nichol, a popularizer of John Herschel’s work on the organization, beyond the solar system, of galaxies.)³ When N next turned to look up at the stars, Dupin felt confirmed in his reasonings. Dupin reminded N that they had both read and discussed, in the previous day’s newspaper, a reference to Orion, which was included as part of an attack upon the actor Chantilly. When N smiled and altered his “stooping” posture, drawing himself up to full height, Dupin knew that N made the connection from Orion to the diminutive Chantilly playing roles that were too big for him.

3. Dr. J.P. Nichol’s 1838 *Views of the Architecture of the Heavens* featured an engraved plate from Herschel’s telescope, both shocking and charming the public with a representation of our Milky Way galaxy.



illustration by Frédéric Théodore Lix

C. Auguste Dupin, illustration for *The Pulloined Letter* by Edgar Allan Poe.

Only then had Dupin dared to articulate: “He is a very little fellow, that’s true, and would do better for the Theatres des Varietes.”

What should one make of a power to trace causal moves of the imagination and of the mind, combined with a few selected empirical confirmations? Before dismissing Dupin’s bold reasoning, consider N’s reflection: “There are few persons who have not, at some period of their lives, amused themselves in retracing the steps by which particular conclusions of their own minds have been attained. The occupation is often full of interest; and he who attempts it for the first time is astonished by the apparently illimitable goal.” Is there any child whose imagination has led him or her, perhaps at night before falling asleep, down strange avenues—and who, occasionally, hasn’t asked himself how he arrived at that point in his internal dialogue? There is a marvelous power to be acquired, though with no little difficulty, in training oneself, after allowing the imagination to roam, to then retrace the steps, working backwards. One learns secrets about oneself and, also, one develops the power of mind, of analysis. Poe’s boldness is that he openly, audaciously, addresses the development of that power.

In 1842, Poe’s Dupin character reappears in “The Mystery of Marie Roget,” based upon an actual, unsolved murder case in New York City. Dupin is further

developed in “The Purloined Letter” (1844). There, a crafty minister in the French government has stolen a document that compromises the Queen, and proceeds to blackmail her over policy matters. The minister is waylaid and searched more than once by Gisquet’s minions, to rule out his carrying the document on his person. It is known that the document is in the minister’s apartments, a finite area that Gisquet has searched inch by inch in excruciating detail. Dupin tells Gisquet that the minister “. . . is not altogether a fool, and, if not, must have anticipated these waylayings, as a matter of course.” “Not altogether a fool,” said Gisquet, “but then he’s a poet, which I take to be only one remove from a fool.” “True,” said Dupin, “. . . although I have been guilty of certain doggerel myself.” Dupin proceeds to discover the document almost immediately, astonishing N; and he does so, based primarily upon his analysis of the minister’s mind. He explains Gisquet’s shortcoming:

“This functionary, however, has been thoroughly mystified; and the remote source of his defeat lies in the supposition that the Minister is a fool, because he has acquired renown as a poet. All fools are poets; this the Prefect feels, and he is merely guilty . . . in thence inferring that all poets are fools.”

“But is this really the poet?” I asked. “There are two brothers, I know; and both have attained reputation in letters. The Minister I believe has written learnedly on the Differential Calculus. He is a mathematician, and no poet.”

“You are mistaken; I know him well; he is both. As poet and mathematician, he would reason well; as mere mathematician, he could not have reasoned at all, and thus would have been at the mercy of the Prefect.”

“You surprise me,” I said, “by these opinions, which have been contradicted by the voice of the world. You do not mean to set at naught the well-digested idea of centuries. The mathematical reason has long been regarded as the reason par excellence.”

“. . . The mathematicians, I grant you, have done their best to promulgate the popular error to which you allude, and which is none the less an error for its promulgation as truth . . . [Further, T]hey have insinuated the term ‘analysis’ into application to algebra. The French are the originators of this particular deception . . .”

“You have a quarrel on hand, I see,” said I, “with some of the algebraists of Paris . . .”

“The great error lies in supposing that even the truths of what is called pure algebra, are abstract or general truths.”

Poe and Galois

Compare Poe and Galois. Poe’s 1844: “. . . The mathematicians, I grant you, have done their best to promulgate the popular error to which you allude, and which is none the less an error for its promulgation as truth . . . [Further, T]hey have insinuated the term ‘analysis’ into application to algebra. The French are the originators of this particular deception . . .” In January 1831, the revolutionary 19-year-old, Galois, gave a series of classes in a Paris bookstore for the youth of Paris. His introduction: “Of all human knowledge, we know that mathematics is the most abstract, the most logical, the only one which does not appeal to the world of our sense impressions. Often one concludes that mathematics is, on the whole, the most methodic, the most coordinated branch of science. But this is an error.

“Take any book on algebra, whether a textbook or an original work, and you will see in it a confused mass of propositions, whose rigor contrasts strangely

with the disorder of the whole structure. It would seem that the ideas are so precious to the author that he abhors the pain of connecting them with each other, while at the same time his mind is so exhausted by the concepts which form the foundations of his work that he cannot produce one single thought that would coordinate this ensemble. Sometimes you seem to encounter a method, a connection, a coordination. But all this is wrong and artificial. You will find divisions of material for which there is no reason, arbitrary connections, conventional arrangements. These faults, still more glaring than the absence of all method, you will find chiefly in books written by men who do not know what they are writing about. All this must seem especially astonishing to people for whom the word ‘mathematics’ is synonymous with ‘rigor.’”

This is Infeld’s translation of Galois’ notes. It seems to be his reconstruction of the opening of the lecture series. He notes: “The lecture given in Caillet’s bookshop is genuine Galois; it is based on one of Galois’ notes in his posthumous papers.”

II. A Quarrel with the Algebraists of Paris

Evariste Galois was the genius who, more than anyone else of the time, developed Gauss' approach to the underlying laws of "pure algebra." Galois' method revived the physical geometry approach of the five Platonic solids and of Kepler, as transmitted through Gauss.⁴ Of this, more below. It was the chief algebraist of Paris, Augustin-Louis Cauchy, who did all he could to bury Galois' manuscript. It was Cauchy's factional allies who did all they could to bury Galois. Poe, a decade later, found the matter worth reviving.

Now for a brief introduction of two leading characters. Cauchy was a loyal administrator for the Restoration monarchs, Louis XVIII and Charles X, imposed upon France, 1815 to 1830, in the wake of the Congress of Vienna. In 1815, Gaspard Monge and Lazare Carnot were thrown out of their republican Ecole Polytechnique, and Cauchy was installed as overseer. In two infamous and thuggish cases, Cauchy accepted scientific treatises, under the obligation of making a report on them to the Academy of Sciences, and instead, he buried them. In 1826, Cauchy had buried Niels Abel's scientific treatise and, despite the hazard of a second such extraordinary "accident," he was not embarrassed to repeat this performance in 1829 with Galois' first two submissions—and very likely, even Galois' third submission in 1830. (Four unlikely accidents occurring one after the other—but if anyone could calculate the odds of that occurring, Cauchy could!) When Charles X abdicated in July 1830, Cauchy left France, leaving his family behind. He would spend five years trying to tutor an unwilling teenager, the grandson of Charles X and his chosen heir to the throne, as part of their plan to reconquer France.

Henri-Joseph Gisquet, Police Prefect in Paris from 1831 to 1836, was likely the man most responsible for the death, at age 20, of Evariste Galois. He certainly led the suppression of Galois' political movement. Poe's MRM tale identifies Gisquet's methods with those of an earlier prefect, Vidocq, and Poe would have been familiar with at least parts of both of their memoirs.⁵ Gisquet's own memoir, published in 1840, the year prior to the appearance of C. Auguste Dupin, included the type

of attempted coverup of Galois' death that Poe would have recognized immediately. It made for a case worthy of Dupin's analytic abilities. Poe concludes his "Murders in the Rue Morgue" with Dupin's skewering of Police Prefect Gisquet: "I like him especially for one master stroke of cant, by which he has attained his reputation for ingenuity. I mean the way he has 'of denying what is, and explaining what isn't.'" Gisquet's explanation of Galois' death: A friend killed him.

III. 'What Is'—The Genius of Galois

Both Cauchy and Gisquet did their best to deny what is—that Galois was a genius. First, a quick characterization of Galois' approach.

Galois had just turned fifteen, in the Paris of 1826, when Abel's method for analyzing higher-powered equations was announced to the French Academy. Between 1823 and 1829, Dirichlet, Abel, and then Galois—all based on Gauss' work—had treated the curious situation in which equations up to the fourth power could be submitted to algorithms, but beginning with the fifth power, the "quintic," nature seemed to defy such treatment. Even though Cauchy had buried Abel's paper (and Abel had died a month or two before Galois' first two papers were presented to the French Academy), Galois had effectively succeeded in extending Abel's approach to the quintic, and to solving higher-powered equations in general. In so doing, he developed a higher-powered language to examine what was going on. Imagine Cauchy's frustration in June 1829, when he realized his earlier, thuggish action might be to no avail.

Galois developed an analysis of equations based upon the symmetries, and non-symmetries, of the five Platonic solids. An equation could be factored, could be broken into constituent parts, if symmetries, or even partial symmetries, could be located. If no symmetries were locatable, the equation could not be factored. (These symmetries are typically explained by delving into the symmetries in the representation of the coefficients, or characteristics of a formula, by matrices. However, the fascination with bookkeeping matters there, tends to obscure the principle.) A simple case of this type of analysis is reflected in the exercise students go through in determining whether a number is composite or prime—the factors are primitive "subgroups" of a number.

4. For example, compare the bulk of Gauss's 1799 "Fundamental Theorem of Algebra" with his drawing at the end.

5. Portions of Vidocq's memoirs appeared in *Burton's Magazine*, 1838-1839. Poe was an editor of *Burton's* in 1839-1840.

A somewhat more complicated case arises with Gauss' analysis, where some bases revolve through a given modulus without ever repeating until all possible residues are given, while others form subgroups of repeated patterns before they ever cover all the possible residues. The powers of three—3, 9, 27, 81, etc.—are expressed in a modulus-5 system as 3, 4, 2, 1. (These are what is “left over,” the residue, after the modulus of five is divided into the number.) These four “residues” will keep repeating, and they cover all the possibilities in a modulus-5 world. However, the powers of four—4, 16, 64, 256, etc.—become 4, 1, 4, 1, etc. Four, in modulus-5, forms a subgroup that does not exhaust all the possibilities. In the modulus-5 world, 3 acts, loosely speaking, more “prime”-like than the more “composite”-like 4.

The power of mind had to be developed to “see” the rich interplay amongst the five Platonic solids (the cube, tetrahedron, octahedron, icosahedron, and “first

among equals,” the dodecahedron—whence the other four are best situated).⁶ Galois developed that new language, involving what are called modular functions. When confronted with an apparent barrier at the fifth power, Galois took Abel's hint that we would not solve—and properly benefit from—this barrier by any normal extension of the methods developed from 2nd, 3rd, and 4th power solutions. And he took the Creator's hint, just as in Plato's *Timaeus* dialogue, that man is fulfilling his historical mission if he pursues the mysterious and rather miraculous, unseen powers that are

6. Unfortunately, the closest most students get to even a hint of such symmetries is in the expansion of a sum raised to a power. They are told to use Pascal's Triangle, in which the same coefficient appears symmetrically. (That is, for a fifth power expansion, having six terms, they pair up as 1st and 6th, the 2nd and 5th, and the 3rd and 4th.) However, even this simple symmetrical character is left unaddressed and unexplained. Instead, the student gets the practical advice: “Learn the rule. It works.”

From Galois to ‘Group Theory’

Felix Klein, in his *Lectures on the Icosahedrons and the Solution of Equations of the Fifth Degree*, would give permission to mathematicians to neutralize the Platonic solids, treating them as merely a representation equivalent to the matrices. But there is a difference between the foot and the footprint. As a result, Galois' employment of the word *groupe* has become the label for a group theory in which most “group theoreticians” end up playing with the numbers with little or no idea of the “descriptive geometry” approach rooted in the Platonic solids. (A related, but simpler, illustration of this is involved in the preference for digital computation over analogue computers.) Klein's problem originated in the mistake that we had Poe's Dupin cite earlier, “they have insinuated the term ‘analysis’ into application to algebra. The French are the originators of this particular deception. . . .”

Leibniz's “analysis situs” is neutered and assimilated into previous algebraic techniques. See Lyndon LaRouche, in his “How Bertrand Russell Became an Evil Man” (*Fidelio*, Fall 1984), who identified the

Klein problem as such: “Those choices of starting points set the stage for Klein's crucial, false assumption, set forth on pp. 58-59 [of Klein's *Famous Problems*]: ‘The period from 1670 to 1770, characterized by the names of Leibniz, Newton, and Euler, saw the rise of modern analysis. Great discoveries followed one another in such an almost unbroken series that, as was natural, critical rigor fell into the background. For our purposes the development of the theory of series is especially important.’ With that silly bit of pedagogical hand waving there, you have Klein's hoax set into place on stage. Henceforth, everything said by Klein is an extension of that whopper, that fallacy of composition.

“The crucial code words from that citation are ‘analysis’ and infinite ‘series’. Those code words' appearance rightly implies that Klein is not addressing the ontological problem of species distinction, which he only pretends to be attacking; he is engaged in a sleight of hand, pretending to address an ontological problem, while considering only a formal one. He is addressing a problem in infinite series; he is using the credibility of Hermite's and Lindemann's work on this problem of infinite series, to deflect the viewer's attention from the fact that he is not addressing the ontological problem at all. That is the formal nature of his fraud.”

found to shape and structure the world as presented to us.

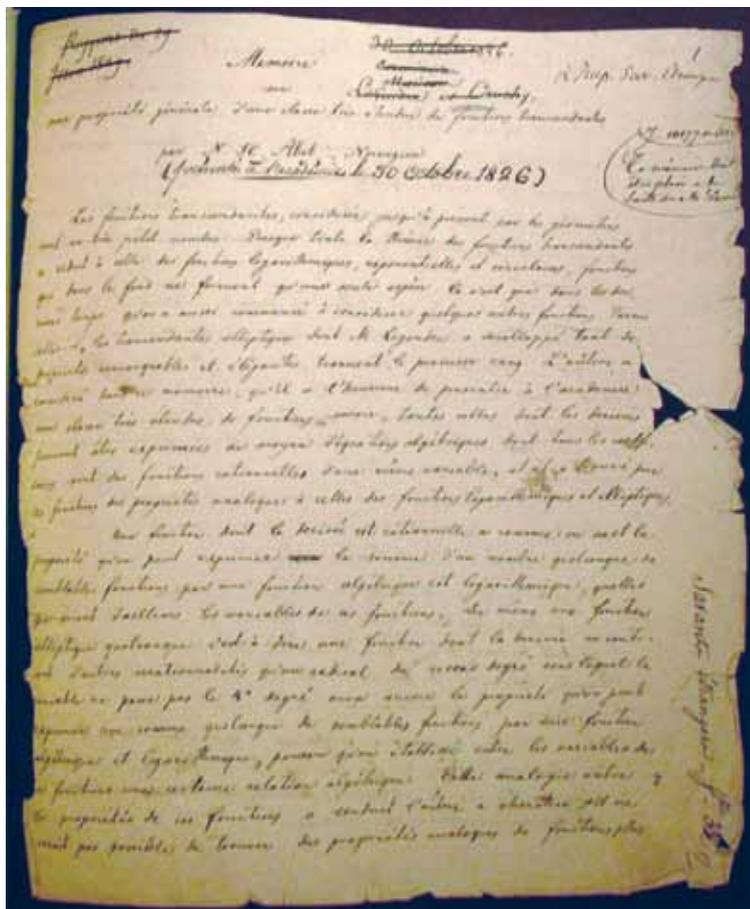
Again, Charles Dupin's discussion of "descriptive geometry," ten years prior to Galois' paper, appears as an excellent estimate of Galois' process: "One must be able to represent the shapes of bodies in space, and to ideally combine these shapes by the sole power of imagination. The mind learns to see inwardly and with perfect clarity the individual lines and surfaces, and families of lines and surfaces; it acquires a feeling for the character of these families and individuals; it learns to see them combine them, and foresee the results of their intersections and of their more or less intimate contacts, etc. Thus the new geometry greatly strengthens the imagination; it teaches you how to grasp a vast collection of shapes quickly and precisely, to judge their similarities and differences and their relations of size and position...."

IV. Galois, Revolutionary-Mathematician

Poe has the Narrator in "The Purloined Letter" address Dupin: " 'You have a quarrel on hand, I see,' said I, 'with some of the algebraists of Paris . . . ' " Galois was the outstanding example of Dupin's quarrel with the algebraists of Paris. We wish to deal with Galois' last year, before his death at age 20, as a prisoner of Police Prefect Gisquet. For that purpose, let's fill in Galois' story with a summary of his tumultuous last three years, beginning with his first submission to the French Academy of Sciences.

Cauchy Buries Galois' Paper

Galois, still five months shy of eighteen, submitted two papers to the Academy of Sciences on May 25 and June 1, 1829. Cauchy took possession of them, as he was to make the report on them to the Academy. Then on June 22, 1829, the news of the April 7 death of Niels Abel was announced at the French Academy. At the time, Cauchy had held Abel's *memoire* for three years, and Galois' for only three weeks. Karl Jacobi, the collaborator of both Abel and Lejeune Dirichlet, brought attention to Cauchy's malfeasance, and attempted to get Abel's manuscript from Cauchy. There was evident ner-



Niels Abel's manuscript that was buried by Cauchy.

vousness at the Academy over Cauchy's heavy-handed tactics, for Legendre seems to have manufactured a cover story for Cauchy. He pretended to Jacobi that he and Cauchy had agreed to ask Abel for a neater copy, since "we perceived that the memoir was barely legible; it was written in ink almost white, the letters badly formed . . ." However, when the document was finally dug out of the Academy in 1840, it was quite legible—remaining so even today.⁷ Clearly, something was clouding the "perceptions" in Paris, and there is no reason to believe Abel was at fault for failing to provide a "neater copy." Jacobi's 1829 inquiry, in bringing attention to Cauchy's previous fraud, would normally have been enough for most ideologues to give pause before claiming a second misplacing of a submitted paper.⁸

7. Legendre's evasion suggests that he estimated Cauchy's intent, as of the Spring of 1829, that the document would never see the light of day. Otherwise, he likely would not have ventured such a cover.

8. Abel's manuscript was not produced until 1840, upon official diplomatic pressure of the Norwegian consul.

At this same time that Galois was launching his scientific career, his father died under bizarre circumstances. Nicholas-Gabriel Galois, the popular and witty mayor of a small town near Paris for the previous fifteen years, was targeted for destruction by the town's new Jesuit priest, who had allied himself with some Ultramontanists, local enemies of the mayor. They manufactured a scandal by circulating vulgar epigrams directed against locals, and forging the mayor's name to them. On July 2, 1829, Nicholas-Gabriel was found dead, asphyxiated in an apartment in Paris. A note was left for Galois from his father, explaining that the ugliness left him no choice.

In January 1830, Cauchy finally did agree to report to the Academy on Galois' historic paper. However, Cauchy wrote, on January 18, that he was not well, and that he had to delay his report until the next week. The following week Cauchy did show up; however, he made a presentation on his own work, never mentioning Galois or his manuscript. What happened that week to Cauchy, certainly, would make for a curious story; but what is one to think of the other scientists at the Academy, staring at the naked emperor of the Hans Christian Andersen story?

After that performance, it had to be pretty clear that Galois might not be getting his two manuscripts back any time soon. In February 1830, Galois rewrote his two papers into one submission for the Grand Prize in Mathematics contest. That new paper went to the Academy's permanent secretary, Joseph Fourier. We may presume that Cauchy got the paper from Fourier, since Galois evidently reported, to his close friend, Auguste Chevalier, that Cauchy had seen this new paper. However, that paper also was lost, and consequently was eliminated from the Grand Prize determination.⁹ That

9. Blame for the lost paper is somehow associated with the fact that



painting by Pierre-Narcisse Guérin
Charles X



painting by Franz Xaver Winterhalter
Louis-Philippe

spring, Galois turned to the *Bulletin de Ferussac* to publish three new short items. Ferussac and his group were the ones who had aided and employed Abel in 1826.¹⁰

Revolutionary Activities

It was at this point, July 9, 1830, that King Charles X announced that he would solve his problems over the growing electoral success of his opposition. He would simply rule by ordinance. His repressive ordinances on July 25, 1830 were the immediate trigger for the July Revolution, whereby the republicans around Lafayette settled for an arrangement with Louis-Philippe, making him the "Citizen-King." Charles X abdicated in favor of his ten-year-old grandson and left for London. Galois joined Lafayette's National Guard—notably, the Artillery Unit section, the core of the republicans.

That same Fall, a fellow member of the Artillery Unit, the scientist François-Vincent Raspail, recruited

Fourier died in May 1830 and the Galois paper was not found among the other papers in Fourier's study. This is rather transparent, as no other submitted papers were similarly lost.

10. Shavin, see note 2. In 1831, the government would cancel the subscriptions of its various bureaus to Ferussac's journal, causing financial hardship and loss of control over the journal. The journal died shortly thereafter, following the Republic to the grave.

Galois to his more militant republicans of the Society of Friends of the People.¹¹ In December, Louis-Philippe ordered the disbanding of the Artillery Unit, the dismissal of Lafayette as head of the National Guard, and the arrest of nineteen of its leaders. They were suspected of planning to turn over their heavy artillery to “the people” and are charged with a conspiracy to overthrow the government. They were tried in April 1831.

On March 13, 1831, financier Casimir Périer replaced Pierre Laffitte as both President of the Council of Ministers and Finance Minister. Typical of the machinations now afoot, the government offered to confer membership in the Legion of Honor on Raspail, a noted scientist in his own right. He viewed it as the bribe that it was, and signed his refusal “Raspail, plain citizen.” Périer made clear the government’s game involving Raspail: “He must accept or else rot in a dungeon!”¹² The government’s actions from December 1831 to April 1832—involving the dismissal of Lafayette, the dismantling of the Artillery Unit of the National Guard, the arrests of the Nineteen, the dumping of Laffitte for Périer—made it clear that the “Citizen-King” was more the “Financier’s-King.”

On April 16, 1831, all nineteen republican leaders were found innocent, with great public celebration. Then on May 10, 1831, Galois was arrested for his role, the previous evening, at a dinner party for the Nineteen. Of his last twelve months of life, Galois would spend ten of them imprisoned, most of them at Sainte-Pélagie prison.



painting by Joseph-Désiré Court
Gilbert du Motier, Marquis de Lafayette

What had Galois done at the famous May 9 celebration dinner, attended by two hundred or so republican enthusiasts, many of them dressed in their National Guard uniforms? After the official (pre-arranged) toasts ended, more spontaneous toasts ensued. Etienne Arago, for example, received an enthusiastic response to his: “I drink to the Sun of 1831. May it be as warm as that of 1830, but not blind us as the other did!”

Amidst these sentiments, Galois put a point on matters. With one hand holding his wine glass and the other his meat knife, he calls out, “To Louis-Philippe!” A ruckus ensued. Then he continues with words not well heard over the hubbub, “... if he betrays his oaths.” Alexandre Dumas, in attendance,

reported that, because of the presence of police agents, he “didn’t care to be compromised” and he “jumped from the window sill into the garden.” That night, the police agents at the dinner did indeed report Galois, and the next day he was arrested at his home and taken to prison.

Prison and Auguste Chevalier

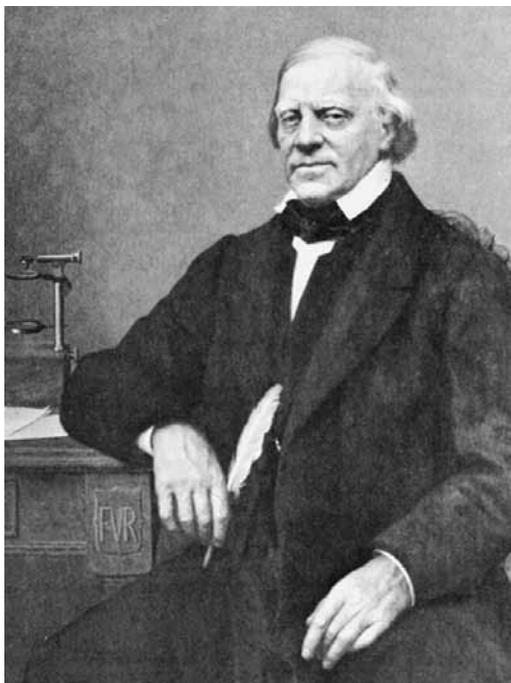
At his trial, on June 15, the judge probed Galois as to why he was afraid the King would betray France. Galois was, typically, simple and direct: “Everything encourages us to adopt this position ... it is reasonable to believe that Louis-Philippe could betray the Nation. He has not given us enough guarantees ... [A]ll the King’s actions, though not yet showing his bad faith, can lead us to doubt his good faith. One example is the background of intrigue to his accession to the throne.” At that point, he was prevented from going further, but it is a good bet that Périer’s name was about to enter the analysis. Galois’ lawyer suggested to the judge that this line of questioning may get into matters better left alone, to which the prosecution quickly agreed.

Galois concluded, not as simply this time: “I confess my behavior [with the toast] was rather sly. You can surely imagine the police inspector’s joy, when he

11. Raspail identified the goals of the “Friends of the People” in his January 1832 court case: “... an elected executive with a short term in office; a constitution, ... universal military service without replacement; juries chosen by lot from among all citizens; freedom of the press, assembly, and worship; the right to work; and the abolition of the death penalty.” See Dora B. Weiner’s *Raspail: Scientist and Reformer*, p. 171.

12. Laffitte, much more the industrial banker, had been undermined by Périer throughout the first seven months of Louis-Philippe’s administration. (Laffitte is named by Dumas as the source of Poe’s funds in Paris in 1832.)

thought he had unmasked a conspirator . . . [However,] I cannot let what the public prosecutor said, about it being impossible for the King to be a traitor, go unanswered. Nobody is foolish enough to believe now that a king is perfect, especially since when judges—who under Charles X, persecuted us, because we said that the King could neglect his duties—have themselves now sworn allegiance to another man, who had been placed on the throne, as the result of his predecessor’s stupid behavior.” In one extended sentence, he managed to circumvent his lawyer, the prosecutor and the judge. The jury ruled that Galois was not guilty.



François-Vincent Raspail

On the day of Galois’ trial, his loyal friend, Auguste Chevalier, published in *Le Globe* both praise of Galois’ mathematical genius and condemnation of the unfair treatment directed toward him. It related the story of the third lost paper, the one submitted for the Grand Prize sixteen months earlier. Galois added that in January 1831, he had rewritten that memoire and resubmitted it, but that Poisson at the Academy had sat on it. Three weeks after Chevalier’s publication, on July 4, 1831, Poisson reported to the Academy that Galois’ paper was, as far as they understood, not worthy and was to be returned to Galois.

Galois was arrested for the second and last time on Bastille Day, July 14, 1831. This was to be the first Bastille Day since the July Revolution of 1830, and the police moved pre-emptively. During the night of July 13/14, Republican leaders were arrested in their homes; but Galois, perhaps as a precaution, was not at home. On the 14th, in uniform, he led a group of 600 demonstrators. The police were waiting for Galois at a bridge, and he was arrested and jailed with, again, no violence from the demonstrators. He was put back into the Sainte-Pélagie prison. There he joined his colleague, Raspail, who had been arrested and convicted the day after the May 9 celebration dinner. Evidently, Galois was jailed for three more months before he was finally charged—and the charge would be for bearing arms and wearing the uniform of the disbanded Artillery Unit

of the National Guard.

Some time in October, during those three months of uncharged detention, Galois was shown the rejection letter from the Academy of Sciences, informing him that Poisson could not understand Galois’ paper. (At least Galois’ fourth submission was not “misplaced” as were the previous three—perhaps one of the few accomplishments of the glorious events of 1830, the July Revolution and the flight of Cauchy!) Galois turned to Auguste Chevalier to privately publish his material. It was in one of these letters from prison that December that Galois tells Auguste: “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.” It also raises the question, what could Auguste conceive when his correspondent was dead within six months?

V. Gisquet vs. the ‘Fierce Republican’

Why Would Poe Pick on Gisquet?

Henri-Joseph Gisquet took over as the Prefect of Police on October 15, 1831, replacing Louis Sebastien Saulnier, a man who lasted as prefect less than one month.¹³ (The eight prefects prior to Gisquet had averaged less than six months each.) Gisquet would serve

13. It is quite possible that Gisquet’s appointment was conjoined with Saulnier’s redeployment. That is, the royalist Saulnier seems to have earned his September 1831 appointment as Prefect, due to his sophistical attack on the American government, claiming that a republic costs more to administer than a kingdom, published in the June 1831 *Revue Britannique* (a journal that he had founded in 1825). LaFayette then engaged James Fenimore Cooper to respond on the realities of governing in America. In turn, Saulnier’s October 15 redeployment, taking point against LaFayette, Cooper, and General Simon Bernard in a series of public exchanges, became the infamous “Finances Controversy” in France’s Chamber of Deputies.



Prefect Henri Joseph Gisquet

for the next five years. Two weeks later, on October 29, a shot was fired into Galois' room in prison, where all three prisoners were quietly preparing for a night's sleep. The shot was fired from a guard room. (It was never determined whether this was just an accidental discharge of a weapon, a deliberate attempt on Galois' life, or simply a warning shot, to send a message.) Galois and the other two were imprisoned in the dungeon for complaining about being fired upon. The other prisoners revolted, and temporarily took over the prison, securing Galois' release from the dungeon. Still alive, in November Galois was now officially charged by Gisquet for the July 14 demonstration. Found guilty as charged, he was scheduled for release on April 29, 1832.

Raspail described Galois in Sainte-Pélagie: "This slender, dignified child, whose brow is already creased, after only three years' study, with more than sixty years of the most profound meditation; in the name of science and virtue, let him live! In two years' time he will be Evariste Galois, the scientist! But the police do not want scientists of this caliber and temperament to exist." Raspail's *Reforme pénitentiaire: Lettres sur les prisons de Paris* is the prime source for Galois' time in jail. Years later, in 1839, his publication of those letters

may have led to a renewed interest in Galois' case, either for Poe's 1841 "Murders in the Rue Morgue" or for Joseph Liouville's 1843 decision to edit and publish Galois' papers, or both. However, there is little doubt that it did provoke Gisquet, whose 1840 *Memoires* explained: "The government and the conspirators [Raspail's Society of the Friends of the People] were engaged in a relentless daily struggle ... I ordered the local branches dispersed as soon as they were founded, I had their papers confiscated, their members arrested."¹⁴

In January 1832, the trial of Raspail and fourteen other leaders of the Society of the Friends of the People took place. Galois was a witness for the defense. The jury found them not guilty, but the judge gave Raspail fifteen months in prison for statements he made during the trial. Raspail had threatened the King for demanding "fourteen million for living expenses of an impoverished France" Raspail's attack reflected the then current debate in the Chamber of Deputies (January 16, 1832), known famously as the "Finances Controversy," in which Lafayette addressed the cost of a kingdom versus that of a republic. Briefly, Saulnier's *Revue Britannique*, months earlier—the same Saulnier who had been Prefect of Police just prior to Gisquet—had claimed that the American republic cost its citizens more than the French kingdom (hence, France should save money and choose a kingdom). This impelled Lafayette to request James Fenimore Cooper, then living in Paris, to provide Lafayette with an extensive report on America's economy, government, and finances for use in the debate.¹⁵ Cooper's use of details of production and finances in the United States showed that a republic cost less per capita—basically because production per capita is higher.¹⁶ Importantly, General Simon

14. A typical police report under Gisquet: "To the Minister of the Interior, Sir: I have just learned that Raspail ... has come to Lagny ... and has participated in an anti government dinner party. Raspail's apparent purpose is to learn about cereals and agriculture from peasants, farmers, and millers. The information seems necessary for the book he is writing; but since the trip might conceal a political purpose, I thought it my duty to keep you informed. Raspail will be discreetly watched during his stay ..."

15. Cooper's November 1831 letter to Lafayette, "On the Expenditure of the United States of America," used for Lafayette's testimony to the Chamber of Deputies.

16. Lafayette had requested Cooper's help in September 1831, but Cooper was finishing up *The Bravo*, his novel on Venetian methods—a work completely appropriate both for 1831 Paris and for his American readers. After completing it, Cooper worked with Lafayette on the "Finances Controversy" in November and December 1831. (Dumas' claim that Fenimore Cooper recommended Poe to him certainly dovetails with

Bernard, back from fourteen years in America, joined in the fray in coordination with Lafayette and Cooper. His relationship with West Point's Sylvanus Thayer and with Poe is developed below.

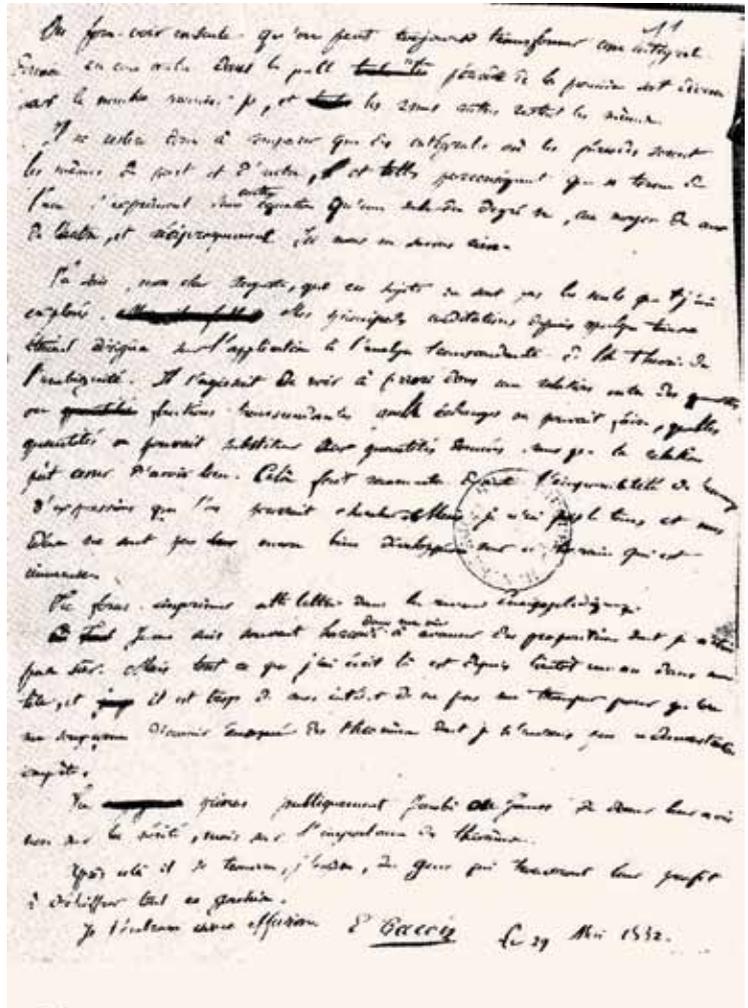
The Death of Galois

Galois' prison sentence was completed on April 29, 1832. One month later, on May 29, he spends the night writing to friends, informing them of a duel the next morning, and to his most trusted friend, Auguste Chevalier, providing a quick summary of his mathematical work. (This letter gained fame for the claim that Galois invented group theory in the hours prior to his shooting.) On May 31, he dies in the Cochin Hospital, a hospital for the indigent. Evidently, he had been found the previous day in the countryside by a peasant, with a bullet in his intestines. His brother, Alfred Galois, reported his last words were, "Don't cry. I need all my courage to die at twenty."

It is not known what details Evariste Galois communicated to his younger brother that last morning in the hospital, but Alfred insisted from the very first that his brother's death was the work of police agents. The next day, June 1, Galois' associates at the Society of the Friends of the People plan the funeral and the political demonstration. Gisquet has advance notice, raids the meeting, and arrests thirty of the leaders.¹⁷ Despite all this, some two to three thousand show up for the funeral the next day and, despite Gisquet's insistence that they planned violence, they hold a funeral, not a violent demonstration.

The controversies over the shooting of Galois are well beyond the scope of this article. They involve, variously, police agents, a love interest, a duel with someone possibly with the initials "L.D.," and so on. The book-length treatment by Einstein's colleague, Leopold Infeld, *Whom the Gods Love*, develops the role of the extensive police-state control over the various characters.

What is of interest, rather, is what would have jumped out to Poe's Dupin: Gisquet's sole mention of



May 29, 1832: Galois' last page, to Auguste Chevalier: "Ask Jacobi or Gauss publicly to give their opinion, not as to the truth, but as to the importance of these theorems. Later there will be, I hope, some people who will find it to their advantage to decipher all this mess."

Galois occurs when he arrives in his *Memoires* at May 1831: "M. Galois, a fierce Republican, was killed in a duel by one of his friends." Otherwise Gisquet's version is that he had to raid the funeral planners because it was really a plot to start a violent revolution. And despite Gisquet's mass arrests, the only reason the 2-3,000 attendees didn't begin any trouble is because, at the last second, they heard that General Lamarque had just died of cholera, and so decided to delay their revolutionary rioting until Lamarque's funeral, three days later. As Dupin concludes "The Murders in the Rue Morgue," speaking of Police Prefect G___: "I like him especially for one master stroke of cant, by which he has attained his reputation for ingenuity. I mean the way he has 'of denying what is, and explaining what isn't.'"

Poe's 1831 request of Thayer for an introduction to Lafayette.)
17. Gisquet claims that he had put padlocks on the arranged meeting place, and that the group broke his padlocks. But, even if this were true, the point remains: Gisquet meant to physically prevent the meeting. He, again, explains what isn't and avoids what is.

VI. Poe's Dupin: Justice for Galois

Did Poe really have Evariste Galois in mind in creating his singular C. Auguste Dupin figure? And, if so, did he secure some justice for Galois? It is time now for a bit of Poe's side of the story, overlapping the same period as Galois' story. What was Poe's competency in "descriptive geometry" and what was his knowledge of Gisquet and Galois?

Thayer, the Ecole, Bernard and West Point

In March 1831, Poe wrote to Sylvanus Thayer, the head of West Point, outlining his plan to go to Paris, and asking him to provide him with a letter of introduction to Lafayette and to Thayer's contact(s) in Paris. Poe had

studied at West Point from July 1830 to March 1831, where the leading mathematics text, prepared by the head of West Point's Department of Engineering, was Claudius Crozet's 1821 *A Treatise of Descriptive Geometry for the Use of Cadets of the U.S.M.A.* Thayer had recruited Crozet from the Ecole Polytechnique during his mission to Europe in 1815-1817, in preparation for becoming superintendent of West Point Academy in 1817.

Thayer had spent most of his two years there in Paris with members of the Ecole Polytechnique. It was a difficult and repressive period, as the restoration of the monarchy included the castration of the Ecole. Both Gaspard Monge and Lazare Carnot were forced out, and the Ecole was put under Cauchy's control. Thayer



Poe's letter to Gen. Sylvanus Thayer, March 1831: "Having no longer any ties which can bind me to my native country—no prospects—nor any friends—I intend by the first opportunity to proceed to Paris with the view of obtaining, thro' the interest of the Marquis de Lafayette, an appointment (if possible) in the Polish Army. In the event of the interference of France in behalf of Poland this may easily be effected—at all events it will be my only feasible plan of procedure. The object of this letter is respectfully to request that you will give me such assistance as may lie in your power in furtherance of my views. A certificate of "standing" in my class is all that I have any right to expect. Any thing farther—a letter to a friend in Paris—or to the Marquis—would be a kindness which I should never forget."



Fort Monroe, 1861

was led by Lafayette to former Ecole faculty, in particular, to his colleague, Gen. Simon Bernard, who, during 1816, would personally instruct Thayer in descriptive geometry. Lafayette wrote President Madison that General Bernard was the man to build fortifications for the United States all along the East Coast.¹⁸ Bernard was appointed the head of the U.S. Corps of Engineers, and the Chief of Fortifications. The first fort that Bernard built for the United States was Ft. Monroe, in the port of Hampton and Norfolk, Virginia. Since Poe, prior to West Point, had been based there in 1829, he had the opportunity to study Bernard's real-life application of descriptive geometry.

Training at West Point

When, Poe arrived at West Point in June 1830, he promptly tested into the "first section," which included more advanced math topics (such as spherical geometry).¹⁹ A fellow West Point student (the future

Colonel) Allan Magruder, remembered Poe as having "a wonderful aptitude for math . . .," only surpassed by his poetry and his command of French. Even though Poe had already decided to leave West Point, in the January 1831 math exam, he still placed 17th (out of 87 cadets). Poe was not a slacker in the subject.

How much of Crozet's *Descriptive Geometry* Poe was exposed to in his nine months there is unknown, but his Dupin character certainly evidences a command of the principles. Regardless, at the point of his arranged early departure from West Point, Poe thinks his best pathway is to pursue Thayer's French contacts around Lafayette.²⁰ It is also of note that Thayer's friend and instructor, Gen. Bernard, decided, no later than February 1831, to return to post-Restoration France, to become the head of the French Corps of Engineers. He arrived back in France in the Fall of 1831, and immediately joined in with Lafayette and Fenimore Cooper in their defense of the United States in the national deliberations over France's future. Such a development is not one that a sharp fellow, such as Poe, would likely have missed.

Alexandre Dumas tells the story that, in 1832, he and Poe investigated the murders in the Rue Morgue (though with the actual French neighborhood, St-Roch, given). He followed up his story with another reference to Poe's visit with him, embedded in a manuscript not written as fiction.²¹ This fits in perfectly with Poe's

18. Around 1816, Bernard was banished from Restoration France. He rejected an offer from Czar Alexander I, preferring to come to the United States. After the British navy had savaged the U.S. East Coast during the War of 1812, Madison, learning the hard way, abandoned Jefferson's pre-war, "penny-wise and pound-foolish" policy of not providing such logistical capability.

19. In November 1830, Poe wrote home for math books, assumedly from his time at the University of Virginia. These included LaCroix's *Elements of Algebra* and Legendre's *Geometry*. The Charlottesville professor there who selected LaCroix for the students, one Charles Bonneycastle, belonged—according to Cajori—"to that coterie of English mathematicians of which Herschel, Peacock, Whewell, and others were members, and which introduced the Leibnizian notation . . . into Cambridge." They wanted to bring LaCroix's works into Cambridge University. See discussion of John Herschel's "The Principle of Pure Deism, in Opposition to the Dotage of the University" in *The New Dark Ages Conspiracy* by Carol White. Evidently, Bonneycastle did so for Charlottesville.

ville.

20. Coincidentally, Poe forces himself out of West Point at the exact same time that Galois is forced out of the *Ecole normale*—the end of formal education for both of them.

21. Dumas' version was published in his own Naples newspaper in 1860-1861. A manuscript from 1864 surfaced in 1929, referencing

intent, as expressed in his letter to Thayer, and would account for his uncanny sense of a complicated political situation in France. However, putting aside the matter of Dumas' story, there is no doubt that over the next ten years, Poe displayed a healthy interest, an amazing acumen, and a strategic overview of the problems and developments in France—to a level that would make it even more amazing had he done all his work from America. A microcosm of this is enveloped in the matter of Poe's name of the poet-mathematician, "C. Auguste Dupin."



Edgar Allan Poe

The 'Dupin' Riddle

There is no one actual figure with the name "C. Auguste Dupin" of whom Poe would have been aware. It is somewhat ironic that the infighting that goes on over the issue is such a strong example of the nitpicking methods of Vidocq and Gisquet. Poe's playfulness with the name is a much richer story. The central figure for Poe is that of Charles Dupin, whose 1819 lecture on Monge's *Descriptive Geometry* is excerpted above. Dupin was Monge's student at the Ecole Polytechnique,²² and his studies significantly overlap those of Crozet, Bernard, and Thayer. Dupin's first major work, his 1813 *Developpements de geometrie*, was dedicated to Monge.

Dupin also had a political career, which featured attempts to eliminate illiteracy and to educate skilled labor in France, both for the purpose of enabling new scientific applications to radiate throughout production.²³ His electoral victory in 1827 was part of an up-

surge of republicanism in France that would bring an end to the Restoration period. It is noteworthy that Charles Dupin and Gen. Bernard were fellow ministers (of Navy and of War, respectively) in the aborted November 1834 French government.²⁴ It would, perhaps, have been a semi-miracle if Dupin and Bernard had consolidated power in 1834, but regardless, the attempt was the sort of development that would easily have attracted Poe's attention.

There is also good evidence that Poe followed Charles Dupin's brother, André. He was the President of France's Chamber of Deputies from 1832 to 1840. André had a reputation as the legal defender of oppressed re-

publicans during the Restoration period, most famously, of Marshal Ney. André attached himself to Louis-Philippe early on (1817) as the most sane possibility amongst the royal families. In 1830, upon the July Revolution, André initially became minister without portfolio in the first cabinet, that of Laffitte. André Dupin himself was a subject of Lomenie's *Sketches of Conspicuous Living Characters of France*, a work reviewed by Poe in the same April 1841 issue of *Graham's Magazine* in which C. Auguste Dupin first appeared.

Recall that Poe, in his 1844 "Purloined Letter," has the narrator bring up two brothers, the minister who knows mathematics, and the brother, a man of letters and poetry. The narrator doubts that the minister whom Dupin is tracking is really a poet-mathematician:

"But is this really the poet?" I asked. "There are two brothers, I know; and both have attained reputation in

Poe's visit, but not written as a tale. It states that James Fenimore Cooper provided Poe an introduction to Dumas. Most telling, 1832 is the only year of Poe's writing career in which he sends nothing to a publisher. (The five stories published in 1832 were all given to his Philadelphia publisher in 1831.)

22. At the *Ecole*, Dupin constructed a specially designed structure for the invasion of Great Britain, which he and his fellow students christened the *Polytechnique*.

23. Dupin's 1827 election pamphlet, *Situation progressive des forces de la France depuis 1814*, was favorably noticed by Friedrich List and his Pennsylvania Society for the Encouragement of Manufactures. They

noted in particular the dirigist argument for uplifting the labor force. (Later, List's 1841 work, *The National System of Political Economy*, notes: "Men of the deepest insight into the condition of industry, such as Chaptal and Charles Dupin, had expressed themselves on the results of this system in the most unequivocal manner.")

24. The brawls over the cabinets of Louis-Philippe, the Citizen-King, were complicated—but Lafayette's 1830 deal with Louis-Philippe was perhaps the high point of the republican influence. After December 1830, most of the republican actions have a rear-guard quality.

letters. The Minister I believe has written learnedly on the Differential Calculus. He is a mathematician, and no poet.’

“You are mistaken; I know him well; he is both. As poet and mathematician, he would reason well; as mere mathematician, he could not have reasoned at all, and thus would have been at the mercy of the Prefect.”

Here, Poe seems to use the reality of the actual Dupin brothers to further his case for the poet-mathematician. But, even further, Prefect Gisquet can defeat either of the actual Dupin brothers should they be merely poet or mathematician—a fair description as to where the actual brothers might have fallen short, and a pointed reminder as to why republicans need to hold themselves to higher standards.

How a Riddle Is Solved

So much for Charles and André Dupin. But Poe’s Dupin is a “chevalier” named “C. Auguste Dupin.” Certainly, the initial “C.” could certainly be a nod toward Charles Dupin. However, no commentators deal with the obvious—the, as it were, “Purloined Letter”-type of clue of the remaining “Auguste” and “chevalier.” There is an actual historical figure named Auguste Chevalier. We have met him. It is Galois’ most loyal friend, the one spending the 1830s making clean copies of Galois’ manuscripts and trying to make Galois’ mathematical breakthroughs known to Gauss, Jacobi, and others.

How would Poe have known about Auguste Chevalier? It was not until 1843, two years after Poe’s “Murders in the Rue Morgue,” that Joseph Liouville went public with the Galois papers, given to him by Chevalier, in his announcement to the French Academy.²⁵ Poe might have read Galois’ last letter, the one to Auguste Chevalier, as it was published in the September 1832 issue of the *Revue encyclopédique*. Further, Poe might have discussed matters with Auguste’s close collaborator, his brother Michel Chevalier. Michel was in Baltimore at the same time as Poe, during Michel’s 1833-

25. Joseph Liouville, Professor of Analysis and Mechanics at the Ecole Polytechnique, was the hero of the Galois manuscripts. He received them in 1842, worked through them, and in 1843, announced to the *Academie*: “These manuscripts have been entrusted to me by M. Auguste Chevalier” and need to be published, something he accomplished in 1846. Liouville was a moderate republican and political collaborator of Arago (another attendee at the 1831 celebration of Lafayette’s Nineteen).

1835 study of American economics, government, and society on behalf of the French government.²⁶ However, the best evidence that Poe had Galois in mind was provided by a fascinating clue that Poe left, one that Dupin would have appreciated.

In 1846, a friend of Poe had brought up a current legal controversy in France, involving two different French translations of his “Murders in the Rue Morgue.” Poe corrects his friend’s assumption that the 1846 contretemps was the first introduction of Poe’s name into France. He cites examples of prior responses in France to his writings, beginning as follows:

“The ‘Murders in the R. M.’ was spoken of in the Paris ‘Charivari,’ soon after the first issue of the tale in Graham’s Mag: — April 1841.”

The founder, publisher, and editor of *Le Charivari* was one Charles Philipon, a political prisoner along with Galois and Raspail at Sainte-Pélagie prison. Philipon’s four-page daily was noted for its political cartoons. It, along with its predecessor (named *La Caricature*), was at the center of attacks upon Louis-Philippe, particularly because of his December 1830 betrayal of France. For example, Philipon’s February 26, 1831 cartoon, entitled “Foam of July,” had Louis-Philippe blowing bubbles representing the promises of the July Revolution. Philipon was prosecuted (and acquitted) just prior to the trial of the nineteen republican leaders. He was next prosecuted in November 1831. Evidently, at the trial itself, he presented his cartoon of “Louis-Philippe as a pear,” which did the 1831 equivalent of “going viral.”²⁷

Poe, in simply invoking *Le Charivari*, speaks to anyone with ears what his introduction of Dupin is about. Clearly, Poe is aware of Philipon and his own history with Gisquet, and he chooses to redirect any discussion appropriately.

Various Poe experts assert, “Poe was simply mistaken. We’ve examined issues of *Le Charivari* in the period after Poe’s work appeared, and we find nothing. Forget about it.” But it seems that Dupin has struck again. The “Poe experts”—perhaps better addressed as

26. Michel makes reference to Robert Walsh of Philadelphia’s *National Gazette* as one of the two best editors in America, a man with whom Poe had some dealings. Also, when Michel is in Baltimore, his reports refer to *Laffitte*, which might have been occasioned by discussions with Poe, but this is a pretty slender thread.

27. One unconfirmed story of Galois has him getting into trouble for a “Louis-Philippe/pear” drawing on his jail cell wall.

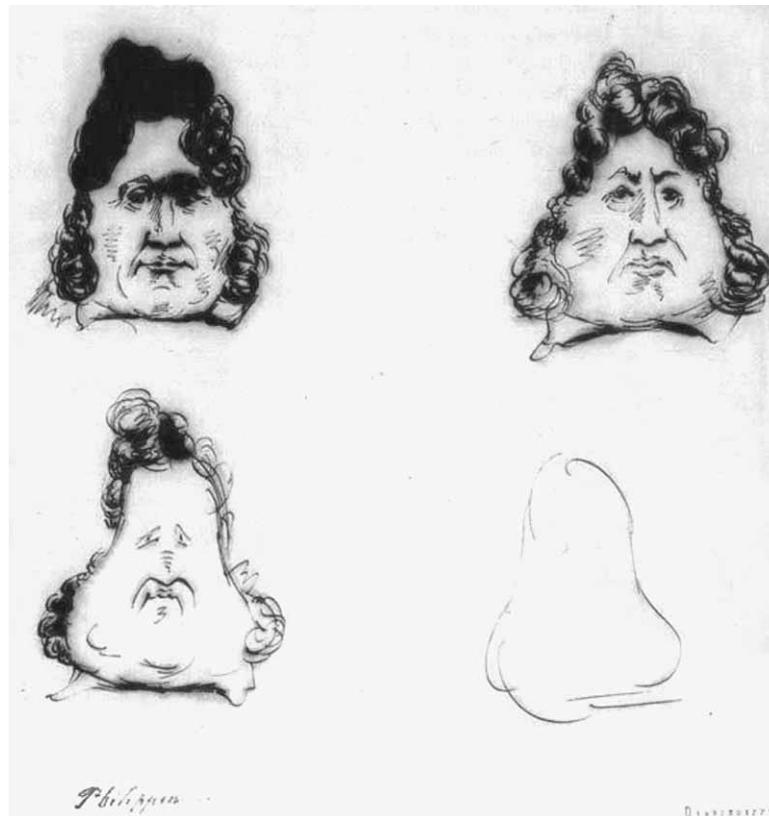
“Gisquetters”—may search as relentlessly as Gisquet did in *The Purloined Letter*, for the words “Rue Morgue” in *Le Charivari*, but they will only explain *what isn't*.

But they deny what is. Poe’s readers are treated to a rare form of causal reasoning, but one open to any child encouraged to develop a healthy relationship with the imagination, one that strengthens the power of the creative reason. And for this alone, Galois, Gisquet’s “fierce republican,” may yet gain his full measure of justice.

VII. Poe’s Poet-Mathematician

Poe’s playful introduction to his Dupin character posed the mental work of working backwards, to retrace how the freely moving imagination traversed its course. In pursuing such concentrated work, one is not guaranteed to capture the quarry every time—however it is an undeniably rich field, and the method indeed does work. In the spirit of Dupin’s method, which he described in reverse as: “The larger links of the chain run thus—Chantilly, Orion, Dr. Nicholas, Epicurus, Stereotomy, the street stones . . . ,” let us provide a brief example triggered not by street stones, but by Galois’ work on the quintic. The reverse description runs as follows: “Immortality, loving God, human, golden mean, dodecahedron, family of five, unlimited fantasies and unlimited space, how to solve a fifth-power equation.” And now, let’s go off to the races:

Why would the solvability of equations involve descriptive geometry, and Platonic solids, in particular? How many regular solids are constructible in space? Oh, but aren’t they as unlimited as my possible fantasy states? But why only five? What are the characteristics of this strange family of five? The dodecahedron is somehow “more equal of the equals,” playing a generative role? What to make of its “golden mean” characteristic? Have we now encountered a theological/cosmological principle—that is, why should the Creator make man in the image of the Creator? Why choose to produce a “subgroup,” that is, man, that somehow images the Creator? And, contrariwise, what



Philipon’s “Louis-Philippe as a Pear,” as it appeared in *Le Charivari*.

kind of a god would have created something not in its image?

Have we learned from this rapid fire “scientific” investigation that our God is a loving God, not a jealous one? Is this a beautiful idea, one that has the power to inspire—that is, one that may causally direct one’s play towards loving future generations that we will never see? Has our unique personality been damaged by this “restriction” of our freedom, by having to deal with the problems of the world, into which we were created? Or does our mortal existence thereby touch immortality, finding true meaning in our having been created?

It may be a struggle for the mind to traverse the universe with any confidence in getting fruitful results, but it must be done, and it can be done. The power of a mind that Poe analyzes at some length (in, e.g., his “Rationale of Verse”) is not fundamentally different from that child, in the quiet evening hours, trying to retrace how its own imaginative steps were taken. Ideas take shape in the mind before they find their delineation in words.

Much is ventured about Galois, but in the “Gisquet”

fashion that Poe properly skewered. What is unmistakable about Galois, is that he clearly developed the “descriptive geometry” to raise the mind’s analytic power. How is this different from what a true poet does? The struggle involved is in so loving one’s fellow man, that one takes into one’s heart—that one plunges into the history of man’s passions as reflected in the development of language—both the noble passions and the destructive ones, and makes social a new pathway, one with the increased power to conquer previous encrustations of former progress.

We used Charles Dupin’s quote on “descriptive geometry” to characterize Galois’ method. Now, read it one last time, but with Poe’s command of poetry in mind—where the “shapes of bodies in space” are now the “shapes of ideas in the mind (prior to verbalization)”:

“One’s mind must be especially trained in this general geometry. One must be able to represent the shapes of bodies in space, and to ideally combine these shapes by the sole power of imagination. The mind learns to see inwardly and with perfect clarity the individual lines and surfaces, and families of lines and surfaces; it

acquires a feeling for the character of these families and individuals; it learns to see them combine them, and foresee the results of their intersections and of their more or less intimate contacts, etc. Thus the new geometry greatly strengthens the imagination; it teaches you how to grasp a vast collection of shapes quickly and precisely, to judge their similarities and differences and their relations of size and position . . .”

Hence, Evariste Galois, Poe’s poet-mathematician.

For Further Reading

Allen Salisbury, “Edgar Allan Poe: The Lost Soul of America,” *Fidelio*, Spring/Summer 2006, https://www.schillerinstitute.org/fid_02-06/2006/061-2_Poe_Allen-S.html

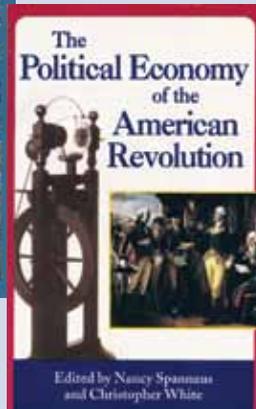
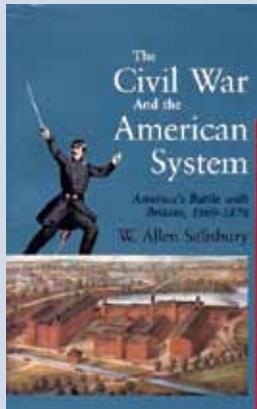
Lyndon H. LaRouche, Jr., “The Day the Bomb Went Off in Chicago: A Short Story,” *The Campaigner*, Vol. 14, No. 6, September 1981, <http://www.wlym.com/archive/campaigner/8109.pdf> This article provides LaRouche’s reflections on Poe and his “C. Auguste Dupin.”

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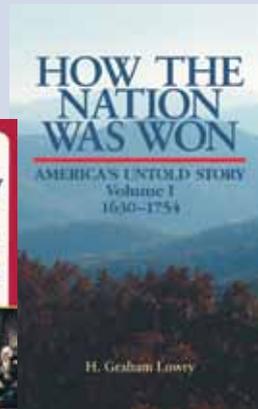
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