"The Courage of Gauss" has circulated privately through the LYM since January, 2004, coincident with the LYM's challenge to master Gauss’s 1799 doctoral dissertation, his Fundamental Theorem of Algebra. Gauss's courageous opening salvo of his professional career was remarkable for his judgment that at least half the battle of mathematics was waging warfare against Sophistry, including where necessary, the naming of names. This was in marked contrast to his mode of writing through his next six decades of papers. The battle described herein, whereby Gauss fashions his identity by doing right by way of Leibniz, has been extended in the LYM's treatment of Gauss's too-implicit debt to Kepler.

Preface

Between 1796 and 1799, Carl Friedrich Gauss transformed himself, from a talented youth, into a 22-year-old man with a mission, wedded to truth-seeking — into an individual who knew that he could, and should, revive Western science. And so he did. Fifty years earlier, his teacher, Abraham Kästner, had witnessed the outrageous assault upon truth-seeking, in the attempted murder and burial of Gottfried Leibniz's scientific method. Gauss's doctoral thesis, his 1799 Fundamental Theorem of Algebra — in exposing the systematic shortcomings of the proofs of d'Alembert (1746) and Leonhard Euler (1749), and in addressing the ('geometrical') powers of the human mind that could create such tools (such as algebra) - made Leibniz's method live again. Clearly, Gauss took to heart the task described to him by Kästner, and forged his powers in the challenge presented to him.

Whatever the actual specifics of Kästner’s discussions with Gauss were, the reconstruction provided here is designed to relate the 18th-century battle over Leibniz’s method as the sort of historically-specific drama appropriate to account for Gauss’ historic actions. Leibniz knew that good can and must triumph over adversity. While he would never have wished for the ugliness that was directed against his life and his works, and though he would not have claimed to know in particular all the ways of our Creator in allowing for such delays in the accomplishment of good, he did have confidence that a truthful pursuit of the good was the proper course. Further, he knew that only as such could the mission of the good be realized. And so, in examining how the power of Leibniz's ideas defeated the brute force and persistent cunning of his enemies, we today can greatly deepen and strengthen our truth-seeking powers — in a manner perhaps not attainable otherwise, and, as such, in much the same manner as that of Gauss.²

² See Lyndon LaRouche’s “Visualizing the Complex Domain.” Executive Intelligence Review, 7/11/2003, http://www.larouchepub.com/lar/2003/3027/complex_domain.html. It is not 'automatically' the best of all possible worlds — but by not flinching from deep problems, and by taking into one's heart and mind the full
I. The Issue in the Attacks Upon Leibniz

The attacks upon Leibniz peaked in Berlin from 1746 to 1754. The 1746 presentations by Euler and d’Alembert that Gauss was later to dismantle, were opening shots in that battle. Gauss’s teacher, Kästner, knew these operations first hand. The character and genius of his two best early students, Christoph Mylius and Mylius’ younger cousin, Gottfried Lessing, were forged in the battle for Leibniz in that 1746 – 1754 period. When Mylius died in the battle, Lessing recruited a new ally, Moses Mendelssohn, who would be known as the Jewish Socrates. In 1754, the young pair’s courageous commitment to truth and humor, in their intervention against Maupertuis and Euler, marked the end of that reign of terror against Leibniz. While Kästner, Lessing, Mendelssohn and other associates did succeed in reviving the culture of ideas, and mobilizing the deep-rooted optimism that would spark the American Revolution, the Leibnizian program for science had been knocked askew. It remained for Kästner’s last great student, a youth fifty-eight years younger than Kästner, to put on the full armor of Leibniz and to master conceptions of the complex domain, putting humanity’s grasp of epistemology on its feet.

At the core of all the operations against Leibniz in the 18th-century, and also today, is the appeal to the “little me.” Typically, as in the calculus, the unexamined image of the “little me” is at the core of axiomatic misconceptions of discreteness and continuity. When the teacher suggests to the class that the discrete, particular thing can be made as small as one would ever care to make anything, the pupils are as helpless to defeat this ruse as they are able to explain at that point in their lives how one lone person can and should change the whole world. There is an unstated appeal to everyone’s presumed dirty little secret - that we are all such discrete particular things that have no lawful relationship to the whole, to be swallowed up in the endless infinity of time. And if this classroom procedure happens to be enhanced by the axiomatics derived from the nightly news, then the student can just sigh, and wonder why they ever expected anything different from education.

However, Leibniz’s conception of the “monad” boldly demands, to begin with, that the dynamics and the analysis of the world be coherent with the existence of the particularity of humans. That humans can transform the mode of creating and maintaining humans, that they do change their world qualitatively, is a characteristic of a happily-rich particularity that cannot be expunged from scientific investigations. And this applies not only to humans, but also to the intentional characteristics of planetary orbits of the solar system, that insist upon carving out equal areas, and so define time. It applies to refracted light moving through a differentiated media (e.g., from air into water) according to 'least-time' considerations; to the co-ordinated growth and movement of the Crab Nebula; etc. There is no singularity of any substantial interest that does not reflect lawful characteristics of the whole. And so, man is said to be made in the image of God.

Hence, there is no human that does not have a scientific mission to address: Why is he or she in this world; and so, what is he or she to accomplish in his or her apportioned time? Leibniz’s method, called “analysis situs,” is the human method of not being an existentialist, but of figuring out one’s place and time well enough that one can identify and carry out one’s mission. Not to engage in this scientific practice, is to be annihilated by death, where one can only entertain very mean notions of one’s Maker. This was precisely Leibniz’s diagnosis of the (still-unresolved) flaw in the theological practices of the part of the English-speaking world that had locked themselves into Newtonianism.

It is the ‘modus operandi’ of those assigned to subvert Leibniz – Newton’s controller, Conti, and the controller of d’Alembert and Euler, Maupertuis – to attempt to disorient humans, by obscuring the moral mooring of the good. When a particularity is induced to believe that he or she is just managing their career choices – purportedly making objective observations, and then summing up the possible pleasures or pains impinging upon their feelings – then one can be sure that such a particularity will be confounded by universality, and will surely panic on their final exam.

II. The History of the Assaults

In 1746, Maupertuis and his two cohorts, d’Alembert and Euler, launched their major offensive against the Berlin Academy of Science, founded by Leibniz back in 1700. Maupertuis took over the running of the Academy in 1746, and in November and December, Euler and d’Alembert presented their Fundamental Theorems of Algebra to the Academy. They both wish to maintain a ‘divine right of numbers,’ whereby the use of numbers to represent exponents, or powers, is what somehow determines the amount of solutions of an equation. What actually constitutes the powers, or the multiply-connected activity, is as little

tragedy of, e.g., the ‘baby boomer’ generation, the ‘no future’ generation could fashion a future of immeasurable good. Good is multiply-connected, and it is good that it is so.
investigated as the ‘divine right of kings.’ Hence, with causality eliminated from the discussion, we are left to associate three roots of an equation, e.g., with an equation of the 3rd power. Somehow, numbers magically rule, and it all works out. More on this later, but for now, we relate how their operation in the late Fall of 1746 was part and parcel of a larger operation, substantial portions of which would have been known by Kästner, and undoubtedly communicated to Gauss.

The “Venetian” operations vs. Leibniz

In the period from 1711 to 1713, Leibniz was on the verge of co-ordinating the policies of England, Russia and the Austro-Hungarian Empire. He had organized the succession to the British crown for his key patron and student, Sophie. And both Peter the Great of Russia and Emperor Charles VI of Austria made Leibniz their special consultant, including the job of forming scientific academies to co-ordinate nation-building. Leibniz wrote to Sophie in June, 1713, regarding the imminent potential for his co-ordination of the policies of London, St. Petersburg, and Vienna. Further, he had also made a major inroad into the French court, having composed in 1714 his Monadology for Nicolas Remond, the chief counselor for the next ruler of France, Philip, the duc d’Orléans.3

The operations launched against Leibniz between 1711 and 1716, the last five years of his life, by what was identified in England as the “Venetian Party,” among other things, made the American Revolution necessary. Two Venetian agents in particular, Antonio Schianella Conti and Ambassador Nicholas Tron, were directly involved in co-ordinating the operations that would later involve Maupertuis and his friends. From 1710 to 1712, Newton had replaced practicing scientists at the Royal Society with political supporters, such as Signor Grimani, the Venetian Ambassador. In 1711, Isaac Newton set up his “independent” investigatory commission on behalf of the Royal Society for the purpose of declaring Newton the inventor of the calculus, and defaming Leibniz as an intellectual fraud, a thief. Newton himself wrote most of the verdict, though, of course, anonymously - perhaps providing an excellent example as to what Newton meant by “action at a distance.” The same day, February 25, 1713, that the verdict was delivered in London, the same Venetian Party conveyed instructions to the court in Vienna, warning them to break contact with Leibniz. Charles VI ignored the warning and appointed Leibniz his new Imperial Privy Counsellor. Leibniz proceeded to organize the Emperor around the revival of Johannes Kepler’s work, including Charles’ sponsorship for the first publication of the collected works of Kepler.

Then, in 1714, when the Hanover family acceded to the throne of Great Britain, Leibniz, the man who had arranged the accession, was left behind. In 1715, Conti then initiated contact with Leibniz, writing him with his offer of assistance - to go to London and to mediate the troubles with Newton and the court there. Conti had come from Padua to Paris in 1713, and had attached himself to the mathematician, Pierre Remond, who was the older brother of Nicolas Remond, the main source for Leibniz’s writings in the French court. Conti surely would have known of Leibniz’s inroads with the French court.4 Leibniz never trusted Conti; and rightly so, as Conti spent his time in London working with Newton’s group. Conti and Newton worked overtime, trying to break the new Princess of Wales, Caroline. As Leibniz’s last surviving student amongst the Hanover royal family, Caroline had to be broken by the Venetian Party before her husband, George II, succeeded to the throne. The Leibniz-Clarke Letters of 1715/16 are the product of the battle of ideas over Caroline. When Leibniz died in November, 1716, Conti left London to rummage through Leibniz’s study, where he purloined an unknown amount of documents. Conti wrote Newton that he would take special concern to look for material pertinent to Newton’s attack upon Leibniz.5

Our other Venetian agent, Nicholas Tron, held the position of the ambassador to London during this period. His discussions with Newton were about the calculus, but also about Newton’s theories on the practices of ancient Jewish theocracies. (However far back the Trons go in Venice’s history, they were powerful enough to hold the position of the Doge back in the 1470’s.) This Tron assumed an active role with

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3 Sophie’s niece, the Duchess Lisselotte, had wed the duc d’Orléans, and Sophie had requested Leibniz to address the deeper problems in the French court. After Leibniz was rejected by London, Lisselotte invited Leibniz to France, noting that “his merit was recognized” there. (The duc d’Orléans would shortly become the Regent in 1715, following the death of Louis XIV.)

4 The Conti family was one of the Venetian families that took great pride in tracing their lineage all the way back to the Romans, and they counted sixteen Popes from their family. One of them, Michelangelo dei Conti, one generation older than Antonio Schianella, had been a protégé of Francis Morosini, the Doge of Venice. Soon, in 1721, he would become Pope Innocent XIII - in an alliance with the mother of d’Alembert! (More of this, to follow.)

5 Upon Conti’s return to Paris in 1718, he met with Father Jean Baptiste Tournemine, who had been Voltaire’s teacher. Noted here, it takes some significance later, in providing some context for Voltaire’s decision to visit London and Newton, a trip that would cement his enlistment in the anti-Leibniz project.
Newton, and particularly with a young man named James Stirling.

A talented youth, Stirling studied at Oxford from 1711 to 1716, though he had no chance for being awarded any degree. That his father was in prison as a pro-Stuart Jacobite conspirator, barred the son from any regular advancement. In 1715/16, during the period of the Leibniz-Clarke controversy in London, James evidently applied himself to study the brachistochrone and catenary curves – staples of the Leibnizian school. However, by 1717, after Leibniz’s death, Stirling turned to Ambassador Tron, to whom he dedicated his first major paper, “On Newton’s Theory of Plane Curves of the 3rd degree.” In June of 1717, Stirling accompanied Tron to Venice, where the two of them kept up a correspondence with Newton. (Stirling also proposed to Newton that he would function as an intermediary for Newton with one of the younger Bernoullis, Nicholaus, who was at nearby Padua.) Two decades later, this same Stirling will reappear as a direct influence upon Euler, in pursuit of the Fundamental Theorem of Algebra.6 But for now, we turn to the operations in France against Leibniz, and to the creation of the main case officer in the anti-Leibniz task force, Maupertuis.

Maupertuis, the chameleon

Pierre-Louis Moreau de Maupertuis was the key individual sent to subvert Johann Bernoulli, Leibniz’s closest surviving collaborator. Maupertuis’ experience in this ‘Bernoulli’ project would make him the one chosen to expunge the methods of Leibniz from Europe, and in particular, from the first Academy that Leibniz established. Born in Brittany in 1698, he was the first-born of parents, whose wealth on both sides of the family came from privateering on the high seas. The father, Rene Moreau, moved over into the more respectable monetary world of investments as a director of the Compagnie de l’Occident, and invested heavily in the South Seas speculation bubble of the 1710’s.

In 1714, he guided his first-born, Pierre-Louis, to the educated circles of Paris, and in 1718, he arranged for him a position, attached to the Court as a member of the king’s guards. By 1723, and for the next five years, Pierre-Louis seems to have translated the morally-unhinged numbers games of his father, to the world of socializing in the decaying intellectual life of Paris, including the French Academy of Science. That is, early in his career, he developed a talent for identifying weaknesses in intellectual patterns; and then, based upon the ascertained profile, he would, chameleon-like, re-fashion himself into the next trend. In particular, this defined his choice of mathematics. Despite what would be a lifelong weaknesses in mathematics, Maupertuis seems to have directed himself toward the study because that was where the ‘opening’ was in the French Academy.

In 1722, Johann Bernoulli’s last major ally in the Academy, his student Pierre Varignon, died. (The Marquis de l’Hospital, another of Johann’s students, had been another such major ally.) The Academy turned to the ‘idee fixe’ of the Newtonians – hard balls. Their 1724 prize essay was: “What are the laws according to which a perfectly hard body, put into motion, moves another of the same kind, which it encounters at rest or in motion, in the void or in the plenum?”

Bernoulli, writing from his home in Basle, Switzerland, submitted his “Discours sur les loix de la communication du mouvement,” which rejected the vulgar conception of hard balls, and analyzed the dynamics of the collision in terms of the fundamental elasticity of matter, developing formulas based upon the compressability of springs. What was reified as ‘hard balls’ was, for Leibniz and his school, simply a boundary condition for ‘perfect elasticity.’ Contrary to their previous practice, and despite Bernoulli’s rather complete analysis, the Academy awarded the prize to a Newtonian, Colin Maclaurin, whose discourse argued that ‘vis viva’ must be rejected and a more vulgar mechanist approach adopted. Bernoulli knew that the heavy hand of political ideology had launched war

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6 Stirling’s master, Ambassador Tron, also resurfaced a few decades later. When the anti-Leibniz operation descended upon Frederick the Great of Prussia, Tron was running a sex farce against the king!
against the influence of Leibniz in France – and Maupertuis also took notice.⁷

Maupertuis’s first mathematics paper for the Academy, “Sur une question de maximis et minimis,” in 1726, was supposed to find the greatest and least areas of trapezoids, given certain conditions for the perimeter. He fashioned an algebraic formula from which he derived not two, but four solutions. His response to the fact that two of the four ‘solutions’ were not trapezoids was: “Nothing shows better the advantage of algebra over geometry in the solution of problems than this abundance with which it gives not only what we had meant to ask of it, but also everything depending on the same conditions and that we did not think of asking it.” This fantasy-ridden orientation of his mind was the characteristic that shaped his whole career. Instead of using the appearance of two new ‘solutions’ as a clue for him to re-examine the axioms of the state of mind that had crafted the original algebraic formulation, he revels in the magical fecundity of the ‘algebra’ machine. This approach, which he would later share with d’Alembert and Euler, and which is rampant today, simply makes one a slave of one’s own unexamined imbedded axioms. Gauss would term this, “the shallowness which is so dominant in our present-day mathematics.”

With such qualifications, Maupertuis next traveled to London (May through August, 1728), where he was immediately nominated to the Royal Society by Newton’s old friend, Abraham de Moivre, and elected thereto on June 27th. He also reconnoitered with James Stirling, who had returned to London from Venice. He met and spent time with many of the Royal Society members. It would appear that Maupertuis returned to France as a sort of ‘double agent,’ with a mission to finish off Bernoulli. However, he first had to spend a few months at Montpelier, taking a cure for syphilis – which, according to his lifelong friend, Charles-Marie de la Condamine, had been contracted while in London.

The ‘Bernoulli’ Operation and Maupertuis, the Double-Agent

In 1728 and 1729, Joseph Saurin and Charles-Etienne Camus opened a defense, at the Paris Academy, of Bernoulli’s 1724 elastic model. The ensuing discussions were much-heated, but Bernoulli had trouble getting any substantial attention to his methods there. On May 18, 1729, Maupertuis choose to make contact with Bernoulli, requesting assistance on his study of l’Hospital’s work. The elderly Bernoulli was happy to provide help, hoping that he could recruit a spokesperson in Paris for his method. Maupertuis showed up in Basle in September, 1729, and spent the next ten months studying all he could of Bernoulli’s methods (including the brachistochrone, integration by parts, and analysis situs based upon the “vis viva” conception of force). Then, back in Paris, from 1730 to 1732 Maupertuis’ modus operandi would be to prepare papers on lesser Leibnizian topics, have Bernoulli fix them up, and then deliver them to the Academy. Bernoulli thought that he had an agreement with Maupertuis to lead a fight at the Academy in defense of “vis viva” and Bernoulli’s methods of analysis. However, Maupertuis led him on, writing that he was working on that, while soliciting as much help as possible from Bernoulli as to how to deal with the problems in Newton’s Principia. Instead, Maupertuis was simply preparing a strengthened ‘Newton’ product to be marketed on the continent.

Maupertuis Unveiled

In the Fall of 1732, Maupertuis launched his public “Newton” campaign in France, publishing material that he had been submitting to the British Royal Society over the previous year, but now in French. However, Maupertuis’ work, called Discourse on the Various Shapes of the Celestial Bodies, with an Exposition of the Systems of Msrs. Descartes and Newton, was not submitted to the French Academy for review and publication. Instead, Maupertuis choose to use private funds to launch this project. Maupertuis exploited the historic French weakness with Descartes so that he could insinuate Newton into the mix: “…[Newtonian] attraction being no less possible in the nature of things than [Cartesian] impulse… I flatter myself that no one will stop me here to tell me that this property of bodies to gravitate toward each other is less conceivable than a property [like impenetrability] recognized by everyone.” Step one - Newton is no worse than Descartes, and we all agree on the impenetrability of hard balls – is bad enough, but he next suggests a general principle of ignorance: “I do not believe that it is permitted to us to ascend to first causes, nor to understand how bodies act on each other… I believe that without pronouncing on the claims [of the systems of Descartes and Newton…], we can use both of them.”

⁷ Whose heavy hand, this author has not fully ascertained. Suffice it to say that Leibniz’s 1714 attempt via Remond to reach Philip d’Orleans did not succeed. Of note, Conti re-deployed himself from London back into Paris in this period. Among other matters, in 1725 he published in Paris, over Newton’s objections, the private copy of Newton’s theological speculations on revelations – a work that Newton deemed permissible to be circulated privately to influence royalty, but that he obviously knew would undercut his pretensions to a scientific reputation.
This was classic Maupertuis – clever enough to identify axioms, such as impenetrability, as a weakness in one's thinking; and sophistical enough to offer the non-solution of a gentleman’s agreement to tolerate each other’s unexamined axioms. Later, in Berlin, Maupertuis would attempt to reprise his role of the ‘double agent’ – where he is assigned to penetrate the enemy’s camp, and then fashion the terms of surrender. However, throughout the 1730’s his job involved recruiting a team to consolidate the “Newton Project” in France.

**The Triumvirate: Maupertuis, Voltaire and Emilie**

This same Fall of 1732, Voltaire contacted Maupertuis, suggesting a joint alliance on Newton. They dine together and correspond, while Maupertuis plans out his seven presentations on Newton for the Academy that winter. Voltaire sought Maupertuis’ assistance in the writing of his new work, *Lettres philosophiques*. After only two weeks (on November 15, 1732), Voltaire gushes: “Your first letter baptized me in the Newtonian religion, your second gave me my confirmation. I thank you for your sacraments... [Newton] is our Christopher Columbus. He has brought us to a new world, and I would very much like to travel there, following you.”

The salon of Louis de Brancas was the regular meeting place for Maupertuis and Voltaire, accompanied by the Marquis de Chatelet – whose wife, Emilie, was shared amongst all three. Maupertuis preceded Voltaire to Emilie’s bed. (Though Voltaire’s sponsor, Richilieu preceded both of them.) It was probably Maupertuis who impregnated Emilie that same Fall of 1732. For she did not make Voltaire her regular partner until the next summer, a month after the birth of the child. Also, upon the death of that child a year later, it was Maupertuis, her once – and still occasional – lover, that she insisted come to be with her to share her grief. Hence, contrary to Maupertuis’ disclaimer, cited above, from his published *Discourse of 1732*, he did in fact permit himself to be a first cause! (And, for that matter, he also seems to have had some understanding as to how bodies acted upon each other.) Emilie would join the “Newton Project,” and would become the first translator of Newton’s *Principia* into French.

Voltaire came to the project with more flair and daring than Maupertuis. Voltaire had been introduced into the libertine circles of the Abbe de Chateauneuf, called “les libertins du Temple,” around 1714 (that is, about the age of 20). Not long after the 1718 Paris meeting between Abbe Conti and Voltaire’s former teacher, Voltaire was provided a pension by the Regent of France, Philip, duc d’Orleans. (However, this might have been protection money, as Voltaire had spent the previous three years writing publicly about Philip’s affair with his own daughter. Once given the pension, Voltaire’s literary talents turned elsewhere.) Conti had known of Leibniz’s inroads with Philip back in 1714/5, and it is unlikely to have escaped Voltaire’s attention. However, yet another key indicator was that he got his investments out of the John Law bubble before its collapse. Similar to Maupertuis’ father and to d’Alembert’s mother, this indicates that his connections with the financial insiders was more than adequate.

Voltaire had preceded Maupertuis to London, and stayed afterwards. He left for London in 1726 with a letter of introduction to the court from Horatio Walpole, the British ambassador to France. Voltaire meets primarily with “Venetian Party” members. During his 1726 – 1729 period in England, his best contact, Everard Fawkener, was the secretary to the Duke of Cumberland. Fawkener would later be knighted, become the Ambassador to Constantinople, and marry the daughter of General Charles Churchill, the whole time staying in touch with Voltaire. Various titled gentlemen introduced him into the Royal Society.
circles. He met with Samuel Clarke, the front-man for Newton in the 1715/16 arguments against Leibniz. In 1727, the otherwise cynical Voltaire was quite impressed with the funeral of Newton. (Though Maupertuis visited London in the summer of 1728 and traveled in similar circles, it is not clear whether the two Frenchmen ever met there.) When Voltaire returned to France in 1729, he stayed with his former schoolmate, Louis-Francois-Armand, the Duke de Richelieu. Shortly, he somehow managed to win an enormous state lottery, likely arranged by Richelieu’s friends. For that matter, in 1732, Richelieu - whose lover, Emilie, was now with Maupertuis - also might have been the one to point Voltaire in the direction of Maupertuis.

Voltaire published his first contribution to the effort, the *Lettres philosophique*, in Paris in the Spring of 1734. It further popularized the approach of Maupertuis in France – that is, use the mistakes and dead-ends of Descartes to energize the improved product line, Newton. It was a tried and true method, used in changing mistresses or renaming financial scams. The key is that there be no deep examination into the axiomatic flaws that led to the previous dead-end. Also that Spring, Voltaire consolidated his position with his new mistress, Emilie, by arranging the marriage of his friend, Richelieu, a previous lover of Emilie, to a Mlle de Guise, a relation of Emilie’s husband. (Voltaire got Emilie, while Chatelet, Emilie’s husband, improved the status of his family; and Richelieu received loans on easy conditions from Voltaire.) Voltaire and Emilie set up house in her husband’s country estate at Cirey, and were together until her death in 1749. Cirey became the center of the “Newton Project” on the continent.

Meanwhile, in 1734, Maupertuis published his “Sur les figures des corps celestes,” where he tried to assure the French that there was much precedence in France for Newtonian attraction. He would quote from Pascal or Roberval in their writings to Fermat, where they would refer to a “desir naturel” in the planets. But Maupertuis deliberately ignored the Keplerian discussion about the intentionality of planets that all three of the Frenchmen had been conversant in. When Kepler would conduct a dialogue, a scientific investigation, to get closer to the heart of fascinating behavior in our universe (e.g., a planet that seems to carve out elliptical paths that preserve equally swept-out areas), he did so, fundamentally, as Plato did - to broaden for man the idea of intentionality. The love of the good could be developed for humans when they mapped out the interplay of the sun and the planets. For Plato and Kepler, neither a planet’s natural desire, nor a human’s thirst for knowledge, is a simple given. Rather, they shared the classical principle, that man searches the heavens, and uniquely discovers the workings of his own mind. Intentionality, as such, is the so-called subjective side of the multiply-connected quality of action in a Godly universe. Pascal, Roberval and Fermat maintained a good faith with Kepler in their use of his work. However, Maupertuis grabs the reference from the Keplerian discussion in order to close off any understanding of planetary behavior, reducing it to an inverse square law. Intentionality becomes attraction, preferably blind attraction.8

8 According to Emilie’s letters, he also spent a month at this time pursuing his “desir naturel” with his former mistress; except that now he was cheating not so much on the husband, the Marquise du Chatelet, but on Voltaire. The rekindled attraction flickered for only a month. Emilie would confide later (6/15/1735) to Richelieu, her now-married former
In the Fall of 1734, Maupertuis launched his major public relations campaign to promote Newton in France. He would prove that the Cartesians were wrong in holding that the earth had more of a bulge around its poles than around its equator. Never mind that Huyghens (and other non-Newtonians) already held (correctly) that the earth varied from a sphere, bulging out around the equator. Maupertuis transformed this into a “Newtonian” issue for France, and milked it for all it was worth. Two generations of Cassini astronomers had figured upon the bulge at the poles, and Maupertuis could count upon the French Academy to circle their wagons in defense of the Cassini family. To this end, Maupertuis recruited a new mathematics expert to assist him, the prodigy Alexis-Claude Clairaut. The two departed for Bernoulli’s Basle to equip themselves intellectually. Since Maupertuis had already betrayed Bernoulli, he began cultivating Bernoulli’s sons, Johann II and Daniel, planning to stay with them. However, the elder Bernoulli was still more than obliging, both in housing them and training Clairaut.

Next, Maupertuis and Clairaut set up a retreat that winter in Mont-Valerien, just west of Paris, to prepare for their earth-measuring project into the Arctic clime of the Lapland. They were joined by Francesco Algarotti, a 22-year-old Venetian playboy; though he would later opt out of the trip to the frigid Lapland. Instead, he prepared an Italian-language popularization of Newton, translated as Newtonianism for the Lady. When Algarotti visited Emile and Voltaire at Cirey late in 1735, they worked with him for at least a month on his text, fixing it up for publication in Venice in 1737. Algarotti’s entry into this group provides a sort of ‘red-dye’ trace as to the active participants in the “Newton Project.” He worked with Maupertuis, Voltaire and Emile from at least 1734 until at least 1753, including when they moved into Berlin. In fact, Algarotti preceded them into Frederick the Great’s Berlin, and his travels between Venice, Paris, London and Berlin, make him the ‘Abbe Conti’ of his generation.

Algarotti Does England

When Maupertuis and Clairaut went north to Lapland in 1736 to make their geodetical and astronomical measurements at a more northerly latitude, Algarotti backed out of such work, and went to London instead. While Maupertuis would, for now, concentrate on the French side of the “Newton Project,” it seems that Algarotti co-ordinated matters between London and Venice, and Voltaire opened up the Berlin operation. In 1736, Voltaire began his correspondence with the future Prussian king, Frederick, while working on what he thought would be an improved, French version of Algarotti’s work, called “Les Elements de la Philosophie de Newton.” We first will sketch Algarotti’s visit to London in more detail than was done earlier with Maupertuis’ or Voltaire’s, as the fuller picture this third time around.

During his visit to London, Algarotti was quickly made a member of the Royal Society, despite his lack of any apparent qualifications. He had arrived with letters of introduction by Voltaire. His major contacts in London seem to have been Lord John Hervey and Mary Wortley Montagu, both lovers of his - and, for that matter, of each other. (The permutations and combinations of these three somehow make the “Three-Body Problem” seem eminently solvable!) Hervey seems to be the key agent for Walpole, the Prime Minister, assigned to the handling and controlling of Queen Caroline – the only surviving Leibniz student amongst the Hanover house of succession.” When Algarotti visited in 1736, Caroline’s project to create Göttingen University - where, later, Kästner would teach Gauss - was being overseen by her chief aide, Adolph Gerlach, Baron of Münchhausen. Caroline died the following year.

Both of Hervey’s parents had been involved in tracking Caroline from her arrival in 1714. Previously, his father had been under the patronage of the Marlboroughs, who made him “Baron Hervey.” In 1714, his father was made the Earl of Bristol, while his mother was made a lady of the bedchamber to Caroline. The son, Lord John Hervey, during the 1720’s and 1730’s, carried on an extended affair with one of his mother’s friends, Lady Mary Wortley Montagu. This is the pair that surrounded Algarotti during his 1736 visit to London. For six years, beginning in 1730, Hervey had served the Prime Minister Walpole at 1,000 pounds per year, as the vice-chamberlain of the household of Caroline.

Hervey’s mistress, Mary, exemplifies the interconnected aspects of the “Newton Project” in England. Her father, Evelyn Pierrepont, was a regular collaborator of Newton’s sponsor, Charles Montagu,
the first Earl of Halifax – the same fellow who established the Bank of England in 1694, and was at the heart of the “Venetian Party” of England. Mary married Edward Wortley Montagu (from the Sandwich clan of Montagu’s and not the immediate Halifax clan). He became the Lord of the Treasury under King George I, and then was appointed ambassador to Constantinople. (So, Mary’s husband shared the trajectory, noted earlier, of Voltaire’s London contact, Fawkener. Both were Marlborough underlings, and then were posted as ambassador to Constantinople.)

Mary provided her husband with two children, and then promptly forgot the family, and got serious about taking lovers. (In this, she seems to foreshadow the pattern followed by Emilie du Chatelet about a decade later.) Mary left her husband for her friend’s son, John Hervey, in the early 1720’s, and evidently spent time in debaucheries at the infamous Hell-Fire Clubs.

The love letters to Algarotti, from both John Hervey and Mary Montagu, testify to their competition for his attention. Mary ended up leaving her lover to chase after Algarotti in Italy for many years, including a period where she established a salon on the Grand Canal in Venice. She did snag Algarotti in Turin, but within two months, he left her again. Algarotti, however, seems to have had more interest in Hervey’s side of the equation – flagrant bisexuality, with a concentration on men. Mary was reputed to have coined the then well-known characterization: “[T]his world consisted of men, women, and Herveys.”

Finally, Algarotti’s 1739 travels on the continent with London’s Lord Baltimore, ended up in Prussia, at the court of Frederick, who was then a prince. It resulted in Algarotti being invited back next year to stay at King Frederick II’s Berlin court, from the 1740 coronation onward. (Voltaire published, anonymously, insinuations of Frederick’s dalliances with Algarotti – replaying the type of blackmail that he had been involved in back in 1715-18, against Philip, the Regent of France.)

Algarotti would be key to the operations in Berlin, along with Voltaire, Maupertuis, and Euler.

Voltaire and Emilie at Cirey

Meanwhile, back at Cirey, the du Chatelet estate, Voltaire and Emilie busied themselves with a host of projects. Emilie made a study of the book of Genesis, and translated into French “The Fable of the Bees” by Bernard Mandeville, the noted leader of the Hellfire Club. And when Prince Frederick, heir to the Prussian crown, initiated correspondence with Voltaire in August, 1736, Voltaire advertised in Paris that they should take him more seriously now that he was being courted by Berlin. (Voltaire would spend the next two decades trying to play the courts off, one against the other.) When his scandalous writings against religion resulted in the issuance of an arrest order against Voltaire, he fled to Amsterdam. There, in the winter of 1736/7, a large contingent from King George II’s court – where Algarotti was visiting - came to offer him both support and refuge in London. However, Voltaire convinced the French authorities that he was repentant, and he was allowed back to Cirey. Voltaire then proceeded to write his notorious “La Pucelle,” treating Joan of Arc with great contempt.

Voltaire translated Algarotti’s Newtonianism for the Ladies from Italian into French, though he ridiculed it as he read it to friends at Cirey. Voltaire thought that he had surpassed Algarotti with his own French-language popularization, The Elements of Newton’s Philosophy: Brought within the Comprehension of Everyone.

Emilie had shown Voltaire some physics experiments that she had learned under Maupertuis’ tutelage, which put Voltaire that much ahead of Algarotti. However, stroke: to portray a libidinous Socrates; to turn Plato’s “Alcibiades” dialogue upside-down; and - with a wink - to make Frederick aware that he had the goods on him.
Clairaut told him that he had wasted his time, and that he had no gift for science. Henceforth, Voltaire shied away from such projects.

The Abbe Desfontaines ridiculed Voltaire’s *Elements* when it appeared in late 1738, and Voltaire proceeded to attack Desfontaines as a pederast. Six months of legal proceedings resulted in the pair agreeing to pretend that neither one had actually written what they had written. Part of Voltaire’s public relations during the brawl included his invocation, by means of a public “Letter of M. de Voltaire to M. de Maupertuis,” of the backing of Maupertuis: “After thanking you for the lessons on Newtonian philosophy I have received from you, allow me to address to you the ideas that are the fruit of your instructions.” However, after the unsuccessful reception of his *Elements*, Voltaire would again display his charm and grace, admitting that it was really Emile’s work.

“We Three Witches This Way Come…”

It was at this point, 1739, that the “Newton Project” gang made Leibniz’s influence in Germany their main focus. Voltaire and Emilie had had little effect on France. Maupertuis had spent several years promulgating his Lapland geodetical measurements as proof of the victory of Newton, with mixed success. As Emilie had claimed to Algarotti, January 20, 1738, the Lapland trip had established Maupertuis as the sole spokesman for Newton in France. Then, in November, 1738, a Lapland girl who had been deserted by Maupertuis caused some notoriety by showing up in Paris in search of Maupertuis. A little more luster was lost from his public relations campaign. Eventually, in 1740, the 3rd-generation Cassini, Thury - who was in the midst of ongoing corrections of the Cassini family project, a national map of France - conceded, in passing, that the shape of the earth did in fact bulge around the equator. Thury’s concession, or actually his refusal to fall into the ideological trap of defending Cartesianism, only upset Maupertuis. He had wanted blood, not agreement.

Maupertuis paid an extended visit to Cirey in January, 1739. The three were aware that Frederick the Great had spent the previous summer examining the Leibniz-Clarke letters, occasioned by a visit from his 3rd cousin, Caroline’s eldest daughter. Frederick also spent several weeks in discussions with two Leibnizens, the Count Schaumburg-Lippe, and a Graf von Kiellmannsegge. Schaumburg-Lippe’s mother, the Countess Bueckeburg, had been quite close to Leibniz’s patroeness, Sophie, and also to Caroline (during the period that she studied with Leibniz). Schaumburg-Lippe’s accomplice, Graf von Kiellmannsegge, was related to one of the leading defenders of Leibniz back in 1716, the Baron von Kielmansegge. The latter had led a group of ambassadors in London in examining Newton’s proof against Leibniz, and had found it insufficient. Further, Frederick’s court librarian, C. E. Jordan, harbored pro-Leibniz sympathies, along with a private collection of Leibniz works. So, the Cirey trio had to assume that Frederick was getting an earful about the 1711-16 operations against Leibniz.

From the renewed deliberations of the three, it was decided that they would have to prepare something a bit more sophisticated to root Leibniz out of the continent. Maupertuis attempted to recruit Bernoulli one last time, visiting him between January and March, 1739, and submitting a paper to him, purporting to analyze the dynamics of a cylinder of ice that is floating in water. However, Bernoulli responded to Maupertuis that he needed a completely different approach, rejecting Maupertuis’ substitution of number games for actual ‘analysis situs.’ This approach having fallen flat, Maupertuis returned to Cirey in March to retool.

Voltaire came out of the January and March sessions at Cirey, with a new approach, his “Discours en vers sur l’homme,” which attempted to reduce Leibniz’s philosophy of optimism to the level of Alexander Pope’s “Essay on Man.” Simply put, instead of the idea of ‘the best of all possible worlds’ –

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13 Desfontaines’ “Observations” and Voltaire’s “Le Preservatif contre les Observations.”
14 Johann Bernoulli had upset Maupertuis by his prescient claim, made prior to the Lapland expedition, that Maupertuis was carrying a bias that would skew the results. Later, an 1803 Lapland expedition by Svanberg and Oefverbom double-checked the results, showing a not-insignificant 0.4% error.
15 Frederick’s grandmother, Sophie Charlotte, Queen of Prussia, collaborated with Leibniz in establishing his first Academy, the Berlin Academy. Her brother was King George I, the father-in-law of Caroline.
16 Bernoulli had his hands full. It seems that Euler also made an approach to Bernoulli at this same time, with his initial claim that every real polynomial was the product of real factors of the first and second degree – the first known statement of his abstract number approach to the Fundamental Theorem of Algebra.
17 Pope also had been a victim of Mary Wortley Montagu, of whom he had been greatly enamored. (When she instead became the mistress of Hervey, he took great offense, and he repeatedly referred to their liaison in unflattering terms.) His “Essay on Man” was translated into French in 1736, and Jean-Pierre de Crousaz’s 1737 “Examen de l’Essai de Monsieur Pope sur l’homme,” compared Pope with the pseudo-Leibnizian, Christian Wolf. Both works would certainly have been familiar to Voltaire. (Fortunately, these works also prompted a young Emerich de Vattel to uplift the contrived discussion, with his 1741 “Défense du système leibnizien contre les objections et les imputations de M. de Crousaz.” Later, Vattel’s 1758 *Law of Nations*, as reported by Benjamin Franklin, would be key to the 1775/6 deliberations in the US Congress over the Leibnizian idea of ‘happiness’ as the goal of a nation!)
where the Creator’s composition of the universe as an act of love (agape) secures the orientation of the universe, or the ‘universal characteristic,’ towards the good - Voltaire would substitute the quietistic notion from Pope that we find the universe as good as it is going to get. (Leibniz’s idea finds a modern expression in Dr. Martin Luther King as: “The moral arc of the universe may be exceedingly long, but it bends toward justice.” And Pope’s would be, “Don’t worry – it’s all good.”) As we shall see, Voltaire’s 1739 project would later, in 1753, give rise to the third major attack upon Leibniz at the Berlin Academy of Science, in the form of their new prize essay contest.

Emilie’s new 1739 project was to treat Leibniz’s thinking as somehow leading to Newton’s mathematics – no easy task. For this, Maupertuis brought in an old acquaintance, one Samuel Koenig, to tutor Emilie on Leibniz, in sessions which began no later than May, 1739. (Back in 1730, when Maupertuis worked with Bernoulli in Basle, Koenig had joined their studies, and had stayed on with Bernoulli through to 1733.) The collaboration of Koenig and Emilie, however, shattered over arguments about the nature of the ‘infinitely small.’ She proceeded to publish her 1740 Institutions de Physique. Koenig departed the Cirey project, having experienced some of the methods of Maupertuis. As such, he would have reason later to be sensitive to Maupertuis’ attempted continuation of Emilie’s treatment of Leibniz. (As we shall see, the later brawl, in 1751/2, between Maupertuis and Koenig would be the second major assault on Leibniz at the Berlin Academy.) In sum, the January and March, 1739 sessions at Cirey resulted in a two-pronged attack upon Leibniz, directed more now at Berlin than at Paris. Voltaire’s approach to Prussia would emphasize witty attacks on Leibniz; Emilie’s (as adopted and developed by Maupertuis) would attempt to craft some simulation of Leibniz, so as to transform it into Newtonianism.

Target: Frederick the Great

Voltaire expressed to one friend his concerns over Emilie’s fling with Leibnizian topics: “I am angry that the author of the ‘physical institutions’ abandons sometimes Newton for Leibniz…” And then to Maupertuis, he writes: “I do not despair that Madame du Chatelet does not find anywhere your way [of thinking]; this will be an adventure of fairy tales; she will arrive with ‘sufficient reason’ surrounded by ‘monads.’ She does not love you any less, although she believes today the world ‘full’ and that she would abandon so highly the ‘empty.’ … [She wastes time with] all the scientific absurdities which Leibniz introduced into the world for reasons of vanity and which the Germans study just because they are Germans. It is deplorable that a Frenchwoman such as Mme du Chatelet should use her intelligence to embroider such spiders’ webs and make these heresies attractive.”18 Finally, his published review of his lover’s work (Voltaire’s “Exposition du livre des ‘Institutions physiques’”) criticized Leibniz’s monads as being as useless as Descartes’ vortices, and affirmed that Newton’s pure empty space was better than any such concept as a ‘plenum,’ or ‘chain of being.’ He continued on this theme in his 1740 Metaphysique de Newton – even though the previous year Voltaire had approved of such a concept as the ‘chain of being’ when handled by such as Alexander Pope.

For this newest work, the Metaphysique de Newton, Voltaire had been provoked by Frederick’s 1738 dalliance with Leibnizens, enough to examine the famous Leibniz-Clarke letters of 1715/6. Voltaire made considerable efforts to convince Frederick that Leibniz’s principle of sufficient reason provided no insight as to God’s love for mankind, but was better understood as a matter of neatness and simplicity. However, at some point in 1739, Voltaire was convinced by Algarotti’s visit to see Frederick, that the prince was primarily wedded to an aesthetic of pleasure, and would no longer seriously challenge the axiomatics of his habits of thinking.19 Frederick had composed a poem celebrating his infatuation with Algarotti, and had sent the poem to Voltaire. Voltaire responded with a poem, comparing Frederick and Algarotti to Socrates and Alcibiades, “but not that obstinate Socrates [of Plato’s dialogue, who obstinately loved the mind and soul of Alcibiades] … but the Venetian Socrates…”! This psycho-sexual targeting of Frederick was a known intelligence matter to Venice. The same Ambassador Tron who had worked in 1717-19 with Newton and Stirling, decades later reappears in his recruitment of an infamous bisexual, the Abbe Bastiani. Tron pays him a hundred ducats to go to Frederick’s court and to ingratiate himself with Frederick.20

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18 What is referred to as the ‘Leibnizian’ character of the work of Koenig and Emilie was undoubtedly the heavy hand of Christian Wolff, and not Leibniz. Emilie included Wolff in the work, and Koenig had studied with Wolff from 1735-37.

19 Two examples provide the flavor of the Voltaire-Frederick interchanges. On the cancellation of a 1742 trip to see Frederick, due to an ear inflammation, Voltaire wrote the king: “To go, deaf, to Your Majesty would be like going, impotent, to one’s mistress.” Then in 1743, when Voltaire did visit Frederick, but as a paid spy from the French court during wartime, the king deflected Voltaire’s attempts to sound him out on politics, saying: “Talking politics to Voltaire would be like offering a glass of medicine to one’s mistress.”

20 Casanova, another Venetian agent, who met with Bastiani in the 1760’s, claimed that Frederick “had been absolutely in love of Bastiani.”
Frederick succeeded his father as King of Prussia in May of 1740, and moved immediately, with Voltaire’s advice, to make Algarotti, Maupertuis and Euler into the core of the Berlin Academy.\(^{21}\) Frederick traveled with Maupertuis and Algarotti to visit Voltaire in Brussels, where Emilie and the Princess von Thurn und Taxis argued over who would be Frederick’s host. But Frederick fell ill near Cleves, and Voltaire went there to meet him for the first time in person, with Emilie left in Brussels. Frederick had confided to friends that he was unimpressed with Emilie’s book, that Koenig had really written it, and that Voltaire was responsible for a few brilliant remarks in it. While these Fall, 1740 meetings proceeded, both the Holy Roman Emperor, Charles VI of Austria, and Empress Anne of Russia died.\(^{22}\) Frederick, the young philosopher-king, quickly attempts to exploit the situation by seizing Silesia from the new Empress Maria Theresa, touching off five years of warfare. Evidently, nothing from his high-minded sessions with Algarotti, Maupertuis and Voltaire gave him pause for thought, when an opportunistic impulse was triggered.

The full assault upon the Berlin Academy was delayed until after Frederick won his war in December, 1745. Euler, who had arrived from St. Petersburg in 1741, stayed in Berlin the whole time. Voltaire returned from his time with Frederick, and announced to Emilie that he would no longer sleep with her. Emilie turned to gambling, and defended it in her new work, “Reflections on Happiness.” (She argued that happiness was a matter of excitation - somewhat of a departure from Leibniz’s concept of happiness - and that an older woman’s excitement comes from the shaking of one’s soul by the hopes and fears aroused in gambling.) In March, 1741, Maupertuis, with his Academy plans put on hold, and evidently seized with excitation, attempted a grand gesture of his valor for Frederick, by riding into battle at Mollwitz. Before entering the fray, however, he was robbed and left naked by peasants, and then captured and clothed by the enemy. Frederick then wrote a poem to Voltaire that made light of Maupertuis’ woes.

Maupertuis summed up his situation in a letter to Algarotti (6/10/1741): “Voila, mon cher Algarotti… I had been called by the king to come found an Academy; I stayed in his court almost a year, during which I always tried not to deserve to be dishonored: I have ended by being badly used [prostitue] in his army and taken by the hussars, and after the hope of a great honor, I am returning to France loaded down with ridicule and degradation…” Maupertuis would spend the rest of the war in Paris, drawing a large pension from the French court. He would refine his attack plan against Leibniz, and recruit a new ally, Jean d’Alembert.

### D’Alembert: A Numbers Game Becomes… a Numbers Game

With the support of the duchesse de Richelieu and the duchesse de Saint-Pierre, Maupertuis had won, back in 1739, a large pension from Maurepas (the secretary of the French Navy who had secured the sponsorship of the exploration to Lapland). As explained by the Abbe Le Blanc (1/13/1740 letter): “M. de Maupertuis… played his guitar at the toilette of duchesses and at the suppurs of ministers. They have paid him with a position without responsibilities… Here one gets everything when one is vaunted by women, and it is worth more to amuse men than to be useful to them.” By 1743, Maupertuis was ensconced.
in the French Academy of Science, specializing in running the prize contests, when d’Alembert presented his first major work, his Newtonian dynamics, the *Traite de dynamique*.

D’Alembert had first presented a memoir at the Academy in 1741, but in the next year or two, under Maupertuis’s influence, he read Emilie’s work along with the 1742 *Treatise of Fluxions* by Maclaurin. (Maclaurin had been the surprise winner chosen over Johann Bernoulli, back in 1724, when the French Academy went for ‘hard balls’ over ‘elasticity’.) D’Alembert’s 1743 *Traite de dynamique* explained that space was reducible to penetrability. If not, it was “impenetrable extension,” that is a physical body; if so, it was the containing space through which the impenetrable passed. But the worst was that these axioms were presented as simply logical necessities, with an hysterical blindness to any examination as to the propriety of the hypotheses underlying the axioms.

The ‘analysis situs’ of this d’Alembert is an unfortunate investigation. Then a 26-year old bachelor, he’d been a bastard child, deserted as an infant by a mother who was at the time addicted to the John Law financial bubble. Twenty-six years later, at the time of her son’s published work, the infamous Claudine de Tencin had graduated from being a courtesan to a hostess of a famous Parisian salon. However, her history both suggests some of her son’s axiomatic problem, and heavily overlays the same Venetian networks that were found in the Maupertuis and Voltaire cases. In 1714, the 32-year old nun, escaped from her nunnery, and then engaged in years of affairs, with the purpose of promoting her brother Pierre up through the positions in the Church and in the French officialdom. (Amongst others on her list were Voltaire’s friend, Cardinal Dubois, John Law, and Philip d’Orleans, the Regent of France.) She succeeded in getting brother Pierre onto the 1721 delegation to Rome, that made Cardinal Michelangelo dei Conti into Pope Innocent XIII. So Claudine and Pierre de Tencin were part of this Conti faction.

She, like Voltaire, had inside connections that got her into and out of the speculative bubbles of the time. In 1726, she had secured the guardianship over the fortune of one lover, a Charles Joseph de la Fresnai. When he was found dead in her apartments, with a will that fingered Claudine as the thief of his monies, she was placed in the Bastille… only to be rescued by her brother, now an Archbishop. She was allowed to keep most of the money, which enabled her finally to establish her a salon. Later, Pierre rose to become Cardinal, and, by September, 1742, also a Minister in the Council of State. During this period of d’Alembert’s entry into the “Newton project,” Claudine is in close touch with the Duc de Richelieu, Voltaire’s patron, at the French court.

Claudine had left her baby in front of a church door, back in 1717, while she was much more enthralled by the dizzying world of gain in speculative bubbles. What was the effect on d’Alembert of his physical existence in this world being of less substance than a number’s game? (What is the damage today of a generation raised by baby-boomer parents, wedded to the magic of the market-place?) Is it fair to trace d’Alembert’s magical approach to numbers, his willingness to lay to rest the question as to how powers work causally, to a deep-rooted fear of examining one’s own physical existence?

Without pretending to prove complete causality in an area where psychological associations try to claim too much, it still must be asserted that axioms do come from somewhere. Further, it is more dangerous to leave them unexamined, than it is to form hypotheses and investigate. Certainly, no human is incapable of rising above their circumstances. However, the issue here is what did go wrong when it appears they did not rise above them? It would be one strange set of coincidences for the morally-unmoored mental capacities of Maupertuis, Voltaire and d’Alembert to have all accidentally coalesced around an organized assault on Leibniz’s scientific method. It were much more likely that certain character types would be sought out and promoted for such activities, based upon their demonstrated profiles.

When d’Alembert wrote a eulogy for Johann Bernoulli, he was still bothered about Bernoulli’s famous 1724 paper for elasticity, instead of ‘hard balls’: “…[I]t is strange usage [of the law of continuity] to conclude from it that there are no hard bodies in the universe, that is to exclude according to the expression of a modern philosopher [likely either Newton, Maclaurin or Maupertuis], the only bodies which may exist; because how is it possible to form an idea of matter if an original and primitive hardness is not granted to the elements of which it is composed, and which are properly the only true bodies?” Clearly, d’Alembert can only allow thoughts whose prime characteristic is, that their internal dynamics can never be examined. When pressed on this axiom, he would characteristically respond that he was doing mathematics, not physics.23 It was just this hysterical

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23 Appropriate here is Lyndon LaRouche’s characterization of the professor at the blackboard, who can handle formulae so adroitly that he can prove that he cannot exist! (However, d’Alembert would greatly impress David Hume, when they met in 1763. Hume was in Paris as the secretary to the Ambassador, the Earl of Hertford, as Britain attempted to...
blindness of d’Alembert that Maupertuis would find so useful in the promotion of the 1746 Fundamental Theorem of Algebra.

Maupertuis Reveals The Magic of Attraction

Maupertuis’ 1745 popularization of Newtonian attraction, before he left Paris to re-package such matters for his German audience, is worth comparing with his more academic Berlin presentation of 1746. His 1745 Paris edition of his *Venus physique*, supposedly a popular explanation of biology and genetics, makes this explicit. Writing for the ladies of the French salons, he asks them to consider their own body’s eroticism: “She who charmed him ignites with the same fire that burns him; she gives herself up to its transports; and the happy lover rapidly traverses all the beauties that overpowered him. He has already arrived at the most delicious spot… Oh, unfortunate man, whom a mortal knife has deprived of that state [that is, has been castrated]! If the blade had ended your life, it would have been less deadly.” Further, his discussions of the mating habits of animals dwelt little upon the elucidation of scientific principles, but did colorfully mimic contemporary Parisian pornography. He even bragged about using a microscope to examine the fluids produced by his own female laboratory assistants during copulation!24

Having aroused his readership, he comes to his point: “I cannot help pointing out that these forces and these affinities are nothing other than what other more daring philosophers call [Newtonian] attraction… Does not instinct in animals, that which makes them seek out what is good for them and flee from that which is dangerous, belong also to the tiniest parts of the animal? Does not that instinct, although dispersed in the particles of seminal fluid and weaker in each particle than in the whole animal, nevertheless suffice to make the necessary unions among those particles?” Newtonian attraction is all around; don’t fight it. (Maupertuis has every minute portion of matter quivering to sexual attraction - possibly an extension of Emilie’s earlier “vibration” theory of happiness.) The Abbe Raynal reported about Maupertuis’ book, that in France “…our ladies have abandoned their novels to read it.”

In this same period, Maupertuis prepared a parallel track for Berlin, however he would have to make some pretence of dressing himself up in Leibnizian terms, in order to seduce his Prussian audience. In 1744, he prepared and presented a new paper on optics (“Accord de differented loix de la nature qui avoient jusqu’ici paru incompatibles”) for the French Academy, whereby he performed some bizarre twists and turns upon Leibniz. Maupertuis begins with Leibniz’s analysis (from his 1682 paper, “Unicum opticae, catoptricae & dioptricae principium”), where light should follow the path of least resistance. However, Maupertuis’ development represents light as made up of a lot of hard balls of light corpuscles that do not alter through refraction. For Maupertuis, the reflection of light within the same medium is much more characteristic of the true behavior of light. Since God must also be wedded to hard balls, He must have established the law of reflection as fundamental. Therefore, if there is a question as to whether least action is a matter of distance (reflection), or of time (refraction), Maupertuis’ fundamentalism can assure us that real least-action means that God would not have wasted the effort to create a second least-action, that of time!

This is, for Maupertuis, his metaphysical perversion of Leibniz. God would not have posed higher orders of conception for man to work towards. Instead, least-action turns out to be the minimization of concentration. Refractions’ sines and cosines (and, God forbid, the higher transcendentals) are treated as derived values, with at best only utilitarian justifications for their existence. Maupertuis would have Parisians look at the infinitely small and find sexual attraction, and have others look at the mind of God and find hard balls and the least action of laziness. How could Maupertuis actually bring this dog-and-pony show of 1744/5 into Berlin and succeed?

Maupertuis’ Flight-Forward Against Leibniz

It gets worse. John Bernoulli had just republished (in 1742) his famous brachistochrone problem of 1696/7, which had taken as its jumping-off point, the precise issue of Fermat’s correction of Descartes on refraction: “Fermat has shown… that a ray of light which passes from a rare into a dense medium is bent toward the normal in such a manner that the ray… traverses the path which is shortest in time. From this principle he shows that the sine of the angle of incidence and the sine of the angle of refraction are directly proportional to the rarities of the media…” Further, Bernoulli explained that, based upon Fermat’s derivation of Snell’s refraction results

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24 The Jesuit philosopher, Basset des Rosiers, composed *Anti-Venus physique*, where he wondered about the kind of women that Maupertuis frequented. He suggested that there was more Priapus than Venus in Maupertuis’ *Venus physique*. 
from the hypothesis of least action, “the most acute
Leibniz in Act. Erud., 1682, p. 1853 et. Seq., and soon
thereafter the celebrated Huygens in his treatise de
Lumine, p. 40, proved in detail and justified by the
most cogent arguments this same physical or rather
metaphysical principle.”25

Bernoulli placed two key points on the table in
1742. First, Fermat had been suspicious that Descartes
could mistake the actual physical process (of light
choosing the path that bends toward the denser
medium) and still end up with the proper equation
based upon the sine law. Obviously, Descartes had
‘curve-fit’ a known equation to Snell’s
results, without actually working through in his
mind why the sine law would work. In a
fundamental sense, Descartes’ assumption
that light would bend away from substance, is
the mistake of a mind controlled by the buried
axiom, that the physical world is a dirty place (or,
the Creator intends and acts to avoid substance,
and only deals with the physical world somehow
against His will). In
Fermat’s “least action”
principle, as developed
by Leibniz, light bends
toward substance, as a
reflection of a higher
truth: the Creator so loved the world, that the
substance of the world exists for the greater glory of
the action of agape. Inversely, substance is so
structured that light moves through it in a ‘least-action’
fashion.

Bernoulli’s second key point was that it was
Leibniz and Huyghens in the early 1680’s who had
developed the implications of Fermat’s work. Based
upon this, Leibniz and Bernoulli created the 1696
brachistochrone contest, which contemplated an action
(such as a weight dropping), not through a single
discontinuity (e.g., from air into water), but through a
continuously more dense media. By investigating the
workings of the single discontinuity of, e.g., light
passing into water, and posing the discontinuity as the
characteristic of a higher-determined manifold, they
discovered the higher unity of refraction and gravity (or
of light and substance). What is seen as the result of
gravity (including the secular measurement of
approximately 32 feet/second, per second) is actually a
special case, here, of the characteristics of light and
substance. The cycloid curve - which has the ‘same-
time’ or tautochrone characteristic, where all paths to
the bottom are equal in time of travel, regardless of
length of the chosen pathway - also has, it
turns out, the shortest-
time or brachistrochrone
characteristic.
(Bernoulli’s 1697
announcement of the
solution: “With justice
we admire Huygens
because he first
discovered that a heavy
particle falls down along
a common cycloid in the
same time no matter
from what point on the
cycloid it begins its
motion. But you will be
petrified with
astonishment
when I say that precisely
this cycloid, the
tautochrone of Huygens
is our required
brachistochrone.” )

The family of
transcendental curves
addresses and unpacks the workings of the non-visible,
but causal world, that defines the boundary conditions
we so often mistake as, e.g., the inverse square law.
Bernoulli had just republished this material from five
decades earlier. What universe, or state of mind, could
Maupertuis have imagined, that he could now dare to
re-assert that Leibniz was wrong to have picked up
upon Fermat’s correction of Descartes?

The Leibniz Threat of 1745

The following year, 1745, Merci-Michaelis
Bousquet published the old correspondence of
Bernoulli and Leibniz, regarding the creation of the
brachystochrone problem, and the transcendental
curves. The two knew that they had developed a
conceptual method that could smoke out those who

25 Volume I of Johann Bernoulli’s Opera Omnia, Lausanne and geneva,
1742
would use numbers and formulas to hide the causal connections. Bernoulli’s 1696 challenge worded it: “If geometers will study these solutions [of Bernoulli and Leibniz] which are drawn from deep lying sources, we have no doubt they will appreciate the narrow bounds of the ordinary geometry and will value our discovery so much the more, as so few have appeared to solve our extraordinary problem, even among those who boast [...] of special methods, which they commend so highly.” Also in 1745, a sort of Leibniz revival was attempted, as witnessed by two initial offerings: J. E. Kapp’s opening volume, published in Leipzig (which was primarily concerning the resolution of theological differences that had factionalized Christendom); and J. D. Gruber’s two-volume edition, merely a beginning into Leibniz’s correspondence that had been preserved in the Hanover Library. However, the projected follow-up volumes of both efforts never saw the light of day. In the three decades since Leibniz’s 1716 death, when King George I had ordered the seizure of all of Leibniz’s unpublished writings, there had been more suppression of announced publications, than successful publications! Aside from the British court’s (probably regretted) decision to publish the Leibniz-Clarke Correspondence, the extent of Leibniz material published amounted to republications of his French-language Theodicy into Latin and German. Editions of Leibniz’ works had been announced in 1716 (Bourget), 1723 (Baring), and 1731 (Ludovici), but none had appeared. C. G. Ludovici’s 1731 plan - simply to publish, in one place, all of Leibniz’s previously-published scholarly articles - was prevented by the Elector of Saxe.26

At the time of the 1745 Leibniz offensive, there was, in Berlin, Leipzig, St. Petersburg, Philadelphia and elsewhere, great excitement over the unpacking of invisible space – the investigations of the electrical characteristics of the atmosphere. In fact, similar to Bernoulli’s brachistochrone solution with the discrete levels, Benjamin Franklin would actually design an apparatus to harness the individual discontinuous sparks of static electricity into a continuously-acting rotation, an early electrical motor that co-ordinated primitive ‘spark plug’ explosions!27 Key to this was the developed mental framework that could witness such discontinuities (as sparks or lightning), with the passion and the underlying confidence to find out the higher lawfulness that gave rise to the event.

The prize awarded by the Berlin Academy in 1745 (just before Maupertuis took over) went to Cassel’s J. S. Waitz for his work on electricity, “Abhandlung von der Electricitaet und deren Ursachen.” In St. Petersburg, starting in 1744, Richman and Lomonosov were focused upon the atmosphere and the conveyance of energy, which they later (1747) published as “A Word on Atmospheric Phenomena Proceeding from Electrical Force.” In Philadelphia, Franklin received Peter Collinson’s account of “the new German Experiments in Electricity, together with a Glass Tube, and some Directions for using it, so as to repeat those Experiments.”28 (Collinson had sent Albrecht von Haller’s account of the 1743 revival of electrical experimentation led by Kaestner’s teacher, Christian Hausen.) Franklin also circulated the new work by his collaborator, Cadwallader Colden, titled An Explication of the First Causes of Action in Matter, addressing the characteristics of the non-visible aether. Meanwhile, in Leipzig, Kästner worked with his prize student, Christoph Mylius, on his research into the atmosphere. Mylius’ 1746 dissertation was entitled “Gedanken ueber die Atmosphaere des Mondes.”

Leipzig was the center of a largely underground fight for the methods of Kepler and Leibniz. For now, we only quickly reference Kästner’s role. During the whole of Kästner’s youth in Leipzig, there had been a battle over the publication of Kepler’s works. Starting in 1718, Michael Gottlieb Hansch had edited an initial volume, the Epistolae ad Johanen Keplerus scriptae, as the first in a projected series. Shortly thereafter, in 1721, he also published one Latin translation of Leibniz’s

26 It appears that Ludovici thought he was countering the Jesuits’ attack on Leibniz. Later, he refers critically to an extensive discussion of Leibniz’s Theodicy in the Jesuits’ publication “Memoires de Trevoux,” February, 1737, where Leibniz was characterized as a Spinozan, who had brought science too far into theology.

27 A model of Franklin’s apparatus was displayed, until recently, in the Smithsonian Museum of American History in Washington, DC.

28 Recounted in Benjamin Franklin’s 1769 Experiments and Observations on Electricity.
Monadology. However, Hansch lost every battle after that, never publishing another volume in the series, and dying in 1749.29

By 1745, the 26-year old Kästner had been a student and then a young professor at the University of Leipzig for less than a decade, but the battle for the ideas of Kepler and Leibniz shaped his lifelong mission. His first recruit, Mylius, was only three years younger. When Maupertuis launched his 1746 assault on Leibniz, the first response from the two of them, actually came from their new recruit. The 17-year old cousin of Mylius, Gottfried Lessing, recruited just that Fall, immediately composed his first drama, “The Young Scholar.” It mocked Maupertuis’ operation, by posing the theme of intellectuals discoursing on that which they didn’t know.

The 1746 Assault on Leibniz

Maupertuis, Euler and d’Alembert unleash their assault upon Leibniz and the Berlin Academy in 1746. In June, Maupertuis secures Frederick II’s imprimateur on his new constitution for the Academy: “…[N]othing shall be done except by his [Maupertuis’] orders; just as a general who is only a gentleman commands dukes and princes in an army, without anyone taking offense.” Maupertuis arranged to control all pensions, and he was granted extraordinary powers. He wrote a friend: “The king has … a new ‘Reglement’ [of course, composed by Maupertuis], in the margins of which he added in his own hand clauses so flattering to me that they make me blush.”

That same June, Maupertuis announces the new prize essay contest for the Academy: “Set forth in an exact and distinct manner” the doctrine of monads; and either refute them with unanswerable arguments, or “deduce from [monads] an intelligible explanation of the principal phenomena of the Universe, and in particular the origin and motion of bodies.” While this sounds like a fairly healthy and open project, everything has already been arranged both to fore-shorten the time for any considered responses, and to award the prize to an anti-monad essay. However, like the torching of a building helps the extortion of ‘fire insurance’ money from the others on the block, the naked display of thuggery in the monad ‘contest’ would be instrumental for the promotion of Maupertuis’ supposed ‘least action’ theories. It is worth keeping in mind that it is in the midst of this same ‘monad-contest’ brawl, that the Fall, 1746 presentations on the Fundamental Theorem of Algebra by d’Alembert and Euler are introduced. But first, the bombardment.

Gotthold Ephraim Lessing

The Assault on Leibnizian Monads

Immediately after the June announcement of the monad contest, Koenig30 writes to Euler (7/2/1746) to ask for clarification, as he finds the unusually short time allowed for the contest seems to indicate a lack of seriousness. Euler launched a pamphlet (“Gedancken von den Elementen der Koerper”) that attacked as absurd any attempt to base material bodies upon immaterial elements, such as monads. This was no different from Voltaire’s approach in his Elements of Newton’s Philosophy. This rather philistine attempt to simply assume the fundamental reality of material bodies, and to make all analysis dependent upon that unexamined assumption - was not so much an argument than a threat. Further, Academy members were not supposed to issue public positions on subjects germane to an ongoing prize contest. (While Euler issued the pamphlet anonymously, he used the regular Academy printer, and

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30 Koenig wrote to Euler from Denmark, having been exiled from Berne, Switzerland in 1744, for having signed a petition for a republican constitution. Koenig had written Euler in good faith several times during 1744–46, trying to interest Euler in the new electricity experiments.
Euler wrote to Maupertuis (5/16/1747) that he had been the prime collaborators in organizing the contest. Dohna was a power in the Court, and he and Euler had proposed the Academy "for the purpose of chairing the commission. Dohna brought in as an "honorary member of the Academy."

Even more telling, he had the Comte de Genin as the judges! Even more telling, he had the name of defending the honor of the institution. For Euler, there was always a sort of "fill-in-the-blank" quality to the contest. Euler complained to Maupertuis (9/30/1747) that Formey was the source of printed objections: "I have just read a malicious refutation of this victorious piece printed in German in Leipzig," whereby the Academy is accused of "intrigues to suppress the truth." And a week later (10/9/1747), he adds: "It is up to you to decide if [the Leipzig response...] is injurious to the Academy or not. But I fear we will soon see more impudent pieces."

Four years later, Euler and Maupertuis would count upon each other when another assault on Leibniz required that they ignore charges about truth, in the name of defending the honor of the institution. For now though, Maupertuis decides that the weakness of the Justi essay compels the Academy to avoid publishing it standing alone, but that Euler should surround it with six other essays, from both camps, published anonymously.

**Maupertuis Reveals “Least Action” to the Berlin Academy**

From the June, 1746, monad contest announcement, and for the next eighteen months of Maupertuis’ rule, much demoralization occurred amongst the Academy members. But the anti-monad contest, Euler’s specialty, was only the most muscular intervention. Maupertuis’ opening address to the Academy on October 6, 1746, was the other key disorienting intervention, that prepared the way for the Fundamental Theorem presentations by Euler and d’Alembert that Fall. Maupertuis had spent years preparing a version of Newton that would be more acceptable in Berlin. His address, “The laws of motion and rest deduced from the attributes of God,” suggested a theological underpinning for physics. Newton, Maupertuis concedes to his Berlin audience,
could not prove the existence of God. But God, it turns out, is displayed by his action through the ‘Least Action Principle.’ For Maupertuis, this means that hard-ball particles minimize their overall amount of collisions (entropy). And he knows that God created everything as hard balls, because “As soon as we reflect on the impenetrability of bodies, it seems that it cannot be different from their hardness... Simple, primitive bodies, which are the elements of all others, must be hard, inflexible, inalterable.”

First, this type of sloppy argumentation, no better than his 1744 work on reflection and refraction of light, never could have been thought likely to succeed in Berlin, except as an adjunct to intellectual terrorism. Maupertuis knew that he had to at least pose a search for a principle that would reflect God’s characteristics, but then he resorts to his appeal to sense-certainty to delineate how God must act. (“Come on folks – isn’t this how we all reflect? If we keep coming up with ‘impenetrability’ and ‘hardness’ as the key characteristics of substance, then God is just playing billiards, etc...”). Strip away the thuggish environment, and Maupertuis has simply reasserted his obsession with hard balls, adding that God minimizes the amount of bumping around that we have to do.

But, somewhat deeper, Leibniz’s development of the ‘Least Action Principle’ is of a different species than entropy. God makes the world in His image, including the characteristic activities of the world. Even light seems to choose a path of least action in moving through different media. This is a characteristic of activity, not a property innate to light or to the media, considered separately. When reflection of light is compared to refraction, a normal mind can grasp that the ‘least action principle’ is transformed from considerations of least distance, to that of least time – that reflection is the degenerate case of refraction, with zero changes of media. Maupertuis’ mind however cannot get around hard balls, so refraction for him can only be a fancy version of reflection, although requiring more complicated formulae that invokes ritualistic mysteries of trigonometry. However, in a world where individual humans can grasp that they became discrete at birth, and will loose that type of discreteness after death, then these notions of hard-ball particles loose their seemingly- eternal grip. In addressing the question of the characteristic and purpose of one’s discreteness, that is, the mission of one’s unique life, the idea of a monad takes on increasingly-delineated shape for scientific investigations.

Enter, The Fundamental Theorem of Algebra

And this is how the ‘proofs’ of Euler and d’Alembert came to be introduced to the Academy that Fall, while the fraud of the monad contest proceeded. Instead of stopping the charade, and reflecting upon how what one has run up against might transform one’s original assumptions, Maupertuis demands a regime of masking causes, and raising numbers to a magical status. The assumption, that one might play with algebraic equations if one allows oneself the square root of a negative number as a bookkeeping aid, is no different than the assumption that the human mind can work with the concept of doubling (e.g., from ‘1’ to ‘2’) by ignoring the power to cause the action of doubling; and then simply labeling the uninvestigated entity, the “square root” of 2. Euler presented a proof on the Fundamental Theorem of Algebra to the Academy in November, 1746 (though his published version was not submitted until 1749); while D’Alembert’s published version was submitted, from Paris, in December, 1746. Of the two, d’Alembert was Maupertuis’ sentimental favorite, though he needed Euler for the heavy lifting.

At the first meeting (6/2/1746) of Maupertuis’ newly-reorganized Berlin Academy, d’Alembert had been announced as the winner of a prize contest, for his paper on the wind. Typically, d’Alembert ignored the physical issue of the winds, as he was much more interested in the type of hypothetical winds that would act according to the partial differentiation equations that he was then playing with.31 Minimally, there seems to have been an arrangement between Maupertuis and Euler that first season in Berlin, where Maupertuis was allowed his French number-cruncher, d’Alembert, to be given status at the Berlin Academy, while Euler was given a free hand to crush the Leibnizens. Maupertuis’ modus operandi was alluded to by Daniel Bernoulli (one of Johann Bernoulli’s children), who (on 6/29/1746) wrote to his old acquaintance Euler: “...[W]hen Maupertuis is talking to d’Alembert, then you and M. Clairaut are only the Gods of minor men, while d’Alembert is raised to an Apollo from whom all knowledge flows as from the true source, but when he talks to me he says [d’Alembert] is the joke of everybody because of his mechanics.” Regardless, 1746 was a decisive year for d’Alembert, who finally left his childhood home at the age of 29, joined the salon of Madame Geoffrin (who had been an

31 D’Alembert ignored, e.g., any role in the generation of winds for heat differentials in the air, and instead reduced the matter to the role of the tides. As Clairaut objected to d’Alembert’s work: “In order to avoid delicate experiments or long tedious calculations, in order to substitute analytical methods which cost them less trouble, they often make hypotheses which have no place in nature...”
apprentice of d’Alembert’s birth-mother), and became (along with Diderot) co-author of the new Encyclopaedia project.

Euler's interest in the Fundamental Theorem of Algebra dated from a 1739 letter that he had written to Johann Bernoulli II. There Euler expressed his interest in having all algebraic equations match, in terms of the highest number of the exponent and of the number of the possible solutions of the equation. However, it is quite likely that Euler was, in part, set upon this path by his close reading of Stirling's treatment of number series. On June 8, 1736, he first wrote to Stirling, the same as had been recruited by Ambassador Tron. He identified his disease fairly accurately: “But especially pleasing to me… you give a method by which series, whose law of progression is not even established, may be summed with great ease using only the relation of the last terms…” Series of numbers liberated from any ordering principle, loose numbers, as it were, greatly please Euler.

Apparently, after his physical breakdown in 1735, Euler - the talented youth originally trained by Johann Bernoulli - was never again quite the same. It is not hard to imagine that the prolonged numerical calculations - that drive some mathematicians such as Gauss to address the synthetic capacity of their mind, and to conceptualize ideas that address how the numbers work - in Euler's case, drove him to a love-hate relationship with that capacity. This included an obsession with numbers that evidently ruined his eyesight, and compromised his mental equanimity. Later, the 1750-52 brawl over Leibniz’s “least action” principle would bring out the worst in Euler.

Bach Joins the Leibnizian Offensive

In 1746, the proponents of Kepler and Leibniz in Leipzig saw the evil afoot in Berlin, and they were energized. Kästner’s prize student, as mentioned, had published his “Gedanken ueber die Atmosphaere des Mondes” in May, 1746. By September, Mylius’ younger cousin, Lessing, had arrived to study with Kästner. Lessing, not yet eighteen, immediately began writing a play that included a ridicule of Maupertuis’ so-called monad contest. Then in 1747, Mylius edited the newly-launched weekly, “Der Naturforscher; eine physikalische Wochenschrift” (“The natural scientist; a physical weekly review”), whose title clearly indicated their interests. That Spring, Kästner received his copy of Cadwallader Colden’s work, which he would translate and publish, with his critical review. Evidently, he did not decide to go publicly with Colden’s work for several months; and his decision came on the heels of Euler’s anti-mond decision in Berlin. Further, the critical portion of his comments centered around the proper depth of treatment of such issues, so as to be able to defeat the new wave of attacks upon Leibniz.

Meanwhile, their Leipzig colleague, Johann Sebastien Bach, decides to visit Frederick the Great

32 Even his leading admirers, such as Edinburgh agent Sir John Brewster, would blush at Euler’s 1752 thuggery against Koenig. Brewster refers to Euler’s loss of objectivity, writing that Euler “lost for a while his usual serenity, and became one of the enemies of that unfortunate individual.” David Brewster’s 1840 edition, entitled Letters of Euler … Addressed to a German Princess, included a “Life of Euler.” (Further, it would appear that Euler made, for him, an unusual amount of calculating errors in his published works for 1752.)

33 That Spring, Peter Collinson had written to Colden that his work was “no trifling affair,” and that he had forwarded copies to Germany, France, Russia, Holland, Sweden and Scotland. He reported that it was well read, but for months no one was willing to take the issue up publicly. Then on August 3, 1747, he wrote Colden that “some or other will at Last Saye Something for it or against It.” This referred to Kästner’s 1748 translation, Erklaerung der ersten wirkenden Ursache in der Materie, with a critical review. See the Colden Papers, III, 568, 371. Kästner was encouraged to deal with Colden’s work by the Leibniz proponent, Ernst Christoph von Manteufel.
that Spring, to bring Leibniz’s method, as displayed in musical thinking, to Berlin and Potsdam. Bach’s “Musical Offering” presented an analysis of a musically-shaped idea, whereby the differentiation into various factors (or canons) allowed for an integration of a higher-dimensioned (six-part) fugue. While his May visit and meeting with Frederick preceded the June decision against monads, his delivery of the worked-out “Musical Offering” arrived a month afterwards. It was, undoubtedly, the best essay on behalf of Leibniz’s scientific method presented to Berlin.

Simultaneously, Franklin sent a message for Peter Collinson to forward to all his European correspondents (who, presumably, had already begun studying Colden’s work). He announced that we’ve planned “a party of pleasure on the banks of the Skuylkil… [where] a turkey is to be killed for… dinner by the electrical shock, and roasted by the electrical jack, before a fire kindled by the electrified bottle: when the healths of all the famous electricians in England, Holland, France, and Germany are to be drank in electrified bumpers, under the discharge of guns from the electrical battery…” Despite the thuggish efforts of Maupertuis and Euler, Bach’s Leipzig and Franklin’s Philadelphia were electrified by a revival of Leibnizian methods.

**Mylius and Lessing Join the Jews of Berlin**

In 1748, in St. Peterburg, Russia, Lomonosov publishes his “Experiments on the Theory of the Elastic Forces of Air.” Meanwhile, Kästner publishes his translation of Colden’s work, which includes his critique. (Colden, and Franklin, do not see this translation for four more years, which is coherent with the period of the blackout of Franklin’s reports on his electrical experiments – of which more later.) In Berlin, Mylius’ new astronomical paper wins the prize that Fall - though whether this is more a reflection of a healthy resistance in Berlin, or of a tactical retreat by Maupertuis, is not clear.

Either way, Mylius and Lessing, youths of 26 and 19, move to Berlin before the year is out, and chose to live in the Jewish ghetto area. The house is owned by Veitel Heine Ephraim, a man who had established a Jewish school in Berlin, Lehnanstalt. Mylius likely knew the astronomer and teacher at the school, Israel Samoscz, who lived with the famous Itzig family. Lessing became good friends with two of the students of Samoscz: Aaron Gumpertz – the model for Lessing’s 1749 play, *Die Juden*, and Moses Mendelssohn. Moreover, the Itzigs and the Mendelssohns had common relatives, the Wulffs of Dessau, who had just published, in 1743, an astronomical work by David Gans, a Jewish astronomer that worked in Kepler’s observatory. The Berlin Jews found the universal laws in the movements of the heavens to be a subject open to all men. Mylius and Lessing would have found common alliance with this group of Berlin Jews, in rich discussions outside the realm of the ugly doings at the Berlin Academy.

It would take the cousins almost seven years for the success of their Berlin mission, and both would not survive; but they fought for the truth, and they changed history permanently.

Mylius immediately initiated a new journal in Berlin, the “Rudigersche Zeitung,” probably modeled on his Leipzig journal. Lessing’s new play, “The Jew,” stirs controversy for its portrayal of an honest Jew, in some ways more ‘Christian’ than the Christians. Then, in 1749, an ugly event occurs: papers of Leibniz are seized in Berne by the Swiss authorities. Their owner, a Captain Samuel Henzi, is arrested and executed, for propounding a new republican constitution for Berne. Lessing again wasted no time, beginning a play that year titled “Samuel Henzi.” Lessing displayed no little prescience in finding the Henzi affair worth the subject of a drama.

As of 1749, Lessing would have known that Henzi and Koenig had studied Leibniz documents together. Both had been banished from Berne in 1744,

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35 The author of the Latin introduction to this work was a colleague of J. S. Bach, Leipzig Professor J. C. Hebenstreit – whose wife stood as a godmother to one of Bach’s children.
Henzi returned to Berne with a new play on William Tell, and the population was stirred up to push for the new constitution. It is not clear whether Lessing would have also known that Koenig had written one of the pro-monad essays in the 1747 contest; but he probably would have known of Koenig’s December, 1748 protest letter to Euler’s anti-monad commission, regarding their poor judgment.

Regardless, the Henzi affair would come back to haunt Berlin over the next five years, and Maupertuis’ judicial butchery against Koenig and Henzi would end up toppling Maupertuis.

The Coronation of Maupertuis
By the Spring of 1749, Maupertuis had made financial arrangements with his banker in Paris for an elaborately-produced select printing of his Cosmology, his ‘least-action’ worldview of 1746. Now expanded to book length, it was distributed to a hundred selected

Six Samples from Euler’s “Letters to a German Princess.”

11/15/1760 The refutation of monads: “[E]very monad, therefore, has the power of continually changing its state. Such is the foundation of the system of monads, which you may have heard mentioned, though it does not now make such a noise as it formerly did… It is false… that the elements of matter, or monads, if such there be, are possessed of the power of changing their state. The truth is rather to be founded in the opposite quality, that of persevering in the same state; and thereby the whole system of monads is completely subverted.”

11/22/1760 Euler’s version of Maupertuis: “[W]hen the change produced in the state of bodies is sufficient to prevent mutual penetration, the impenetrability acts no farther, and there results from it the least force that is capable of preventing penetration… [C]onsequently, when two or more bodies come into contact, so that no one could continue in its state without penetrating the others, a mutual action must take place, which is always the smallest that was capable of preventing penetration.

“You will find here, therefore, beyond all expectation, the foundation of the system of the late Mr. de Maupertuis, so much cried up by some, and so violently attacked by others.”

12/9/1760 Our bodies do protest: “There was a time, when [Leibniz’s] system of pre-established harmony had acquired such a high reputation over all Germany… [B]ut it appears to me that my body belongs to me by other rights than such a harmony… and, I believe, you will not be disposed hastily to adopt” this system.

5/16/1761 God’s mode of creation is no source for our principles: “[The theory of monads rests…] chiefly on the great principle of the ‘sufficient reason’… [A]nd as to the manner in which creation is performed, philosophers, I think, would do well honestly to acknowledge their ignorance.”

5/23/1761 Think clearly and die: “It is to be hoped, then, that all monads may at length become so happy as to clear up their obscure ideas… But there is little appearance of the arrival of this blessed state; most monads, after having acquired the capacity of clearing up their obscure ideas, suddenly relapse.”

5/26/1761 Euler’s principle of sufficient warning: “It is necessary then to take care that we be not entangled in this labyrinth of absurdities. If you make a single false step over the threshold, you are involved beyond the power of escaping… the partisans of the system of monads… [I]t is dangerous to enter the lists with persons who believe in monads; for, besides that there is nothing to be gained, they loudly exclaim that you are attacking the principle of the sufficient reason which is the basis of all certainty, even of the existence of God. According to them, whoever refuses to admit monads… is an infidel and an atheist. Sure I am that such a frivolous imputation will not make the slightest impression on your mind, but that you will perceive the wild extravagances into which men are driven when they embrace the system of monads – a system too absurd to need a refutation in detail…”

for petitioning for a more republican constitution. In 1748, Henzi returned to Berne with a new play on William Tell, and the population was stirred up to push for the new constitution. It is not clear whether Lessing would have also known that Koenig had written one of the pro-monad essays in the 1747
insiders amongst the nobles and cognoscenti, and would provoke a public challenge from Koenig. As this period (1749 – 51) of renewed attacks upon Leibniz's method is described, the reader should keep in mind that the reports by Benjamin Franklin to the Royal Society of his electrical experiments, were spending the same years in virtual hibernation. No one in the English-speaking world would venture to pursue the suggested experiments. They appeared to be 'stillborn.'

When the Cosmology appeared in 1750, Mylius set to work on it, attempting to draw Maupertuis out on the sophistries. He writes to Maupertuis that he is preparing a German translation of the French work, and inquires as to whether his version of the principle of least action just means that nature acts by the simplest means. Maupertuis responds to Mylius (7/18/1750), that other philosophers "have certainly established that nature acts in the simplest means, but none of them has really determined what these simplest means are, nor the fund that nature saves in the production of her phenomena… As I showed in my Cosmology, if one wants to regard this conservation [of Leibniz's 'vis viva'] as a principle, one must assert that there are no hard bodies in nature, which I see as the greatest of absurdities." Recall that Maupertuis was never against gentlemen allowing other gentlemen their mutual (Cartesian or Newtonian) absurdities. So, there must have been something especially abhorrent to Maupertuis about Leibniz's and Bernoulli's analyses that departed from the religion of hard balls.

Also during this period, Maupertuis' Letters - addressed to Frederick the Great's brother, the Crown Prince August Wilhelm – stress the same reductionist program: What is fundamental is impenetrability, the hardness of bodies. He reaches back thirty years to his youth, remembering that the Paris Academy had properly denied Johann Bernoulli the 1724 prize, for daring a Leibnizian analysis with elastic bodies, instead of binding himself to hard-body collisions. Further, he lectures that monads and ‘vis viva’ are confusing. (For good measure, he adds that the King should finance such Maupertuis’ projects as using explosives to blow open the pyramids, and the exploration of the nature of the soul by drugging subjects.) Several years later, Euler would expand upon Maupertuis’ science-for-dummies project for the Prussian royal house, in his “Letters to a German Princess,” addressed to the Princess of Anhalt-Dessau, a niece of Frederick the Great.

The Staging of the Trial

Up until 1751, that is, up until the ‘Koenig’ affair, Kästner and Mylius appear to have pursued a path of engaging Maupertuis in discussion and deliberation on the proper development of the ‘least-action’ principle. In 1750, Kästner published an “Essay on Cosmology” and Mylius published his German translation of Cosmology in 1751.38 In September, 1750, Koenig came to Berlin to meet with Maupertuis, who was unwilling to discuss the sensitive subject of his mistreatment of Leibniz’s least-action principle. Koenig then produced for Maupertuis a written critique so as to attempt to settle the issue privately. Maupertuis later returned it without objection. Six months later (in March, 1751), he published his critique of Cosmologie, titled “De universali principio aequilibrii et motus,” in Leipzig’s Nova acta eruditorum.

Koenig took issue with Maupertuis’ reduction of least-action principles to the interaction of hard bodies, and re-situated the principle in terms of Leibniz’s “vis viva” conception. Amongst various citations, he included reference to a 10/16/1707 Leibniz letter to Jacob Hermann, who had been Koenig’s teacher on Leibnizian philosophy back in 1731.39 Maupertuis clearly did not wish a public discussion of his attempted reductionist approach to Leibniz, and Kästner advised him not to go after Koenig. But Maupertuis knew that Koenig’s source for the Leibniz correspondence was the executed Captain Henzi; and knew that the original correspondence was now in the hands of the Berne authorities. So, he chose to charge Koenig with fabricating a quote from Leibniz, and demanded that Koenig refute the charge by submitting the original Leibniz letter in question to the Academy!

37 Maupertuis also explained to the Crown Prince (in his ‘Lettre sur l’or et l’argent’) how money could be made, if other countries could be reduced to undeliberative ‘hard bodies.’ Specifically, Newton had previously worked out the numbers on the differentiated gold/silver ratio valuations of various countries; so that England could, e.g., sell silver to, and buy gold from, Japan or India, where gold/silver was 9/1 and 12/1, and sell gold to, and buy silver from, Europe, where the rate was around 15/1. Maupertuis extended this so-called ‘bi-metallism’ theory with a bit of game theory, so as to figure out how to extend the market to the case of two neighboring countries with only slightly varying ratios.

38 Kästner’s “Essay on Cosmology” in the “Hamburgisches Magazin,” 6 (1750), pages 321-326; and Mylius’ 1751 Versuch einer Cosmologie. Kästner wrote to Maupertuis, 1/17/1751, that his essay concentrated upon deepening certain points that were being treated too lightly by the critics of Maupertuis.

39 Koenig’s extract has Leibniz stressing to Hermann that: “Action is not what you think; the consideration of Time enters into it; Action is… as the time by the vis viva. I have remarked that in the modifications of motion, the action becomes usually a maximum or a minimum: - and from this there might several propositions of great consequence be deduced. It might serve to determine the curves described by bodies under attraction to one or more centers…”
Next, Maupertuis lined up Euler for a repeat of their 1747 monad adjudication, where Euler would again take the role of the lead judge for Maupertuis. Euler reminds Maupertuis (9/21/1751) that he really had thought back in 1747 that Justi’s essay “seemed the best among all those that were against monads. I always declared to those [on the commission] opposed to monads that if they found it appropriate to give their votes to some other piece against monads, I would join my vote to theirs.” In other words, the commission was stacked against Leibniz, and any essay against monads would do – and, basically, that Euler was just that sort of accommodating executioner. The last item for the show trial was to ensnare the king, Frederick. Maupertuis wrote him (10/13/1751) that “[I]t is not only a question of my interest, it is a question of that of Your Majesty’s Academy. Mr. Koenig… has cited… a letter of Leibniz in which one finds some things we [academicians] have produced as original discoveries.” Evidently, having been assured that the letter would never be produced, Maupertuis has now suggested to the King that he should make a formal request to the Berne officials (through Paulmy d’Argenson, the French ambassador) for the letter in question. The King does oblige with the formal request within three days, but, alas, to no avail. For what it is worth, the letter along with other manuscripts of Leibniz were found, years later, to have been in the possession of the Berne authorities all along.

Koenig thinks that the Leibniz letter in question is a side issue, but offers to produce the copy that he had of the letter, not being in possession of the original. Of course, this is not allowed, and the trial is set for March, 1752. Maupertuis is rather candid with his friend, d’Alembert, back in Paris, to whom he writes (1/10/1752): Koenig’s “zeal for German philosophy” forced the situation. He “had come on a religious pilgrimage to see the great Wolff and the relics of Leibniz… After having spread a lot of manure and trying to erase from my work whatever merit it might have, … he wants to attribute to Leibniz the principle and its applications to the laws of motion… Instead of

41 Euler was in rare form that year. He also made it a point to clear Maupertuis of the ‘sin,’ committed in the previously-cited 1744 paper on refraction, of crediting Leibniz with following Fermat’s (and not Descartes’) reasoning. (Fermat and Leibniz had analyzed refraction, where, among other things, the light bends toward the denser medium; whereas Descartes had assumed the opposite.) Maupertuis’ problem was not that he (correctly) associated Leibniz with Fermat and against Descartes. However, now, Euler’s 1751 “Sur le principe de la moindre action,” explained that, while Fermat might have been correct relative to Descartes, Leibniz was actually an opponent of Fermat! Two years later, when Maupertuis republished his 1744 paper, he deleted his reference to Leibniz’s agreement with Fermat.

Of note, Maupertuis had long ago sized up Koenig as a pawn to be used in gambits. Back in 1740, Maupertuis had crafted a hoax, with his anonymously-issued work called “A Disinterested Examination of the Different Works on the Shape of the Earth.” It created a ‘buzz’ around his Lapland expedition, by shaping a not-so-competite critique of his own work. Some did suspect that Maupertuis was the not-so-disinterested author. However, when Koenig prepared a German translation in 1741, his preface at first defended Maupertuis from the charge of authorship. After Maupertuis’ collaborator, Algarotti, warned Koenig against that particular defense, Koenig wrote to Maupertuis: “One must think like you to dare to write against oneself. This method is as new as the discovery of the shape of the earth itself and will surely cause no less of an uproar. It is the real way to make fun of your adversaries, although a bit at the expense of everyone.” Maupertuis explained to Algarotti a week later: “I am annoyed that you have kept my translator Koenig from refuting the ‘Disinterested Examination,’ that would have been a great joke for me; and I do not want anyone to have any certainty about the author of this book… You have seen in Koenig an incomprehensible contract of thickness and subtlety; but I think thickness predominates in all those who out of friendship for me would like to refute the ‘Examen.’” Maupertuis had taken the measure of his patsy.

Ten years later, Maupertuis now wrote (7/6/1751) to Johann Bernoulli II in Berne, to arrange the trap: Koenig, whom I had treated “as if he were my brother… criticizes what I have written… [He] concluded by citing a fragment of a letter from Leibniz to Hermann by which he would claim for Leibniz the principle of least action… [We should] bury Koenig in the mud as he deserves… [You should locate the letter, but] keep the thing secret until we are in a position to close off all his escape routes.” In the next eight months, Maupertuis writes to Bernoulli ten more letters (including his concern about what other papers may still exist amongst the heirs of Hermann in Basle). By late August, Bernoulli seems to have satisfied him that the letter won’t get out of the authorities’ hands. Maupertuis relays in turn how Algarotti had witnessed the original confrontation between Koenig and Maupertuis - “a Scene… where his zeal” for Leibniz made him insult Maupertuis.40

40 Evidently, Algarotti also had a role in that private confrontation, in baiting Koenig over the travesty of the 1713 Newton ‘judgment’ against Leibniz. (This also indicates that Algarotti and Maupertuis were in agreement about the value of the charge of plagiarism, as a tactic for avoiding scientific investigations.)
disputing with him, I limited myself to pressing him to produce the original… [T]his, as you see, from a man who is very much obliged to me, is really German villainy.” On 1/25/1752, several weeks before the supposed trial, Maupertuis tells Johann Bernoulli II about the foregone conclusion: “After Koenig’s conviction and the judgment brought by the Academy, it will no doubt be necessary to print the whole history; but what do you think about the form in which it should be presented?”

In March, Euler read the verdict, proclaiming that Koenig’s “fragment was forged, either to wrong M. de Maupertuis, or to exaggerate by a pious fraud the praises of the great Leibniz.” In April, his verdict was rubber-stamped by his committee, whose members did no more than chafe at the bit, and grumble privately about the imperial rule of the Academy. For example, Mendelssohn’s friend, the aesthete Sulzer, wrote to Kuenzli about the Koenig affair: “As Maupertuis has a monopoly of authority, and we are not permitted to speak out against him very loudly, secret bitterness is all the greater, and this causes great harm to the Academy.” Though Koenig would take his case to the public, the effective challenge to the rule of Maupertuis and Euler came from Philadelphia, and had broken out in France just before the Berlin trial.

III. The Tables Are Turned

Franklin’s Electrical Revolution

On February 3, 1752, Franklin’s experiments were performed in Europe for the first time, evidently...
as a command performance for King Louis XV.

Franklin's reports, later called “Experiments and Observations on Electricity,” had been sent to Collinson in 1749, and though they were circulated around the British Royal Society for two years, no one had taken the interest to replicate the experiments. After Collinson published them in 1751, in short order, French, German and Russian translations appeared; whence the French King, Louis XV, requested to see the experiments. (Also, in Paris in 1751, the work of Franklin's friend, Colden, first appeared in French, entitled Explication des premières causes de l'action dans la matiere.) Louis, the Duke d'Ayen – the same fellow who would later, as the Prince de Noailles, sponsor Beaumarchais, and marry his grand-daughter Adrienne to LaFayette, and be the key pro-American ally in the French court – arranged at his estate for Buffon to perform Franklin's experiments. The excitement was, as they say, electric.

That Spring, Paris fell in love with the Franklin experiments. In May, 1752, Dalibard, the French translator of Franklin's experiments, and Delor both repeated the experiments, and submitted reports to the French Academy of Sciences. In St. Petersburg, Lomonosov and Richman repeated the experiments, and had Franklin's work translated and published in the journal of the Russian Academy. In Berlin, despite the attempted assassination of science, Mylius began the Franklin experiments. Collinson reported to Franklin (8/15/1752): “Our papers are full of Electrical Experiments. Thou sees a Little Electrical Hint given at Philadelphia has stimulated all of Europe.”

42 Johann Wilcke translated the work into German, where it was published in Leipzig in 1751. Wilcke had studied with a friend of Franklin, Samuel Klingenstierna, who taught physics at Uppsalla, Sweden. (In fact, their English copy may well have come from Peter Kalm, whom the Royal Academy of Stockholm had sent to Philadelphia in 1748, where he had stayed with Franklin.)

Franklin’s Electricity Experiments

That eventful Spring of 1752, someone sent to Cadwallader Colden the 1748 German edition of his book, translated and critiqued by Kästner. Colden wrote to Franklin on 5/20/1752: “I have received a Copy of the Translation of my first piece into High Dutch with [Kästner’s comments…] but I do not understand one word of them. I find my name often in company with those of very great ones Newtone, Leibnitz, and Wolfius and Leibnitz’s Monades often mentioned a New Doctrine which perhaps you have seen and is of great repute in Germany.” Colden then had Kästner's commentary translated into English by Reverend J. C. Hartwick (sometimes spelled Hartwig), who, as one of the first graduates of Göttingen University would have been a classmate of Kästner. Colden told Franklin that Hartwick was “well acquainted with the German systems of Philosophy.”

Franklin and Colden studied the sixteen-page English translation of Kästner’s critique, and sent a response in the Spring of 1753. Kästner’s known response was to organize the Leipzig scientific community to sponsor a trip to America for his protégé, Mylius. Between 1751 and 1753, Mylius from Berlin and Kästner from Leipzig collaborated as co-editors on another journal, Physikalische Belustigungen. While Mylius’ work in 1752 on the Franklin experiments was likely reported on in the journal, a one-page summary report by Mylius was indeed published in the London Royal Society’s “Philosophical Transactions” in December, 1752. (Franklin would have read that report around the same time – February to April, 1753 - as his last inputs into the Colden letter back to Kästner.) There is no little irony, in that Mylius’ scientific experiments that year in Berlin, answered and trumped the March, 1752 Koenig

43 The Papers of Benjamin Franklin, ed. By Leonard W. Labaree (New Haven: Yale University Press), Vol. 4, p. 354. Curiously, though Colden wrote as if Franklin had no acquaintance with Hartwick, the year before Franklin had actually published a German theological work that included a preface written by Hartwick, whose signature was appended with the date, 4/30/1751.
“trial.” The naked and ugly pronouncements of Maupertuis and Euler were intended to freeze the methods of Leibniz once and for all, but sometimes fascists can’t make the world stand still.

When in the Fall of 1752, Franklin sent his report of his June, 1752 kite experiment to Collinson in London, he included the request that Colden’s 10/24/1752 letter on electricity be included in the publication of Franklin’s *Supplemental Experiments and Observations on Electricity, Part II*. Among other items, Colden discussed the problems with Newton: “[Along with the aether…] some more perfect knowledge of the Air than we have is likewise necessary and the cause of the cohesion of the parts of bodies which last has been lately the subject of my Meditations… Sir Isaac Newton accounts for the cohesion of the parts of bodies from the stronger attraction in little bodies than in great bodies but if this were the cause, the parts of bodies must run together into mutual contact if some other power do not keep them separated. What I call Aether is essentially different from… that Elastic fluid which I think produces Electrical phaenomena. Sir Isaac Newton was far from having clear conceptions of what I call Aether, though he perceived from the Phaenomena that some such medium must necessarily exist between the several bodies in the Universe and within them between their component parts.”

However, contrary to Franklin’s suggestion, Colden’s letter was never published by the London publisher, and his work was more and more ignored. Evidently, in November, 1752, Euler wrote to the Royal Society group that Colden’s arguments were “destitute of all foundation. …[They were] attempts to attack the best Establish’d propositions of the late Sr. Isaac Newton…” Later, Colden related these events to Franklin, including his pointed appraisal of Euler’s writing style: “He writes much like a Pedant – highly conceited of himself.”

**Squabbles in Berlin**

In 1752, the expected war of pamphlets and journals over the ugly “Koenig” affair certainly did proceed, but it was overshadowed by the optimism and excitement of the electrical experiments. Koenig resigned from the Academy, and in mid-1752 published his “Appeal to the Public.” Among other matters, Koenig also impugned Euler’s scientific claims, citing another letter of Leibniz that had a demonstration of a prime number theorem of Fermat, which preceded Euler’s 1741 proof of the same.47

For what it is worth, Koenig actually published copies of four different letters that he’d obtained from Henzi, three of which have been since proven to have originals in the Hanover collection of Leibniz letters. Further, the Ducal Library at Gotha has a collection of nine copies of Leibniz letters, including the four that Koenig cited; and these nine are those from the Bernoulli collection in Basle.48 It was quite likely that, in Berne, Johann Bernoulli II had possession of the copies of the Henzi letters, and that Maupertuis knew what he was doing, in having him be the guarantor that neither the copies, nor the original letters in the hands of the Bern authorities, would be produced for the Koenig trial.

Euler led the charge, with various pamphlets, in what amounted to a defense of their right to manufacture reductionist versions of Leibniz’s ideas, modeled on the thuggery of the 1711-3 “Proceedings” against Leibniz by Newton. However, as the reports of the Franklin experiments circulated that summer, the Maupertuis/Euler operation rang hollow. By September, 1752, it was clear to Voltaire that a new flank had to be opened. Though he had been in Frederick’s court for two years at that point, he had not been privy to the Maupertuis-Euler operations.

**Voltaire’s “Pro-Koenig” Flank Against Frederick**

Voltaire had not joined Maupertuis and Euler in Berlin until the summer of 1750, when he became the king’s highly-paid French editor. However, for the next two years, his main contribution to their joint Berlin project seems to have been the publishing of ‘anonymous’ pamphlets in Leipzig, Amsterdam and London, about Frederick being a homosexual.49

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46 Entitled “Appel au Public du jugement de l’Academie Royale de Berlin sur un fragment de lettre de Leibnitz, cite par Mr. Koenig.”

47 Gauss, in fact, inserts this specific claim made by Koenig, into his *Disquisitiones*, specifically, a footnote on page 32. Gauss then adds: “In a previous [1738] commentary, this great man [Euler] had not yet reached this result.” That is, Gauss thought it important to determine when Euler might have begun to ‘borrow’ without attribution from Leibniz. (As such, Gauss has indicated Gauss’ decay as being sometime between 1736 and 1741.) Further, Gauss calls “the famous controversy between Maupertuis and Koenig on the principle of the least action, a controversy that led to strange digressions…” Then, he concludes by citing Euler’s 9/3/1752 retort to Koenig’s charge - that Leibniz had never published his discovery. This speaks less to Euler’s innocence, than to Gauss’s awareness of the importance of the circulation of Leibniz’s letters, given the suppression of his publications.

48 Dr. Willy Kabitz’s 1913 “Über eine in Gotth aufgefundene Abschrift der von S. Koenig veroffentlichten Leibnizbriefes” in *Sitzungsberichte*, Berlin.

49 Voltaire’s activity in dispensing gossip ‘intelligence’ and blackmail material very likely was at the core of his Berlin deployment. Of note is that it is precisely when Voltaire flees Berlin, and is ‘disabled’ as a source
Initially, Voltaire had extracted 20,000 thalers from Frederick to come to the court, and to refine the king's French. Having accepted the 'king's ransom,' Voltaire had no compunction about trying to acquire more. Just before departing France for Berlin, he had gone to Louis XV, to secure payment as a spy against Frederick! Supposedly, Louis XV quipped: “That's one less madman at my court and one more at his.”

Once in Berlin, Voltaire then proceeded to speculate on Saxon tax bonds, which, being banned in Prussia, could be sold for a significant markup in the underground market. The affair exploded publicly, as his front-man, one Abraham Hirschel, backed out of the illegal affair. Voltaire then had him arrested in an argument over the worth and quality of the diamonds that had been used in the money-laundering scheme. (Evidently, Voltaire spent Christmas Day, 1750, attempting to physically strangle Hirsch, while threatening him that his connections would keep Hirsch in jail forever.) Frederick wrote to his sister: “I am deep in politics, Voltaire is swindling Jews… It is a case of a rogue trying to cheat a crook… Voltaire picks Jew pockets… [He] will get out it by some gambade…” Voltaire simply denied the original scheme. When presented with his signature on incriminating documents, he tried to doctor the originals. Finally, he resorted to his 'Christian' honor (Evidently, Voltaire spent Christmas Day, 1750, attempting to physically strangle Hirsch, while threatening him that his connections would keep Hirsch in jail forever.) Frederick wrote to his sister: “I am deep in politics, Voltaire is swindling Jews… It is a case of a rogue trying to cheat a crook… Voltaire picks Jew pockets… [He] will get out it by some gambade…” Voltaire simply denied the original scheme. When presented with his signature on incriminating documents, he tried to doctor the originals. Finally, he resorted to his 'Christian' honor and word, against a Jew whose oath would not be accepted in the courtroom. Lessing became privy to many of the details, as he was hired to translate Voltaire’s legal writ into German for the court case. His poetic summary: “So you want to know the reason then/ Why the old Jew's/ Not had so much luck with his ruse?/ Here’s the answer for what it’s worth;/ Monsieur Voltaire was a bigger crook from birth.”

As a result of Voltaire’s shenanigans, Frederick distanced himself from him, and even from Voltaire’s friend Thieriot, who was functioning as an agent for Frederick in Paris. A wedge was also driven between Voltaire and Maupertuis. When Voltaire begged him to intercede with one of the judges (Jarriges, a Prussian Frenchman), Maupertuis refused, saying “I cannot interfere in a bad business.” (Soon, Voltaire would relish interfering in the “bad business” of the “Koenig affair”. Before 1751 was over, Voltaire was also accusing Lessing of purloining a manuscript that Voltaire’s secretary (Richier de Louvain) had loaned to Lessing. Throughout 1750 and 1751, Voltaire had not positioned himself as someone who could influence Frederick against Leibniz, or for that matter, on much of anything.

In the Fall of 1752, Voltaire issued in the “Bibliothèque raisonnee,” an anonymous and nasty review of Maupertuis’ hypocrisy, along with a satire of the Academy’s proceedings entitled, “Réponse d’un académicien de Berlin a un académicien de Paris.” Voltaire offered, of course, only wit, and no defense of Leibniz or of least-action principles. However, this was more than enough to bring Frederick the Great directly into the brawl in defense of the honor of his Berlin Academy. His “Lettre d’un académicien de Berlin a un académicien de Paris” to the French Academy, though anonymous, had an authorship that was no more hidden than Voltaire’s. (In fact, a second edition of the pamphlet quickly followed, this time with the king’s royal arms on the title page.) Frederick wrote to Maupertuis (11/7/1752) that he knew Voltaire was behind the new attack. “I have waited in silence until now to see what your [French] Academy would do, and if there would be anyone who would reply to the libels printed against you; but as everyone has remained mute, I have raised my voice…” However, Paris was aflame with reports of Franklin’s electrical experiments. Pathetically, Frederick only perceived there, amongst the friction of a brawl between Maupertuis and Voltaire, an attack upon his honor.

Frederick barred Voltaire from the Potsdam court. Then, on November 27, 1752, he invites him back to Potsdam, having him sign an affidavit written out in Frederick’s own hand: “I promise His Majesty that for all the time that he has the grace to lodge me in his palace I shall write against no man; not the government of France, against its ministers; or against

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51 Voltaire’s money-lust and willingness to lie about his dealings with Hirsch, were investigated and exposed in the 1790 re-examination of the case by Ernst Ferdinand Klein, a high Prussian government official. Klein, who had worked closely with Moses Mendelssohn in the early 1780’s on the expansion of civil rights in Prussia, may well have heard what Lessing knew of the Voltaire case via Mendelssohn. Either way, by 1790, Kästner could have been freshly reminded of the case, from either Klein’s or Schiller’s writings, not long before he began teaching Gauss.

52 At this time, Lessing translated into German the French writings of both Voltaire and Frederick. The author suspects, but has not yet confirmed, that this would have included these specific documents.
other sovereigns, or against famous men of letters
towards whom I shall render the respect which is due; I
shall in no way abuse the letters of His Majesty; and I
shall behave in a manner which is suitable for a man of
letters who has the honour of being a chamberlain to
His Majesty, and who lives among honest men.”
Voltaire signed – with his fingers crossed. He was, of
course, even then fashioning a bigger bomb. In
December, 1752, he published his Diatribe of Dr. Acacia,
an extended lampoon of Maupertuis. Voltaire added
insult to injury by issuing the work with a fabricated
permission from the royal printing press. Of course,
the king promptly seized and burned the work,
guaranteeing Voltaire’s victory. He simply published
next in Leyden (outside of Frederick’s control) and
copies were grabbed up in Berlin and Paris.

Maupertuis was indisposed throughout most of
1752, and when he somewhat recovered in mid-1753,
he left Berlin for Paris. From then until his death in
1759, he would be in Berlin for less than two years.
(While d’Alembert would refuse to succeed Maupertuis
at the Academy, a great-grandson of the Conti’s would
continue the Maupertuis/Euler tradition at the
Academy!) 53 By 1753, Voltaire’s work was done in
Berlin, and the king only asked that Voltaire return
Frederick’s private papers, which included his
unflattering comments on other rulers. But Voltaire
attempted to depart with the blackmail material.
Frederick’s men caught Voltaire on the road, arrested
him, and secured the papers before releasing him. 54
However, Voltaire had left behind a Plan ‘B’ for dealing

53 Joseph Louis Lagrange’s great-grandmother was of the noble Conti
family of Rome. (So it would appear that, from Newton’s controller to
Euler’s successor, the Conti family’s version of ‘least action’ was ‘to keep
it in the family’!) In brief, on Lagrange: Maupertuis wanted Lagrange
to continue his work in Berlin. In 1756, Lagrange submitted a paper on
least-action to the Berlin Academy. After Euler assured Lagrange that
he had shown the paper to Maupertuis, Lagrange wrote to Maupertuis that
he demonstrates “with the greatest possible universality how your
Principle always supplies with marvelous facility the solution to all cases
that are most complicated and most difficult to resolve using ordinary
methods, in dynamics as well as in hydrodynamics.” Lagrange writes that
he is honored to further Maupertuis’ “principle, which brings such glory
to its author, and which will always be esteemed as the most beautiful
and important discovery of mechanics.” Within weeks, Maupertuis writes to
Euler (1/5/1757) back in Berlin that he should not fill the vacant physics
positions, but that he should spend all the money on acquiring Lagrange.
After replacing Euler as the Director of Mathematics at the Berlin
Academy in 1766, Lagrange married his cousin, Vittoria Conti. Lagrange
would spend 1767–72 on the Fundamental Theorem, including his
attempts to clean up the work of Euler and of Francois Daviet de
Foncenex, a schoolmate and old friend of Lagrange.

54 While detained, Voltaire requested an interview with the Austro-
Hungarian agent in Frankfurt, to have him intervene against Frederick.
The young, Anglophilic agent, Anton Pergen, would be more ‘successful’
decades later, as the head of the Empire’s secret police, in the murder of
Wolfgang Mozart; and, more generally, in the gang-counter-gang
operations in the Empire, mirroring those run in the French Revolution.
with Leibniz, which Maupertuis and Euler would
decide to deploy.

The Linear Gang Attempts to Throw a Curve

By the close of 1752, Maupertuis’ Berlin
Academy had the odor of the thought-police, while
(notably) Paris, Leipzig, St. Petersburg, Stockholm and
Philadelphia were working on the electrical revolution.
Maupertuis’ “big lie” approach to Leibniz’ least-action
methods had driven science out of the Berlin Academy,
but Leibniz’s methods were now alive all over Europe.
Even in the Jewish section of Berlin, Mylius had
worked through Franklin’s experiments, and would
soon depart for America to work with Franklin. In
1753, Maupertuis and Euler decided that the proper
sequel to the thuggery of the Koenig affair would be a
more gentle ridicule of Leibniz. They announced the
next Berlin Academy contest: Reduce Leibniz’ “best of
all possible worlds” conception to the platitudes of
Alexander Pope, that all happens for the best. 55 Or,
whatever happens in the world is, as it turns out, what
God intended; so, man needn’t work so hard to
ascertain the good.

This ridicule of Leibniz was a project that
Voltaire had developed in the 1739 meetings at Cirey,
with Emilie and Maupertuis. Voltaire’s 1739
“Discours en vers sur l’homme” was the model for the
1753 contest. It had been occasioned by the 1736
French translation of Pope’s “Essay on Man,” the sort
of popularization of “the best of all possible worlds”
that would trivialize Leibniz. Maupertuis would have
found this approach appealing, as the acceptance of a
Leibniz/Pope comparison would only underline his
reductionist treatment of least-action. The type of
actual work, Godly work, that the Leibnizians such as
Lessing and Mendelssohn had to do, to root out such
lazy and evil conceptions, comprises the last portion of
our reconstruction of Kästner’s briefings to the young
Gauss.

Humor and Courage

Between 1746 and 1753, Mylius was in the
middle of several joint projects involving, alternately,
Kästner and Lessing, in both Leipzig and Berlin.
Besides the previously-mentioned projects, Mylius also
set up with Lessing a journal on drama (1750/1); and
from 1749, Lessing worked on the “Berlin Privileged
Newspaper,” edited by Mylius. In 1751, Mylius

55 This is the same Alexander Pope that, back in the 1720’s, had been
rejected by the wanton Mary Wortley Montagu, for her bisexual Lord
Hervey. (So, perhaps Pope had grounds to claim that all happens for the
best...)
stepped aside at the latter publication, and Lessing became the editor there. Amongst the crazy developments of Voltaire and Maupertuis in Berlin that year, Lessing founded a monthly supplement to the newspaper, entitled “The Newest from the Realm of the Joke”!

Lessing may well have known Mendelssohn at this time, as Lessing had written his 1749 play, “The Jew,” modeled on the worthy figure of Aaron Gumpertz, a good friend of Mendelssohn at that time. However, what is known is that the pair began their collaboration sometime after the 1753 announcement of the prize contest for 1755. (Unlike the rushed and fixed monad contest of 1747, now much more time was allowed to deliberate over the conundrum, “Leibniz = Alexander Pope”!) They finished their work, “Pope, a Metaphysician!” in June of 1754, releasing it only two months after the premature death of Mylius. They circulated the work themselves, never intending to submit it for the official prize. They already knew that the prize contest was fixed, and that there was no way to win within the ‘dumbing-down’ terms of the topic. It took courage to flaunt an ossified Academy. And, in the wake of Mylius’ suspicious death, Lessing and Mendelssohn decided upon courage and humor.

The Deployment of Mylius to Meet Franklin in America

In 1753, Kästner sent Mylius off to America, giving him a copy of Kepler’s Harmonies of the World, and a poetic message: “Friend, your tender ear perceives the graceful art of tones,/ The world-form’s harmonies, your deeper thoughts explore,/ Herewithin, Newton’s teacher writes of both them,/ Deutschland harmonies, your deeper thoughts explore,/ Herewithin, perceives the graceful art of tones,/ The world-form’s

Mylius was a terribly common matter, it would seem, again, later than when he had received the Franklin-Colden letter, sent in April, 1753. However, the arrangements might have been as early as Mylius’ replication of Franklin’s electrical experiments, by the Fall of 1752. Certainly, this might explain the edginess in Euler’s Fall, 1752 denunciations of Kästner’s connections to the Americans. (Euler had written more than once to the Royal Society in London, condemning Colden for daring to criticize Newton, and impugning the circulation of his work.) Regardless, Mylius seems to have departed on the trip no earlier than the Summer of 1753, stopping in London on the way.

While in London, and still in 1753, Mylius translated into German William Hogarth’s The Analysis of Beauty. Hogarth’s treatment of the “golden” mean in regards to unpacking the concept of beauty, would certainly have been of interest to Mylius. Then, in March, 1754, before he recommences his voyage on to America, the 31-year old is dead. The key clue in examining whether he was murdered perhaps turns upon the silence of Peter Collinson. Mylius would have almost undoubtedly made contact in London with Collinson, Franklin’s longtime correspondent in London. Almost without question, he had been Kästner’s source back in 1747 for Colden’s work. And Collinson certainly had sent to Franklin, the December, 1752 summary by Mylius of his ‘Franklin’ experiments. But, on the assumption that Mylius simply died of pneumonia before going to see Franklin, why would Collinson never have made mention to Franklin that the young man wasn’t coming, or had unfortunately passed away? Nowhere in the surviving letters of Collinson to Franklin is Mylius’ death mentioned. Either he was not on Collinson’s radar screen, or the death was too suspicious to write about casually. The former is unlikely.

One more circumstantial case adds to this. It is known that, still in 1753, Mylius did report back from London, to Dr. Albert Haller in Göttingen about a subject that Collinson was also following: a new zoophyte (evidently a sea pen, with what we would today call bioluminescence) that had just been found in Greenland. (It was Haller’s 1745 report on the electrical experiments of Hausen, Kästner’s teacher, that Collinson had sent to Franklin.) Mylius’ report was printed by London’s Andreas Linde, a printer of some prominence, that advertised himself as the printer for the Prince of Wales, Caroline’s son. Collinson had received, in the same period, a separate letter from a John Ellis, also reporting on the same Greenland sea pen. Hence, unless the bioluminescence of sea pens was a terribly common matter, it would seem, again,

that Collinson could not have been unaware of Mylius’ presence in London.

Mylius’ first ten weeks of 1754 appear to be a complete mystery, and the 31-year-old Mylius is reported to have died of pneumonia in early March, 1754.57 Franklin and Colden never received their visitor in America (though Franklin would seek out Kästner in Göttingen, a dozen years later). In 1754, Lessing published a memorial collection of Mylius’ writings, the *Vermischte Schriften*, including Lessing’s preface.

“Pope, a Metaphysician!”

Lessing, now 25, and Mendelssohn, 24, had seen the dissenting Academy members quietly bow to Maupertuis, and now their generation’s leader, Mylius, had died under questionable circumstances. But they did not flinch. Instead, they plunged forward in the next three months, and in June, 1754, launched their counterattack. They broke the rules – instead of submitting a prize essay privately, they issued a public pamphlet that successfully ridiculed the pretense of the Berlin Academy contest.58 Amidst a fully competent treatment of Pope’s contention that “whatever is, is right” and of Leibniz’s idea that “God must, of all possible systems, have created the best,” the two authors happily play with the Academy’s pretense that Pope could rise to the level of a deep thinker. “The Academy demands an examination of Pope’s system, which is contained in the statement, ‘all is good’… If I could thus believe that he who conceived of the Academy’s competition has, in the words ‘all is good’, absolutely demanded” that there was systematic thought in Pope, then the Academy’s idea of a “system” of thought would have to be investigated!

After they examine both Pope and Leibniz, they conclude the pamphlet, posing: “What can one now say to such an obvious proof [just completed] that Pope has borrowed, altogether more than thought of, the metaphysical part of his material.” The parallel with Maupertuis’ recent behavior toward Leibniz and the principle of least-action was unavoidable. They then quote Pope’s own appraisal of his depth, from a letter to Jonathon Swift: “I have only one piece of mercy to beg of you; do not laugh at my gravity, but permit to me, to wear the beard of a Philosopher till I pull it off and make a jest of it myself.” And then they conclude: “How much should he [Pope] thus marvel, if he could know of it, that nevertheless a famous Academy has recognized this false beard as the real thing, and put underway the most grave investigation of it.” Lessing and Mendelssohn tugged the bearded pretense of Maupertuis’ Academy with humor and courage, and broke the reign of intellectual terror.59

IV. Gauss on Virtue and Power

Lessing and Mendelssohn went on to launch the literary and philosophical renaissance, that spread heavy ideas gracefully throughout a broader population, and created the republican revolution, of which the “American Revolution” was but a part. When after this “American Revolution” movement was sidetracked in the French Revolution period of 1789-94, when a great moment in history, as Schiller would say, had found a little people, an 18-year-old student, Karl Gauss, would begin his studies with a 76-year-old professor,

57 The best evidence we have today may be the poems and writings of Kästner and Lessing regarding Mylius. Here are three examples:

1. Auf Christlob Mylius

   Man sehe die letzte unter den Elegien.
   Ein doppelt Lob soll dort sein Brahmal zieren,
   Und hallers selbst breit' es in Deutschland aus:
   Als Physikus wusst' er zu observiren,
   Und wie ein Dichter hielt er haus.

2. Biel Kluge gaben ihm zu seiner Reise Beld,
   Damit ging Mylius verloren.
   Dass dich sein Schicksal nicht befaellt,
   So reise du auf Kosten eines Thoren.

3. Ueber eine Stelle aus Christlob Mylius
   Reisebeschreibung.

   "...ist ein sehr schoener Ort; ich moechte aber auch in einem
   Paradies nicht wohnen, wo lauter Ochsen sind."

   Aus einem Paradies voll Ochsen wollt er fliehn:
   Was aber haert' er angefangen,
   kaem' er, durch seinen Ruhm und eifriges
   Bemuhn,
   In ein Cibirien voll Rinder, Schwein' und
   Schlangen?


59 In contradistinction to Mendelssohn and Lessing, Immanuel Kant attempted to use this same prize contest to launch his own career. On March 14, 1755, he dedicated his first major work, *Universal Natural History and Theory of Heaven*, to Frederick the Great: “I took into account the species of nebulous stars, which Maupertuis considered in his treatment of the shape of nebulous stars…After I place the world in the simplest chaos, I have applied to it no forces other than the powers of attraction and repulsion, so as to develop the great order of nature. These two forces … both are taken from Newtonian philosophy.” And after his introduction, he features the quote from Pope: “Is the great chain, that draws all to agree, And drawn supports, upheld by God, or thee?” This is to say, that Kant, in contrast to Lessing and Mendelssohn, bowed obsequiously to – worse, enslaved his mind to – whomsoever the authorities indicated that they were interested in. The results were as predictable as Kant.
Abraham Kästner. Gauss decided to become a big enough person to steer history out of the shadows and toward the human mastery of the complex domain.

Gauss described his Fundamental Theorem paper to his fellow student, Wolfgang Bolyai: Two-thirds of it is “chiefly the history and a critique of works on the same subject by other mathematicians (viz. d’Alembert, Bougainville, Euler, de Foncenex, Lagrange, and the encyclopedists… which latter, however, will probably not be much pleased) besides many and varied comments on the shallowness which is so dominant in our present-day mathematics…” (Gauss notes that Bougainville and the team of de Foncenex and LaGrange attempted to plug the holes in the work, respectively, of d’Alembert and Euler.) The shallowness of D’Alembert and Euler centers around their avoidance of an open dialogue with the fictions of their own minds. For them, the square roots of negative numbers are useful fictions that, if accepted, prove that the overall system makes sense. (But why not simply hunt birds by spreading salt on their tails?) The mental practice of creating fictions to save the appearances is sterile, and worse, blinds the mind to the necessary and singular new ideas for mankind to forge a future. For Gauss, the virtue of intellectual honesty regarding a rigorous pursuit of causality, e.g., in regard to what determines the behavior of algebraic equations, is that thereby one may lawfully extend human power, e.g., into the world of transcendental equations. Gauss discovered that virtue does yield power.

Also in the letter to Bolyai is Gauss’ revealing comment on the initial responses to his paper: “Of private comments which have come to my knowledge only that of General von Tempelhoff in Berlin is especially important to me and gladdened me the more, because he is one of the best German mathematicians, and especially because my criticism touched him as the author of a compendium. From third hand I have found that he thus passes opinion (his own words) ‘that Gauss is an absolutely hopeless mathematician; he doesn’t yield a hand’s breadth of ground; he has fought bravely and well and holds the battlefield completely.’” (At this time, Georg Friedrich von Tempelhoff was completing his definitive study of the 1756-63 “Seven Years War, in which he had served as a Prussian artillery officer.) Rephrased, it might as well read: Gauss was a strategic thinker, that made it hopeless for mathematicians to squat in a corner, defending any turf. That Gauss thought a military strategist would be more attune to appreciate what he had done, than the rest of the mathematical community, speaks volumes about Gauss’ appraisal of his mission.

Ironically, it was Diderot, the close collaborator of d’Alembert, who made the infamous prediction: “In a hundred years, it will not be possible to count three great geometers in Europe. This science will come to a

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60 Gauss’ three top professors at Göttingen were part of the Lessing and Mendelssohn networks. Besides Kästner, Gauss studied physics with Georg Lichtenberg (a defender of Mendelssohn against the enthusiast, Lavater), who witnessed Kästner’s 1766 electricity lecture in honor of Franklin’s visit to Göttingen, and who presented many electrical experiments as part of his lectures. He also erected the first Franklin lightning rod at Göttingen. Finally, Gauss enjoyed the lectures of the classicist and philologist, C. G. Heyne, and thought that he might become a philologist.

61 For example, Gauss specifically cited d’Alembert and Euler for assuming that particular number series “which at first glance seem to converge strongly,” were in fact convergent series. But, in fact, the series did not act according to the unexamined assumptions, which were shielding their minds from the transcendental features at work in the number series. Gauss cited most all of the convergent series that Euler used in chapter VI of his Inst. Calc. Diff., as actually divergent.

62 Tempelhoff’s colleague, the famous artillery officer Wilhelm von Schaumburg-Lippe, was a Leibnizian, and a good friend of Moses Mendelssohn. Tempelhoff’s work, entitled Geschichte des Siebenjährigen Krieges in Deutschland, was issued in sections from 1783 to 1801. (Curiously, in 1775, he had also authored “On the Tempering of Mr. Kirnberger,” being especially provoked by Bach’s student, Kirnberger, and his tempering of musical tones that “is extraordinarily difficult to set.”)
halt shortly where the Bernoullis, Eulers, Maupertuis, Clairauts, Fontaines, and d’Alemberts will have left it. They will have erected the pillars of Hercules. No one will pass beyond them.” Within those hundred years, neither Gauss, nor Abel, Galois, Dirichlet and Riemann, paid much attention to the stop sign! The ideological blindness of Diderot, d’Alembert, Euler and Maupertuis challenged Gauss to draw out of the human soul the higher powers of the mind. But Diderot plunged forward, boldly comparing his list of unsurpassable geniuses, in terms of power and resources, to the builders of the Egyptian pyramids! The poet Percy Shelley, the day that he composed “Ozymandius,” could have had no better image in his mind than such fools as Diderot.63

Appropriately, the 22-year old Gauss concluded his letter of December 16, 1799 (quoted from above), knowing that his letter would greet his dear friend, Bolyai, just before the calendar rang in the year, 1800: “On such festive occasions my mind passes into a loftier mood, into another spiritual world, the partitions of the room disappear, our filthy, paltry world with everything that appears too big to us, makes us so happy and so unhappy, disappears, and I am an immortal pure spirit united with all the good and noble who adorned our planet and whose bodies space of time separated from mine, and I enjoy the higher life of those greater joys which an impenetrable veil conceals from our eyes until death… [D]o not cease to love your constant friend, Carl Friedrich Gauss.”

Dear reader – do not cease to love your constant friend. Make the complex domain, in your person, whole and simple.

63 For that matter, Shelley’s treatment of the “Ozymandius” state of mind, is very close to Lessing’s and Mendelssohn’s treatment of the Maupertuis gang.