

The arrival of Peter's Great Embassy in the Western splendor of Amsterdam in 1697. From a contemporary engraving by Musheron, reproduced in A. G. Brinker, *Istoriia Petra Velikago* (St. Petersburg, 1882), Volume 1, opposite page 172.

The Importation of Being Earnest

The Early St. Petersburg Academy of Sciences

By Michael D. Gordin*

ABSTRACT

Recent studies in the history of early modern science, using examples from Western Europe, have placed great emphasis on the role etiquette protocols played as conditions of possibility for the establishment of scientific societies. The Russian case provides a unique counterpoint to these claims, since in 1725 the St. Petersburg Academy of Sciences was imported ready-made from the Berlin model proposed to Peter the Great by Leibniz several years earlier. In contrast to standard interpretations of the academy as a purely utilitarian endeavor, this essay argues that Peter took Leibniz's academic structure and used it as the apex of both his educational projects and new manners reforms designed to transform Russia into a "Western" state. This view of the academy is explored to shed light on Russian natural philosophical publications, scientific disputes in the early academy, and the issue of the "Enlightenment" in Russia.

"I HAVE TO HARVEST BIG STOCKS, but I have no mill; and there is not enough water close by to build a water mill; but there is water enough at a distance; only I shall have no time to make a canal, for the length of my life is uncertain, and therefore I am building the mill first and have only given orders for the canal to be begun, which will the better force my successors to bring water to the completed mill." Statements like this one by Peter the Great, which concerns his plan to import an academy of sciences into the fledgling city of St. Petersburg, have often been construed as part of a utilitarian design to harness technology and science for the ends of the state.¹ Despite the extent of recent

* Department of the History of Science, Science Center 235, Harvard University, Cambridge, Massachusetts 02138.

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¹ Quoted in B. H. Sumner, *Peter the Great and the Emergence of Russia* (New York: Macmillan, 1951), pp. 208–209. All transliterations are modified from the standard Library of Congress format; all unattributed translations are mine. Dates are in the Old Style Julian calendar. The utilitarian interpretation is quite plausible. For example, the academy sponsored geographical exploration and served as an organ for the translation of foreign technical books. See James E. McClellan, *Science Reorganized: Scientific Societies in the Eighteenth Century* (New York: Columbia Univ. Press, 1985) (hereafter cited as *McClellan, Science Reorganized*), p. 75; Alexander Vucinich, *Science in Russian Culture: A History to 1860* (Stanford, Calif.: Stanford Univ. Press, 1963) (hereafter

investigations into other European academies—the Italian academies of the seventeenth century, the Royal Society of London, and the Académie Royale des Sciences in Paris—this received assumption has not been questioned. The Imperial Academy of Sciences in St. Petersburg has mostly been left out of cultural accounts of the role of academic science in national contexts. Existing work on the place of the Imperial Academy in Russian culture focuses almost exclusively on the academy after its opening in 1725 by Empress Catherine I—wife of Peter the Great, the tsar who had created the Russian academy but died earlier that year. Since these studies concentrate on the course of Russian academic science in the eighteenth century, matters pertaining to its genesis and inception have largely been taken for granted. Instead of exploring the social and cultural roots of the *idea* for an imperial academy, these works explore how scientists were recruited to the academy from abroad, how it fared during the rough early years, and how it became Russified after the 1750s.

This essay concerns the question of inception. The standard accounts stressing utilitarianism are clearly largely correct, but they necessarily leave elements of the academy's history unexplained. For example, if the academy was founded for purely utilitarian reasons, why did the tsars encourage the study of "speculative" topics like planetary vortices? Why did the bureaucracy not simply continue to rely on the technical advisors regularly imported from abroad, without organizing them into an academic body? The answers to these and related questions are embedded in the other cultural advantages that were to be extracted from the academy. Peter the Great not only imported a politically useful educational institution; he also knowingly imported a particular etiquette regime of refined manners that characterized Western natural philosophy in the eighteenth century. This effort was part of a broader program to establish new social classes through educational stratification and to change the way those classes behaved through cultural reforms. Reading the academy as a part of these two wider purposes complements the standard accounts and broadens our understanding of the links between Peter's courtly life and his scientific policies.

My argument unfolds in several stages. First, the origin of the project for an academy of sciences is traced back to the exhortations of Gottfried Wilhelm Leibniz. Then, since the academy was officially opened eleven months after Peter's death and had no charter until 1747, I undertake a reading of Peter's written "Project," the crucial document that delineated the academy's structure and functions and those of the university that was founded alongside it. This Project is then examined in terms of two different sets of reforms undertaken in the Petrine period: the educational reforms and the manners reforms. I argue that the Imperial Academy of Sciences can be read as the capstone of both: the first a social reform to create new classes, the second a cultural reform to give those new classes different functions. To explore the utility of this approach, I then examine two aspects of early Russian natural philosophical culture: the 1717 translation into Russian of a natural philosophical text, the *Kosmotheoros* of Christiaan Huygens; and an early dispute in the

academy between Georg Bilfinger and Daniel Bernoulli. The essay concludes with a discussion of how this expanded view of the academy interacts with the long-standing debate about a Russian "Enlightenment."

A number of recent studies on academic natural philosophy in the seventeenth and eighteenth centuries have argued that the organization and structure of academies varied—but not arbitrarily—depending on whether the setting was the princely court, gentlemanly society, or the state bureaucracy. The variations in academic protocols followed the etiquette patterns of each specific community of natural philosophers. As Mario Biagioli has argued, the extant etiquette regime—understood as the set of practices and protocols that undergirded mannerly behavior—served as the condition of possibility for a particular academic structure.² In the Russian case, however, where poorly developed native etiquette codes were juxtaposed with a decidedly advanced academic structure, Biagioli's directional argument ceases to apply. Nevertheless, a great deal may be gained by inverting it. Instead of looking at a set of etiquette protocols as the condition of possibility for the Russian academy, I consider how that academy served as a condition of possibility for the dissemination of a particular set of etiquette codes. Of course, it is not the argument of this essay that the academy was *entirely* an institution devoted to a particular vision of etiquette. Rather, the academy had two faces: one that turned toward the natural philosophical community in Western Europe and one that turned toward St. Petersburg society. The first was concerned with the technical details of mathematical philosophy and is much less specific to the Russian context. I wish to examine the second face here: how the academy functioned with respect to the culture of St. Petersburg and how Peter's project can be understood as more than just the establishment of an institution for abstract natural philosophy and practical technical advice.

The St. Petersburg academy—structure, scholars, etiquette protocols—was imported from abroad, but not without modifications. There are many reasons why Peter *needed* to import these features. I am suggesting that there was also something he *wanted*: that the Russian "public"—to be understood throughout this essay as a very narrow stratum of the social elite—be exposed to a particular form of life that he saw embodied in this ready-made academy. The plan for the St. Petersburg academy, in fact, was specifically altered from European exemplars to highlight the public aspects of academic natural philosophy.

² Mario Biagioli, "Etiquette, Interdependence, and Sociability in Seventeenth-Century Science," *Critical Inquiry*, 1996, 22:193–238. For another account of the reformation of natural philosophical practice in accordance with protocols adapted from etiquette see Lorraine Daston, "Baconian Facts, Academic Civility, and the Prehistory of Objectivity," *Annals of Scholarship*, 1991, 8:337–363. On courtly science and patronage in the first half of the seventeenth century see Biagioli, *Galileo Courtier: The Practice of Science in the Culture of Absolutism* (Chicago: Univ. Chicago Press, 1993); Jay Tribby, "Cooking (with) Clio and Cleo: Eloquence and Experiment in Seventeenth-Century Florence," *Journal of the History of Ideas*, 1991, 52:417–439; and Tribby, "Body/Building: Living the Museum Life in Early Modern Europe," *Rhetorica*, 1992, 10:139–163. The literature on etiquette and academies is strongest in the English case. See Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, N.J.: Princeton Univ. Press, 1985); Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: Univ. Chicago Press, 1994); Rob Iliffe, "'In the Warehouse': Privacy, Property, and Priority in the Early Royal Society," *History of Science*, 1992, 30:29–68; and Peter Dear, "*Totius in verba*: Rhetoric and Authority in the Early Royal Society," *Isis*, 1985, 76:145–161. On etiquette and French natural philosophy see David S. Lux, *Patronage and Royal Science in Seventeenth-Century France: The Académie de Physique in Caen* (Ithaca, N.Y.: Cornell Univ. Press, 1989); Christian Licoppe, "The Crystallization of a New Narrative Form in Experimental Reports (1660–1690): The Experimental Evidence as a Transaction between Philosophical Knowledge and Aristocratic Power," *Science in Context*, 1994, 7:205–244; Dear, "Miracles, Experiments, and the Ordinary Course of Nature," *Isis*, 1990, 81:663–683; and Geoffrey V. Sutton, *Science for a Polite Society: Gender, Culture, and the Demonstration of Enlightenment* (Boulder, Colo.: Westview, 1995). I will deal with academic etiquette in the German cultural region when I treat Leibniz's influence on the Russian academy.

cited as Vucinich, *Science in Russian Culture*, pp. 60, 73; Iu. Kh. Kopelevich, "The Creation of the Petersburg Academy of Sciences as New Type of Scientific and State Institution," in *Great Britain and Russia in the Eighteenth Century: Contacts and Comparisons*, ed. A. G. Cross (Newtonville, Mass.: Oriental Research Partners, 1979), pp. 204–211, on p. 209; Ludmilla Schulze, "The Russification of the St. Petersburg Academy of Sciences and Arts in the Eighteenth Century," *British Journal for the History of Science*, 1985, 18:305–335 (hereafter cited as Schulze, "Russification of the St. Petersburg Academy of Sciences"), on p. 307; K. V. Ostrovitianov, *Istoriia Akademii Nauk SSSR* (Moscow: AN SSSR, 1958), Vol. 1, p. 20; and Vasili Klyuchevsky, *Peter the Great*, trans. Liliana Archibald (Boston: Beacon, 1958), p. 264.

To explore why Peter the Great might have come to associate academic science with mannerly culture, we need to begin as he did: with the idea of and the model for an academy of sciences.

IDEALS AND INSTITUTIONS: LEIBNIZ AND PETER THE GREAT

Peter the Great drew the plan for the St. Petersburg Academy of Sciences from a set of impressions he had received from a variety of sources, including the Royal Society of London (which he visited in 1698) and the Académie Royale des Sciences in Paris (visited in 1717). Although some historians have isolated one of these two as the dominant model for the academy, the most significant influence was in fact that of Gottfried Wilhelm Leibniz, the German natural philosopher, and his Berlin Academy of Sciences. Not only can we trace a direct connection—Leibniz actually corresponded with Peter and other major figures of the Russian court for about twenty years—but the Imperial Academy as it was finally formulated bore remarkable similarities to Leibniz's own Berlin academy and to his vision of a global system of academies. While it is important to trace the origins of the model for the St. Petersburg academy, it would be a mistake to focus exclusively on institutional precursors. Instead, after examining the relations of the St. Petersburg academy to the three dominant models (London, Paris, and Berlin), one must ask why any of these appealed to Peter in the first place. There were structural constraints on the type of academy Peter could establish in the Russian context, but there was also, I contend, a particular type of natural philosopher that he wanted to introduce to Russia, a type exemplified by Leibniz.

Since this argument hinges on the structural constraints facing Peter, we must start with the models open to him and determine why he ended up appropriating many (but not all) of the features of the Berlin academy. Some historians have made the case that Peter the Great based his academy on the English Royal Society, which he had visited during his 1697–1698 “Great Embassy,” a full twenty years before he met Leibniz. (See Frontispiece.) While it is true, as Valentin Boss has shown, that many of the technicians—navigators, shipbuilders, and the like—Peter brought to Russia came from England through links established by the Russian Jacob Bruce and the Englishman John Colson, precious few academicians did. Most hailed from the German states. The evidence from Peter's visit to England offers only shaky proof that he actually visited the Royal Society in session. What he did see was its museum; it is possible that this gave him the idea of establishing his own personal museum, the *Kunstkamera*, which eventually became attached to the Imperial Academy, but it is unlikely that the influence extended any further. As many studies of the Royal Society have shown, the role played by the free society of gentlemen in the creation and functioning of that institution was enormous. Russia did not already have an educated genteel society; rather, the Royal Society members were exactly the type of gentleman natural philosophers that Peter wanted to introduce.³ If he could

³ Valentin Boss, *Newton and Russia: The Early Influence, 1698–1796* (Cambridge, Mass.: Harvard Univ. Press, 1972), pp. 93, 95; Kopelevich, “Creation of the Petersburg Academy of Sciences” (cit. n. 1), p. 206; and Vucinich, *Science in Russian Culture*, pp. 68–69. The Great Embassy was a tour Peter took of Holland, England, and the German states with the threefold aim of gaining knowledge of Western practical arts (Peter himself worked as a shipbuilder in the Netherlands for some months), assembling a coalition against the Ottoman Empire (which failed to materialize), and recruiting Western specialists to work in Russia. It was also a major sensation in Europe, since it was the first time a Russian tsar had ventured west. On popular interest see A. Foucher de Careil, *Leibniz et Pierre-le-Grand* (Paris, 1874), p. 14.

have founded a Royal Society in Russia, he wouldn't have needed to build the Imperial Academy. This is not to claim that the only function of the academy was to express mannerly behavior, but to emphasize that a club type of academy required a particular pre-existing etiquette regime in order to sustain its technical work. Russia lacked such codes of manners, and thus a Royal Society-style academy could not have performed the necessary technical functions.

A far better case can be made for the relation of the Imperial Academy to the French Académie Royale des Sciences. Peter visited the French academy in 1717, after Leibniz's death. And in 1721, just before he worked in earnest on the plans for his own academy, he was elected a member of the Académie Royale “above all ranks,” a privilege never before extended to a monarch. The French academy was a more suitable model than the Royal Society for the Russian context: the type of academy that a powerful prince such as Louis XIV required would have seemed appropriate to Peter's imperial pretensions. But he visited the Académie Royale fifty years after its founding, long after Louis XIV had passed away and during a time when its relation to the monarchy was very different. Moreover, the work the members pursued had taken a theoretical and mathematical tack that Peter regarded as suspect.⁴

The third major model, and the most likely candidate for importation to the Russian context, was the Berlin Academy of Sciences, Leibniz's model. This institution had the advantages of being at once suitable for the Russian context and personally promoted by its creator, who was fairly adept at insinuating himself with powerful patrons. To make the claim that Leibniz impressed Peter the Great as a model of the decorum to be expected in natural philosophers, one would have to demonstrate that Leibniz was (or at least appeared to be) a well-mannered courtier and not, like Isaac Newton, handicapped by a brusque and difficult temperament. Fortunately, several historians have already done a remarkable job of showing just that. After receiving his law degree from Altdorf, Leibniz traveled to several princely courts and aristocratic circles, ending up at Hanover after a long detour in Paris, and demonstrated remarkable skill in advancing himself as a factotum—a natural philosopher for all seasons—able to answer whatever queries his patron put forth. This was partly a strategy Leibniz developed to advance himself at court, but it was also consistent with his belief that, since philosophers did not have the powers of statesmen, it was in their interest to persuade statesmen to take their advice, thus conjoining worldly power and philosophical ideals. This professional tactic was tied to a vision of the necessity of philosophers for the Baroque state.⁵ As the noted Leibniz scholar R. W. Meyer has remarked: “He responded to the call of the world at large not as a scholastic philosopher, but as one who was directly involved in the issue at hand: as a lawyer and

⁴ McClellan, *Science Reorganized*, p. 77. Peter knew in advance that he was going to receive the membership honor, which was in the preparatory stages in 1717; he would not have visited the French academy otherwise. See the correspondence between Peter and Bernard de Fontenelle, dated 18 February 1721, in *Materialy dlia Istorii Imperatorskoi Akademii Nauk* (St. Petersburg, 1885) (hereafter cited as *MIAN*), Vol. 1, p. 5. For a brief description of Peter's visit see Alexander Vucinich, *Empire of Knowledge: The Academy of Sciences of the USSR (1917–1970)* (Berkeley: Univ. California Press, 1984), p. 9.

⁵ On the Berlin academy's institutional history see Hans-Stephen Brather, ed., *Leibniz und seine Akademie: Ausgewählte Quellen zur Geschichte der Berliner Sozietät der Wissenschaften 1697–1716* (Berlin: Akademie Verlag, 1993). See Ayval Ramati, “Harmony at a Distance: Leibniz's Scientific Academies,” *Isis*, 1996, 87:430–452, on p. 435, for Leibniz's professional strategies. On his facility in using them for personal advancement see Nicholas Rescher, “Leibniz Finds a Niche (Settling in at the Court of Hannover: 1676–77),” *Studia Leibnitiana*, 1992, 24:25–48. This vision of the role of the philosopher vis-à-vis the state apparatus may have been one of the triggers behind the philosophical ramifications of the Leibniz-Clarke disputes in England. See Steven Shapin, “Of Gods and Kings: Natural Philosophy and Politics in the Leibniz-Clarke Disputes,” *Isis*, 1981, 72:187–215.

diplomat at Mainz; as Privy Councillor and librarian in Hanover and Vienna; as a mining expert in the Harz mountains; as an historian of the Guelphs in Italy; and as politician and Christian missionary to Peter the Great at Carlsbad." While Leibniz used his styling as a natural philosopher to great advantage, he also promoted himself through traditional courtly techniques, writing Peter laudatory poems and preparing special toys to amuse the tsar.⁶

Peter the Great was in many ways Leibniz's ideal patron. For years Leibniz had sought an "enlightened" patron who was both powerful and interested in natural philosophy. Long considered a friend to practical men of knowledge, Peter was autocrat of what was fast becoming one of the most powerful states in Europe, a fact that became especially clear to Leibniz after the Russian defeat of Sweden's Charles XII at Poltava in 1709. Leibniz had tried and failed to make contact with Peter as early as 1697, when the tsar passed through the German states on his Great Embassy. In October 1711 he managed to meet Peter in Torgau, where the tsar's son was marrying. A correspondence began in 1712 after the two met again in Carlsbad, and Peter appointed Leibniz a counselor and issued him an annual salary until Leibniz's death in November 1716.⁷

Leibniz had been trying for some time to fulfill his ideal of a global network of scientific academies that would pursue coordinated research, a vision conceived at least partly in reaction to the disunified learned societies that surrounded him. Numerous Leibniz scholars have noted that what he sought was a "monadic ideal" combining worldly power and ethereal knowledge: the proper statesman would be a philosopher-king who was internally philosophical and closed, like a monad, and outwardly active and open.⁸ Leibniz saw the Russian case as a potential instantiation of his monadic ideal of state and academy. Besides having one of the European monarchs most amenable to his purposes, Russia stretched from the Arctic to the southern steppe and across Asia. Such a broad climatic differential offered a basis for wide-ranging scientific findings, a promise eventually realized in the Imperial Academy's early geographical expeditions.⁹ Furthermore, it connected Asia and

⁶ R. W. Meyer, *Leibniz and the Seventeenth-Century Revolution*, trans. J. P. Stern (Cambridge: Bowes & Bowes, 1952), p. 102. For the text of Leibniz's panegyric poem to Peter see V. Ger'e, *Sbornik Pisem i Memorialov Leibnitsa otnosiashchikhsia k Rossii i Petru Velikomu* (St. Petersburg, 1873), p. 124 (item 92). This is a comprehensive collection of Leibniz's letters relating to Russia and Peter, also available in a German edition with a substantial introduction: W. Guerrier, *Leibniz in seinen Beziehungen zu Russland und Peter dem Grossen* (St. Petersburg/Leipzig, 1873). On the "agrables" shown to Peter at their first meeting see Foucher de Careil, *Leibniz et Pierre-le-Grand* (cit. n. 3), pp. 35, 37. Leibniz also made good use of Russian tropes of praise, referring in one letter to tsars as "earthly gods": quoted in P. Pekarskii, *Nauka i Literatura v Rossii pri Petre Velikom* (St. Petersburg, 1862), Vol. 1, p. 27.

⁷ Alexander Lipski, "The Foundation of the Russian Academy of Sciences," *Isis*, 1953, 44:349-354, on pp. 349-350. On Leibniz's recognition of the importance of Poltava see Foucher de Careil, *Leibniz et Pierre-le-Grand*, p. 30. See also Ernst Benz, *Leibniz und Peter der Grosse: Der Beitrag Leibnizens zur russischen Kultur-, Religions- und Wirtschaftspolitik seiner Zeit* (Berlin: De Gruyter, 1947). While Poltava was clearly very significant for Leibniz, Soviet historians tended to overstate his reaction to the victory. For an example see V. I. Chuchmarev, *G.-V. Leibnits i Russkaia Kul'tura: Iz istorii mezhdunarodnykh nauchnykh i kul'turnykh svyazei* (Moscow: Vysshiaia Shkola, 1968), p. 14.

⁸ This is the central argument in Meyer, *Leibniz and the Seventeenth-Century Revolution*, trans. Stern (cit. n. 6). The point is made in a more specific sense in Patrick Riley, *Leibniz' Universal Jurisprudence: Justice as the Charity of the Wise* (Cambridge, Mass.: Harvard Univ. Press, 1996), Ch. 5, and esp. pp. 221-223, regarding Peter the Great. On learned societies in Leibniz's time see R. J. W. Evans, "Learned Societies in Germany in the Seventeenth Century," *European Studies Review*, 1977, 7:129-151. On Leibniz's desire for a universal system of academies under the guidance of master-patrons (similar to Peter the Great) see Martha Ornstein, *The Role of Scientific Societies in the Seventeenth Century* (New York: Columbia Univ., 1913), pp. 228, 230; and Meyer, *Leibniz and the Seventeenth-Century Revolution*, trans. Stern, p. 42.

⁹ Most of the secondary literature on Leibniz and Russia has focused on his geographical ideas. See, e.g., Mechthild Keller, "Wegbereiter der Aufklärung: Gottfried Wilhelm Leibniz' Wirken für Peter der Großen und

Europe and thus could provide a stable land link for findings to travel from East to West, transmitting knowledge and material from Leibniz's Jesuit connections in the Far East to European academies. Finally, Russia was a land untouched by philosophy—or so Leibniz felt—and so it was a virtual blank slate for the best of Western natural philosophy, which it would be able to assimilate rapidly. As Leibniz put it in a letter from Hanover during the Great Embassy: "I was going to write to you that since the Tsar wants to debarbarize [*débarbariser*] his country, he will find there, *tabulam rasam* as a new land which one wants to clear [*défricher*], the Muscovites not yet being informed in the matter of science." Peter's adaptation of Leibniz's abstract program reflected all of these elements. The final formulation of the Imperial Academy included sections for the humanities and arts, as did Leibniz's Berlin academy; the incorporation of an educational institution into the framework of the academy is also Leibnizian. Even the scholars recruited for the project were contacted through Leibniz's pupil Christian Wolff.¹⁰

If Peter was Leibniz's ideal patron, Leibniz was just what Peter thought a natural philosopher should be. He was courteous, learned, and especially interested in developing the untapped potential of Russia. Or that, at least, is what Peter saw. Leibniz, in a fairly typical fashion, tailored his proposals, especially at their first meeting, to what the tsar wanted to hear, emphasizing, for example, the reform of Russian education and internal navigation. If Peter intended to create in Russia an academic infrastructure that would produce generations of practical natural philosophers, Leibniz—the self-proclaimed "Solon of Russia"—exemplified the kind of philosopher he hoped to turn out. An anecdote illustrates Peter's perception of Leibniz. During one of their meetings, Peter complained of a partial paralysis in one arm that hindered him in mechanical actions such as firing a pistol. Leibniz quickly threw together a simple wooden device that restored the motion in the tsar's arm. His response was practical, courtly, and philosophical, all at once. Some historians have attributed Peter's attachment to Leibniz to Germanophilia stemming from the tsar's youthful exposure to foreign specialists near Moscow.¹¹ While this was certainly a factor, the

sein Reich," in *Russen und Rußland aus deutscher Sicht: 9.-17. Jahrhundert*, ed. Lew Kopelew (Munich: Fink, 1985), pp. 391-413, on p. 397. For an illuminating article on the Russian academy's geographical expeditions see Dmitri M. Lebedev and Vadim I. Grekov, "Geographical Exploration by the Russians," in *The Pacific Basin: A History of Its Geographical Exploration*, ed. Herman R. Friis (New York: American Geographical Society, 1967), pp. 170-200.

¹⁰ Letter of 31 May 1697, quoted in Foucher de Careil, *Leibniz et Pierre-le-Grand* (cit. n. 3), p. 16. Foucher de Careil extends this point, arguing that Leibniz felt that "la Russie allait devenir la contrée modèle, l'empire idéal, réglé par la science" (p. 98). For Leibniz's view of Russia as a blank slate see Vucinich, *Empire of Knowledge* (cit. n. 4), p. 7; McClellan, *Science Reorganized*, p. 75; and Ornstein, *Role of Scientific Societies* (cit. n. 8), p. 228. See also Liselotte Richter, *Leibniz und sein Russlandbild* (Berlin, 1946); and Konrad Bittner, "Slavica bei G. W. von Leibniz," *Germanoslavica*, 1931-1932, 1:3-32, 161-234, 509-557. On Wolff's role in recruiting academicians see P. Pekarskii, *Istoriia Imperatorskoi Akademii Nauk v Peterburge* (St. Petersburg, 1870) (hereafter cited as *Pekarskii, Istoriia Imperatorskoi Akademii Nauk*), Vol. 1, p. xxi; Vucinich, *Empire of Knowledge*, p. 7; Ramati, "Harmony at a Distance" (cit. n. 5), p. 437; and esp. Vucinich, *Science in Russian Culture*, pp. 46-47. Leibniz's correspondence with the Russian court makes this influence remarkably clear. On his contact with members of the court see Ger'e, *Sbornik Pisem* (cit. n. 6), pp. 311, 321. The two letters that Peter wrote mentioning Leibniz also indicate that Leibniz was taken seriously: *ibid.*, pp. 269-270, 274. There were, of course, notable differences between the circumstances of the Berlin academy and those that prevailed in St. Petersburg. Peter's academicians had to contend with the lack of a sizable reading public, poor contacts with the Western European intellectual stratum, and austere living conditions. Moreover, as will become clear in the course of the discussion that follows, Peter the Great did not have the same philosophical pretensions as Frederick the Great, and his control of the academy project was much stricter and allowed for less fraternization between academicians and potentially dissatisfied nobles.

¹¹ Pekarskii, *Nauka i Literatura* (cit. n. 6), Vol. 1, pp. 26-27. When Leibniz found out that he would be meeting with the tsar, he specifically wrote out a long proposal on the introduction of Western education in Russia, hoping to impress Peter. For this document see Ger'e, *Sbornik Pisem*, p. 95 (item 73). For the anecdote

personal particularity of *Leibniz* was far more significant for Peter's cultural project of the academy, as the evidence of his approval of Leibniz's courtliness suggests.

The argument that Peter and Leibniz embodied each other's ideal has limits. The two men wanted different results from their relationship: Leibniz eagerly sought patronage from Peter and the fulfillment of his goals for a network of academies; Peter desired practical advice from Leibniz on navigation, education, and the structure of a scientific academy. Neither individual thought of their interaction in terms of courtly roles. This was not a transaction *about* etiquette, but a transaction *conducted through* the language of etiquette. Each party negotiated by the courtly protocols he was accustomed to, but this does not mean that they went through these motions for their own sake. Etiquette was not an end in itself; it was a means for achieving specific goals in the court cultures of early modern Europe. Even when heavily enmeshed in courtly etiquette, natural philosophical work was still accomplished and statecraft was still conducted. To emphasize the role of courtly manners in these contexts is to tell only half the story, to focus on the language of a novel and not discuss its plot—a plot that both Leibniz and Peter foregrounded.

Nevertheless, it was precisely the courtliness of Leibniz that later Russians criticized. Petr Pekarskii, writing in the mid-nineteenth century, felt that while Leibniz's suggestions and projects (for magnetic measurements, geography, and the academy) may have helped advance Russian science, they were by no means vehicles of Enlightenment. They were, rather, specialized games designed to amuse a small stratum of the elite. Pekarskii laments that the Russian people were not enlightened by Leibniz's plans, as he assumed was Peter's intention.¹² I will return to the issue of the "Russian Enlightenment" and Peter's potential status as an Enlightenment figure in the conclusion of this essay. Regardless of whom Peter ended up pleasing with his academy project, I would contend that he never intended to "enlighten" the Russian people; Leibniz's projects were just what Peter wished for—no more and no less. The academy was to be an exemplar for elites, not for the masses, and Peter constructed it accordingly. Peter could not simply have taken any academic model and transplanted it onto Russian soil without modification; he was too acutely aware of the myriad peculiarities of the Russian case. Before Russia could make its own Leibnizes, some tinkering with both the structure and the functions of the academy had to be done. This tinkering is visible in the outline of Peter's final academy project, written up just before he died.

THE PROJECT: HOW POLITENESS FLOWS

The Imperial Academy of Sciences and Arts was no small affair. It consisted of eighty-four people at its founding: seventeen academicians who doubled as professors, one adjunct, one master of astronomical instruments, one French "sprachmaster," eleven general students, seven engravers, two illustrators, six translators, three library assistants (the head librarian was an academician, Johann Schumacher), seven printers, eight unofficial student "understudies" in the various specialties, ten staff members in the administrative chancellery, and ten service personnel. To make sense of all these individuals, past histories of the academy have offered valuable studies of its political organization, examining how

about the paralyzed arm see Foucher de Careil, *Leibniz et Pierre-le-Grand* (cit. n. 3), pp. 48–49. On Peter's Germanophilia see Eckhard Hübner, "Peter der Große: Auch Deutschland lag im Westen," in *Deutsche und Deutschland aus russischer Sicht: 18. Jahrhundert: Aufklärung*, ed. Lew Kopelew (Munich: Fink, 1988), pp. 77–100, on p. 80.

¹² Pekarskii, *Nauka i Literatura*, Vol. 1, p. 32.

power flowed officially throughout the institution's hierarchical bureaucratic structure.¹³ But these studies do not address the theoretical structure of the academy, which derived from Peter's intentions rather than from the eventualities that transpired as the academy was worked out in practice after his death. We have direct access to Peter's intentions because on 22 January 1724 he signed a document, known as the "Project," which served in lieu of a charter until 1747. This Project delineated the goals of the academy and the role it was supposed to serve in Russian society. Several aspects of the Project have long seemed puzzling, but a cultural interpretation of the role of the academy resolves many of these tensions. The Project is not just an administrative document—it is a cultural manifesto.

Peter knew from the beginning that he would have to import at least the academicians, if not the structure, for his new institution. In the seventeenth century Peter's father, Aleksei Mikhailovich, brought over a series of doctors from the West and set up an Apothecary Department almost identical in structure to the other departments of his government. Importing scholars had long been standard educational policy for Russian tsars, so there was nothing unusual about doing the same for the academy. What was new was the importation of structure. But, as David Lux has shown for the French context, attempts to move from private patronage to royal academy were tricky; without adequately working out proper protocols, both administrative and with regard to etiquette, the Imperial Academy might have met the same fate as the Académie de Physique in Caen: dissolution.¹⁴

Peter's Project does not clearly delineate the structure of the academy, a matter that would cause many grievances for the academicians in their dealings with the state.¹⁵ It is quite likely that the structure was deliberately left opaque. Peter did not want to formalize the hierarchy excessively; part of the idea was for the academy to show the population how disputes were resolved amicably among equals. More important than the appearance of collegial equality, however, was the connection between the court and the academy: all individuals in the upper levels of the academic hierarchy were to be hand-picked by court officials from a group chosen by a Western advisor. After those individuals were in place, it was assumed, they would use their established contacts with natural philosophers in the West to recruit academicians, just as the original members had been recruited by Wolff.¹⁶

Beyond those pertaining to personnel issues, the most formal statement in the Project is that the academy was to serve as a model (*obrazets*) to the rest of the country. As will

¹³ For the list of personnel see Ostrovitianov, *Istoriia Akademii Nauk SSSR* (cit. n. 1), Vol. 1, p. 44. For histories focusing on political structure see McClellan, *Science Reorganized*, p. 76; and Schulze, "Russification of the St. Petersburg Academy of Sciences," p. 335.

¹⁴ Lux, *Patronage and Royal Science in Seventeenth-Century France* (cit. n. 2), p. 182. On the Apothecary Department see Ostrovitianov, *Istoriia Akademii Nauk SSSR*, Vol. 1, p. 16; and Vucinich, *Science in Russian Culture*, p. 28.

¹⁵ Kopelevich, "Creation of the Petersburg Academy of Sciences" (cit. n. 1), p. 206. See also Iu. Kh. Kopelevich, *Vozniknovenie Nauchnykh Akademii: Sredina XVII–Sredina XVIII v.* (Leningrad: Nauka, 1974); and Kopelevich, *Osnovanie Peterburgskoi Akademii Nauk* (Leningrad: Nauka, 1977).

¹⁶ On the selection of upper-level academic officials see Schulze, "Russification of the St. Petersburg Academy of Sciences," p. 308. When the court moved back to Moscow for a brief period in the late 1720s Lavrentii Blumentrost, the academy's president, went with it while the academy itself stayed in St. Petersburg and fell more and more under Johann Schumacher's control. This illustrates how the academy was both part of the court structure and part of the cultural mechanisms of St. Petersburg. See Pekarskii, *Istoriia Imperatorskoi Akademii Nauk*, Vol. 1, pp. xliii–xliv. For an example of the opportunities and pitfalls presented to a young scholar taking the potentially hazardous journey to a totally new academy see the biography of one of the academy's brightest lights, Leonhard Euler: Ronald Calinger, "Leonhard Euler: The First St. Petersburg Years (1727–1741)," *Historia Mathematica*, 1996, 23:121–166. Euler was an atypical success story, enjoying not just the academy but the St. Petersburg culture he encountered.

be seen shortly, this concept of a state institution as *obrazets* was an extremely significant trope in Russian courtly culture. But the academy had other general functions. It was certainly meant to maintain correspondence with foreign scientists, a feature Leibniz had insisted on. In fact, the secretary, whose job it was to keep this contact open, was a foreigner throughout the eighteenth century, even after a significant proportion of the academicians were Russians. Upholding the connection to the tsar was another vital function. The Project explicitly stipulated that academicians were to perform on command for Peter, explaining to him whatever research they had completed. Peter was not asking to be treated as a spectator to already certified experiments, as Louis XIV had been in France; rather, he proclaimed himself part of the knowledge-production process. The Project presents his explicit view of scientific practice, in which he expected to participate:

Since the academy is nothing if not a society (gathering) of persons who assist each other for the purpose of the carrying out of the sciences, it would be very appropriate if they were to spend several hours weekly in a meeting, and then each could propose his opinion, use the advice and opinion of others, and particularly verify experiments made in the presence of all the members. And the last is very appropriate because in some experiments many times one demands a complete demonstration from another, as, for example, the anatomist of the mechanic, etc.¹⁷

Peter felt that, in general, this form of conduct was not something Russia was ready for—at least not yet. Only certain “enlightened” Russians, like himself, could participate in such a process; he was eligible only because he understood particular protocols. The academy was to disseminate these protocols so that the system could become self-sustaining.

The Project envisioned two ways in which the academy could fulfill this self-perpetuating role. The first was through educational reform, a broad restructuring of the entire system along more “Western” lines, with the academy at its pinnacle. The second involved integrating the academy into the Petrine manners reforms, deliberately *showing* Russians what it meant to belong to polite society. It is to these two reforms, respectively, that we now turn.

MAKING CLASS: THE EDUCATION REFORMS

Peter the Great is known in Russian history for many things—the successful war with Sweden, his upheaval of the dynastic structure, his dominating personality—but he is best remembered for his series of reforms that changed almost every element of traditional Russian life. As a result, Peter’s reforms have become a touchstone for spirited debate about Russia’s position with respect to the “West,” and people’s assessments of Peter frequently correspond closely to their views of “Russia.”¹⁸ The academy proposal was only one such reform—and a remarkably insignificant one at that, given how little impact it

¹⁷ *MIAN*, Vol. 1, pp. 15, 17, 18 (quotation); for more on the *obrazets* see p. 19. On relations between the Imperial Academy and the Royal Society, the Académie des Sciences, and other European academies see McClellan, *Science Reorganized*, pp. 156, 166–168.

¹⁸ For a selection of the widely contrasting views on Peter’s reforms see Marc Raeff, ed., *Peter the Great Changes Russia*, 2nd ed. (Lexington, Mass.: Heath, 1972). For a recent synthetic assessment of Peter’s reign see the encyclopedic analysis by Lindsey Hughes, *Russia in the Age of Peter the Great* (New Haven, Conn.: Yale Univ. Press, 1998). The contemporary perception of the “West” in Russia was similarly correlated with attitudes toward Peter as tsar. See Daniel L. Schaftly, Jr., “The Popular Image of the West in Russia at the Time of Peter the Great,” in *Russia and the World of the Eighteenth Century*, ed. R. P. Bartlett, A. G. Cross, and Karen Rasmussen (Columbus, Ohio: Slavica, 1986), pp. 2–21.

had on the lives of most Russians. The Russians affected by the academy were the elite, and this was no accident: the academy was the pinnacle of the educational reforms whose purpose was to create a new class of the Russian “elite.” Viewing the academy as part of these reforms will help situate the impact it was intended to have on the creation of a “public sphere.”

To see the academy as the pinnacle of Peter’s educational reforms, designed to remake the Russian service elite in terms of Western skills and knowledge, we must return to the Great Embassy of 1697–1698. Before this trip, a major means of importing technical knowledge was to send Russian students abroad for training. But after his visit to Holland, England, and various German states to recruit technicians, Peter left behind a man named Petr Posnikov whose job was to study the British schooling system in hopes of instituting something like it in Russia, thus ending the need for foreign study trips. Posnikov recruited two graduates of the Mathematical School of Christ’s Hospital in London to set up a similar school, the Moscow School of Navigation, that would introduce the new style of technical education to Russians. The Moscow School was not only the first lower-level Russian school to teach “modern” mathematics—indeed, the only other exemplar in the world was its template at Christ’s Hospital; it also trained a large number of civil servants, military men, and bureaucrats for the empire. It was, as well, the model for a series of “cypher schools,” intended to teach children of the Russian elite the principles of arithmetic. Peter’s educational reforms had a humanities component too. In 1703 he brought a Swedish Lutheran pastor, Ernst Glück, to Russia to set up a school that taught a wide variety of European and ancient languages and some mathematics. Glück died in 1705 and his school collapsed shortly thereafter, but attempts to establish humanities instruction, based on models of Ukrainian humanism and Jesuit educational institutions like La Flèche, continued.¹⁹

This network of technical, navigational, military, trade, and linguistic schools persisted as part of Peter’s attempt to break the educational monopoly of the Orthodox Church, whose power he severely curtailed in the Spiritual Regulations of 1721 that subordinated the church to the secular control of a government bureau, the Holy Synod. While Peter checked the educational power of the Church, he transformed the ecclesiastical schools into institutions of modern learning with an expanded curriculum explicitly tailored to those who did not want to enter the clerical ranks. At the same time, education was made a requirement for anyone hoping to become a parish priest and was used by the state as a mechanism for solidifying a new class of clerics, closing off what had been an important avenue of upward mobility from the peasantry. Education was thus initially a tool that enabled Peter to encourage social mobility, but once his new social structure was estab-

¹⁹ “Service elite” refers to the hereditary Russian nobility, which long served the tsars in the army, the navy, or the civil service or at court. On the practice of sending Russian students abroad for training see Nicholas Hans, “Russian Students at Leyden in the Eighteenth Century,” *Slavonic and East European Review*, 1957, 35:551–562; and Max J. Okenfuss, “Russian Students in Europe in the Age of Peter the Great,” in *The Eighteenth Century in Russia*, ed. J. G. Garrard (Oxford: Clarendon, 1973), pp. 131–145. On the influence of the Mathematical School of Christ’s Hospital see Hans, *The Russian Tradition in Education* (London: Routledge & Kegan Paul, 1963), pp. 6–7; and Hans, “The Moscow School of Mathematics and Navigation,” *Slavonic East Eur. Rev.*, 1951, 29:532–536. On the utilitarian emphasis of Petrine education see Hans, *History of Russian Educational Policy (1701–1917)* (London: King, 1931), p. 11. The cypher schools were noted tools for social mobility. See J. Laurence Black, *Citizens for the Fatherland: Education, Educators, and Pedagogical Ideals in Eighteenth-Century Russia* (Boulder, Colo.: East European Quarterly, 1979), p. 24. On attempts to establish humanities instruction see Okenfuss, “The Jesuit Origins of Petrine Education,” in *Eighteenth Century in Russia*, ed. Garrard, pp. 106–130; and Okenfuss, *The Rise and Fall of Latin Humanism in Early-Modern Russia: Pagan Authors, Ukrainians, and the Resiliency of Muscovy* (Leiden: Brill, 1995), pp. 15–16.

lished it became a mechanism for reifying the new order. Evidence that children of the nobility were coerced into entering the mathematical schools and the way education and the service reforms were used to create stratifications within the elite show that this reform was part of a broader pattern of Petrine class formation.²⁰ In order to understand how the academy functioned as an educational institution, we must examine its role in Peter's shaping of a new class of nobles.

The first stage in creating a new nobility was education, a feature of the Imperial Academy borrowed from the Berlin Academy of Sciences—although the initial conception of the educational institution in Russia was much wider than in its Prussian counterpart. From the moment the idea for the academy was promulgated in the Project, a university was meant to be created alongside it—the first true secular university in Russia. Several earlier historians have viewed the academy itself primarily as an educational institution. While the educational mission was an essential component of the reform, this was necessarily only part of its function, since if all Peter had wanted to do was to set up a university he would have done just that, avoiding some clear obstacles. Not only were there no professors in Russia (which is why the academicians had to double as such); there was no segment of the population educated enough to serve as university students. Each academician had to bring along two students of his own (who would be paid stipends) so that there would be people to attend the university classes. It was crucial that there be models of appropriate behavior for both professors and students. Christian Wolff, when consulted about setting up the academy, insisted that Russia would be better served by creating a university to produce individuals who could later populate an academy. His advice was ignored only insofar as the academy was set up in addition to the educational university structure. And Peter did not stop with a university. He also instituted secondary schools and a gymnasium as feeder institutions. The academy was not separated from the university until the former finally received a charter in 1747, at which point academicians and professors were split into separate categories.²¹

Why was this university so important for Peter? The curriculum provides a clue. The Project explicitly included the arts in the academy's jurisdiction. The idea was not to train

²⁰ On the Spiritual Regulations of 1721 see Vucinich, *Science in Russian Culture*, pp. 34, 43–45; and Vucinich, *Empire of Knowledge* (cit. n. 4), pp. 6, 10. For a detailed discussion of Peter's Church reform and its impact on education see James Cracraft, *The Church Reform of Peter the Great* (Stanford, Calif.: Stanford Univ. Press, 1971), Ch. 6. As Cracraft notes (p. 27), the function of these reforms was not to modify doctrine but to curtail the Church's temporal economic and administrative power. On the transformation of the ecclesiastical schools see Robert L. Nichols, "Orthodoxy and Russia's Enlightenment," in *Russian Orthodoxy under the Old Regime*, ed. Nichols and Theofanis George Stavrou (Minneapolis: Univ. Minnesota Press, 1978), pp. 65–89; and Georges Bissonnette, "Peter the Great and the Church as an Educational Institution," in *Essays in Russian and Soviet History*, ed. John Shelton Curtiss (Leiden: Brill, 1963), pp. 3–19, esp. p. 8. On education as a means of solidifying a new social class of clerics see Gregory L. Freeze, *The Russian Levites: Parish Clergy in the Eighteenth Century* (Cambridge, Mass.: Harvard Univ. Press, 1977), p. 218; and Freeze, "Social Mobility and the Russian Parish Clergy in the Eighteenth Century," *Slavic Review*, 1974, 33:641–662. See also Brenda Meehan-Waters, "The Russian Aristocracy and the Reforms of Peter the Great," *Canadian-American Slavic Studies*, 1974, 8:288–302; James C. McClelland, *Autocrats and Academics: Education, Culture, and Society in Tsarist Russia* (Chicago: Univ. Chicago Press, 1979), p. 6; and Robert E. Jones, *The Emancipation of the Russian Nobility, 1762–1785* (Princeton, N.J.: Princeton Univ. Press, 1973).

²¹ For a view of the academy as an educational institution see Pekarskii, *Istoriia Imperatorskoi Akademii Nauk*, Vol. 1, p. xxviii; on academicians bringing their own students see p. lix. For the history of technical education prior to the founding of the Academy of Sciences see Max J. Okenfuss, "Technical Training in Russia under Peter the Great," *History of Education Quarterly*, 1973, 13:325–345. For figures on Russian student enrollment, which dropped off substantially in the 1730s, see Hans, *History of Russian Educational Policy* (cit. n. 19), p. 16; and Black, *Citizens for the Fatherland* (cit. n. 19), p. 44. On the separation of the academy and the university see Vucinich, *Empire of Knowledge*, pp. 12, 21; McClelland, *Science Reorganized*, p. 76; and Schulze, "Russification of the St. Petersburg Academy of Sciences," p. 307.

people in mathematics and science for technical purposes, since many such schools already existed in Petrine Russia. Instead, the university's principal course was labeled "philosophy" and included mathematics, physics, astronomy, rhetoric, logic, and ancient philosophy.²² In short, the university was to disseminate the academy's "civilizing process" down the cultural ladder—but not all the way down. It is crucial to note that the academy's university was always part of a larger project concerning the creation and solidification of an elite that was to serve as the "public" addressed through the academy's educational ventures.

Officially, there were no restrictions on who could enter the academy's university as a student, a class-blind openness that extended to members of all free classes (excluding only bonded serfs) and was typical of Petrine educational institutions. Although typically only members of the hereditary nobility (*dvorianstvo*) did enroll in such institutions, Peter's reign was a time of striking potential social mobility, and it was possible for talented individuals from other estates to enter the Table of Ranks, the merit-based hierarchy of service instituted by Peter's bureaucratic reform, and move up the social ladder. The absence of estate specification for the university has been heralded by various historians as "democratic."²³ This seems an odd attitude to ascribe to one of the most autocratic rulers Europe has ever seen. In fact Peter probably did not want to encourage peasants, children of the clergy, and merchants to enter the university, despite his gestures toward social mobility. Given that literacy at this time was restricted almost entirely to the nobility, it is likely that they were meant to dominate the university; this was not explicitly stated both because it was unnecessary to do so and because Peter wanted the institution at least to appear to be estate-blind. The new elite class was to be created through education, but there was no reason to advertise its almost exclusive origin in the nobility.

Class formation was also reflected in the academy's attempts to disseminate knowledge outside the university to the broader "public," the narrow aristocratic stratum of educated nobility that supported Peter's reforms. Most of this work was done in print, which appears to be universal and democratic but in fact rigidly restricts the knowledge transmitted to the small literate population. The academy began publishing its journal, the *Commentarii*, in Latin in 1727, but its purpose was not to spread knowledge among Russians, few of whom knew Latin. The Latin publication was, rather, for the technical face of the academy noted earlier—the face that pointed toward Paris, London, and Berlin. For the purpose of publicizing the academy's work at home, summaries in translation provided educated Russians with their first detailed treatments of causality, gravity, and other philosophical topics. Given the paucity of technical terms in Russian, some of these early attempts strike

²² On technical training see Hans, "Moscow School of Mathematics" (cit. n. 19), pp. 532–536; and Max J. Okenfuss, "The Impact of Technical Training in Eighteenth-Century Russia," in *Russia and the World*, ed. Bartlett et al. (cit. n. 18), pp. 147–156. For a description of the university's principal course see *MIAN*, Vol. 1, p. 20.

²³ On the "openness" of the academy's university see Okenfuss, *Rise and Fall of Latin Humanism* (cit. n. 19), p. 15. Many have argued that this proves that Peter was mostly interested in using education to create a class of qualified bureaucrats. See Black, *Citizens for the Fatherland* (cit. n. 19); and J. Laurence Black, "Citizenship Training and Moral Regeneration as the Mainstay of Russian Schools," *Studies on Voltaire and the Eighteenth Century*, 1977, 167:427–451. While this is undoubtedly correct, it does not mean that he did not simultaneously attempt to solidify this new meritocracy on aristocratic lines. The nobility eventually managed to have the lower classes forced out officially. When Moscow University was founded in 1755, its strict, explicit class divisions enhanced its prestige and thus drew students away from the academy university, which did not have such rigid protocols. See Vucinich, *Science in Russian Culture*, p. 79; and Schulze, "Russification of the St. Petersburg Academy of Sciences," p. 332.

the modern reader as amusing. Yet much of the vernacular scientific language was created during this very period, and Peter made a point of assigning scientifically competent translators to handle each academic subdiscipline—both for the summaries of the *Commentarii* and for the translation of Western technical works. Despite attempts to draw readers to the summaries and translations with illustrations and elaborate bindings, interest was sparse. The summaries failed owing to their obscure content and were canceled after repeated attempts to boost readership.²⁴ For the most part, the academicians continued to court their chief philosophical audience abroad.

At home, however, they were placed in charge of more general efforts at popular enlightenment. Here the academy's role as printer was crucial. After Russia's first newspaper, the *Vedomosti* (print run 1702–1727), which was basically a current-events leaflet, failed, the Academy of Sciences was assigned the job of printing its replacement, the larger *St. Petersburg Gazette*. This gave the academy a monopoly on a vital tool of Westernization. The delegation of this duty to the academy was not incidental—spreading news of its activities was an essential aspect of its cultural function. In 1727 the printing privilege was broadened to grant the academy exclusive right to publish all secular material in Russia. This privilege amounted to more than just a source of revenue. Earlier in the century Peter had eliminated the Church monopoly on printing and increased secular printing, and the new, simplified, Petrine orthography gave the secular press a distinctive look that would further differentiate it from the still-popular religious fare. Given the crushing blow to the Church's political power delivered by the 1721 Spiritual Regulations, the clergy lost a great deal of their ability to censor what was printed, although they could still try through informal means.²⁵ While Russia never experienced the radical transformations of a "printing revolution," Peter did alter the role printing played in the transmission of state power. It was seen as a crucial tool for enlightenment; apart from publishing pronouncements and state orders, control of the process was generally considered the academy's responsibility. The greatest limiting factor on the power of printing was the poor circulation infrastructure: most printed matter remained in the metropolises of St. Petersburg and Moscow. For the purposes of Peter's Westernizing project this was sufficient, since the people he was most concerned to Westernize were the bureaucrats (Petersburg) and the old nobility (Moscow). After Peter's death his successors had little interest in printing, and even more control devolved to the academy (for secular material) and the Holy Synod (for religious matters).²⁶ Peter's successors completed this part of his project almost despite themselves.

²⁴ The language of the *Commentarii* itself fluctuated across the century. It was Latin until 1734, German until 1741, Latin until 1766, German until 1772, and French to the end of the century. See Schulze, "Russification of the St. Petersburg Academy of Sciences," p. 309. Many of these changes corresponded to foreign policy shifts at court. On the creation of a vernacular scientific language during this period see *ibid.*, p. 312; and Vucinich, *Science in Russian Culture*, p. 56. On the failure of the summaries see Gary Marker, *Publishing, Printing, and the Origins of Intellectual Life in Russia, 1700–1800* (Princeton, N.J.: Princeton Univ. Press, 1985), pp. 46–48. These summaries were further simplified and appended to the *St. Petersburg Gazette*, which the academy also published. See V. P. Zubov, *Istoriografiia Estestvennykh Nauk v Rossii (XVII v.–pervaia polovina XIX v.)* (Moscow: AN SSSR, 1956), pp. 19–21. On the attractive presentation see B. E. Raikov, *Ocherki po Istorii Geliotsentricheskogo Mirovozzreniia v Rossii* (Moscow: AN SSSR, 1947), p. 187.

²⁵ Church censorship was exercised with increased vigor, however, in those areas it still controlled, with a special eye to eradicating superstition and Old Belief. See Cracraft, *Church Reform of Peter the Great* (cit. n. 20), p. 301. On residual temporal censorship see Kopelevich, "Creation of the Petersburg Academy of Sciences" (cit. n. 1), p. 208; Vucinich, *Science in Russian Culture*, p. 87; and the discussion of Fontenelle's *Entretiens*, below.

²⁶ See Gary Marker's excellent discussion of printing in Russia: "Russia and the 'Printing Revolution': Notes

The work of popular enlightenment was also advanced by opening up the academy's library and its museum, the *Kunstkamera*—originally both Peter's personal collections. Publicizing these two spaces was an original stipulation of the Project, one of the most effective ways to interest the public in academy affairs and thus expose it to the academy's cultural message. Extraordinary efforts were made to attract spectators. In 1741 an index to the library was published, and attempts to advertise the *Kunstkamera* were legion. The materials kept in the museum were naturally attractive to viewers, appealing to the popular enthusiasm for monsters and marvels: such items as a hermaphrodite's body and the skull of a deformed three-eyed dwarf were touted as drawing cards.²⁷

MAKING NICE: THE MANNERS PROJECT

Education was a way of creating new social stratifications; making the occupants of those strata behave properly was another matter. The Imperial Academy of Sciences was supposed to accomplish both tasks by showing the newly created elites proper manners. It was necessary, then, to acquaint the public with the academy. We have already seen some of the ways in which this was done through the education reforms and through publication. It was also necessary, however, to show the public the *manner* in which science was conducted, not just the knowledge it produced. The most important attempt to do this was the series of public scientific assemblies that were to be held three times a year. As the Project stipulated: "Thus even for foreigners there will be a great game, since three annual public assemblies (*asamblei*) will be set up and a conversation by one member of the academy will be made from his science, and in this praise of the protector-defender [the tsar] will be introduced." This "performance" served two purposes: the people would be exposed to natural philosophical views in a ceremony with all the elements of a "game"—another play at marvels and wonders; and the ceremony would be associated with the personal sanction of the tsar. The tsar's invoked presence both bestowed legitimacy on the academy and further attracted the nobility, who were expected to attend such events. Although members of all classes (and, significantly, both genders) were permitted to attend, nobles were "to freely go before those of lower rank at public assemblies where the court is gathered." This statement shows that such events were considered more important for the nobility than for lower classes. While praise of the ruler was not unusual even for Western academicians, the explicit order that praise be offered was. A similar statement was repeated in a public notice sent to the West later in 1724 to announce the founding of the academy: "In private gatherings no one from the outside will be allowed to participate without the permission of the president; in contrast, in public gatherings everyone

and Observations," *Slavic Rev.*, 1982, 41:279–282. For a more detailed account see Marker, *Publishing, Printing, and the Origins of Intellectual Life in Russia* (cit. n. 24), esp. pp. 21–46 (p. 27 for developments after Peter's death). Adrian Johns has persuasively argued that such "failures" of the "printing revolution" were the norm rather than the exception in early modern Europe, even in the West. See Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making* (Chicago: Univ. Chicago Press, 1998).

²⁷ On the integral nature of the *Kunstkamera* and the library see Pekarskii, *Istoriia Imperatorskoi Akademii Nauk*, Vol. 1, p. xxxii; and MIAN, Vol. 1, p. 19. On the collection see *ibid.*, pp. 39 (hermaphrodite), 96–97 (dwarf). Use of monsters as natural philosophical spectacles was quite common in Western Europe in the sixteenth and seventeenth centuries. See Lorraine J. Daston and Katharine Park, "Unnatural Conceptions: The Study of Monsters in Sixteenth- and Seventeenth-Century France and England," *Past and Present*, 1981, 92:20–54; and Daston and Park, *Wonders and the Order of Nature, 1150–1750* (New York: Zone, 1998). To some extent, the retention of these spectacles reflects the "Baroque" nature of the St. Petersburg academy, addressed below. On the published index as an advertisement see Schulze, "Russification of the St. Petersburg Academy of Sciences," p. 313.

can participate. And from a member of the academy a conversation from his science, filled with praise of the all-powerful and blessed protector, must be made." These meetings were not mere hypothetical conjectures on Peter's part; they actually went into practice after his death. A common topic of the academy members' lectures was heliocentric theory, which was often discussed in this particular public forum, although rarely anywhere else.²⁸

Just as education was an explicit mirror of other Petrine reforms, so did these public assemblies reflect the project of Peter's etiquette reforms. Etiquette protocols serve a central function in any courtly context. Not only do they structure the general course of a day at court, but, as Norbert Elias has shown, they reflect hierarchies that are otherwise obscured. A ruler bent on changing the structure of court life must introduce a corresponding change in his court's etiquette protocols; etiquette serves as both a principle of ordering the court and a means of controlling the network of nobles.²⁹ For Peter the Great, who was actively trying to adopt not only Western technical advances but also Western cultural procedures, it was vital that the change in hierarchy and the change in etiquette be effected at the same time. To see the cultural role the academy was meant to play, we must explore how court, nobility, and etiquette were related in Peter's reforms.

The court went through two qualitatively different stages during Peter's reign. When Peter moved the court from the Moscow Kremlin to St. Petersburg—then under construction—and began his war with Sweden, he abandoned the rich Muscovite rituals of preceding generations. The new, "poor" Petrine court cost only sixty thousand rubles a year to maintain, as opposed to the hundreds of thousands required by his father. It was not until after the 1721 Treaty of Nystadt ended the war with Sweden that Peter began to turn his court into a Western-style court, replete with the luxuries and ceremonies that designation entailed. This was intended partly to impress Western Europe, partly to please his new wife, and partly to increase his control over the nobility. It might be possible to consider this transformation as part of Russia's emergence as a Western power, but that would be to equate Peter's "Western" court with those prevalent in Western Europe in the eighteenth century. Peter's court was Western only in the sense that it was patterned after the Baroque courts of late sixteenth-century Italy: it centered on ceremony, emblems, and panegyrics in a manner not seen in Western Europe since the golden age of Florence. This "cultural time lag" has been attributed to the fact that Russia imported its courtly culture from the German states, which were themselves behind France, Italy, and England. Peter's advisors came largely from Central Europe—as did most of his academicians.³⁰ The cere-

²⁸ *MIAV*, Vol. 1, pp. 19 (on assemblies), 24 (contrasting private and public gatherings). The stipulation regarding the place of the nobility is taken from the legislation on the Table of Ranks, quoted in Meehan-Waters, "Russian Aristocracy" (cit. n. 20), p. 289. On discussions of heliocentric theory see Raikov, *Ocherki po Istorii Geliocentricheskogo Mirovozzreniia* (cit. n. 24), pp. 190, 213.

²⁹ "A shift in hierarchy that was not reflected in a change of etiquette could not occur. Conversely, the slightest change in people's position in etiquette meant a change in the order of rank at court and within court society": Norbert Elias, *The Court Society*, trans. Edmund Jephcott (New York: Pantheon, 1983), p. 88; see also p. 139. This argument is generalized in Elias, *Power and Civility: The Civilizing Process*, Vol. 2, trans. Jephcott (New York: Pantheon, 1982), esp. Pt. 2: "Towards a Theory of the Civilizing Process."

³⁰ On Peter's reasons for Westernizing his court see Klyuchevsky, *Peter the Great*, trans. Archibald (cit. n. 1), p. 39; and Brenda Meehan-Waters, *Autocracy and Aristocracy: The Russian Service Elite of 1730* (New Brunswick, N.J.: Rutgers Univ. Press, 1982), pp. 104–105. On the use of a large court as a means for controlling the nobility see Elias, *Court Society*, trans. Jephcott, pp. 136–138. A thorough analysis of Peter's ceremonies is presented in Richard S. Wortman, *Scenarios of Power: Myth and Ceremony in Russian Monarchy*, Vol. 1: *From Peter the Great to the Death of Nicholas I* (Princeton, N.J.: Princeton Univ. Press, 1995), pp. 30–45. There are several good discussions of the sixteenth-century Baroque in eighteenth-century Russia. The cultural similarity between Petrine Russia and the Italian Renaissance was first pointed out in Wladimir Weidél, *Russia: Absent and Present* (New York: Day, 1952), p. 34. An excellent analysis of the "time lag" can be found in Marc Raeff,

monies he established were central for reemphasizing the traditional place of the court in Russian life and for creating its new role. Peter himself was obsessed with emblems and symbols: a handbook for decoding emblems was one of the first secular books printed in Russia, and it was almost a bedside manual for Peter. These books also sold well among the nobility; it was rare to find a noble who did not own a foreign emblem book, in translation if not in the original language. The academy was simultaneously an emblem and a ceremony for Peter. Like fireworks, spectacles, and triumphal arches, it was a product of Baroque influences.³¹

During this period in Russia, it was the state's role to provide the lead in establishing elite cultural patterns. All nobles had to serve the tsar in some capacity—administrative, military, or courtly—and thus major cultural transformations were generally transmitted through the service network of the nobility. Although Peter the Great conducted a great many political and military reforms during his active reign, his cultural reforms are generally perceived as the most dramatic and cataclysmic for the old Russian way of life. From the image of the West in Russian *belles-lettres* of this period to the major influx of Westerners—from footmen and courtiers to shipbuilders and scientists—the emphasis was on how to make Russians look and act like "Westerners." The first step was, as it so often is, to change the appearance of things. Of all Peter's cultural reforms, the most discussed and criticized were those pertaining to dress and personal appearance. Shortly after his return from the Great Embassy, Peter began to cut the traditional beards of the older nobility and to proscribe caftans in favor of Western clothes, perceived as immodest by older nobles. Even the appearance of houses was regulated, down to the type of plaster used on the roof, as was the kind of coffin one could be buried in. These cultural changes—which sometimes went so far as the brutal stripping and forced shaving of nobles in the middle of the street (see Figure 1)—of course had their political side. Public humiliation and state intrusion were intended to curb the power of the old ruling families. But the aspect of "culture building" should not be ignored. Even in the Naval Academy—which trained officers culled from the nobility—dancing was taught to improve "posture," in the hope of creating a noble who was both an officer and a gentleman.³²

"Seventeenth-Century Europe in Eighteenth-Century Russia?" *Slavic Rev.*, 1982, 41:611–619. For the employment of specific Baroque tropes see the series of works by Stephen Baehr: "From History to National Myth: *Translatio imperii* in Eighteenth-Century Russia," *Russian Review*, 1978, 37:1–13; "Fortuna Redux: The Iconography of Happiness in Eighteenth-Century Courtly Spectacles," in *Great Britain and Russia*, ed. Cross (cit. n. 1), pp. 109–122; "In the Re-Beginning: Rebirth, Renewal, and *Renovatio* in Eighteenth-Century Russia," in *Russia and the West in the Eighteenth Century*, ed. A. G. Cross (Newtonville, Mass.: Oriental Research Partners, 1983), pp. 152–166; "The 'Political Icon' in Seventeenth- and Eighteenth-Century Russia," *Russian Literature Triquarterly*, 1988, 21:61–79; and *The Paradise Myth in Eighteenth-Century Russia: Utopian Patterns in Early Secular Russian Literature and Culture* (Stanford, Calif.: Stanford Univ. Press, 1991).

³¹ On nobles' interest in emblem books see Baehr, "Fortuna Redux," pp. 110–111; see also V. P. Grebeniuk and O. A. Derzhavina, *Panegiricheskaiia Literatura Petrovskogo Vremeni* (Moscow: Nauka, 1979), pp. 12–20. On the sources of Russian emblem books see Anthony Hippisley, "The Emblem in the Writings of Simeon Polockij," *Slavic and East European Journal*, 1971, 15:167–183. Petrine art was also Westernized in part through nobles' and Peter's private collections. On this transformation see James Cracraft, *The Petrine Revolution in Russian Imagery* (Chicago: Univ. Chicago Press, 1997). The status of the academy as a "nonboundary" between courtly spectacle and natural philosophy is addressed in S. R. E. Werrett, "A Glorious and Regulated People: Science and Society in Eighteenth Century Russia" (Ph.D. diss., Univ. Cambridge, 2000), Ch. 1.

³² On the radical impact of Peter's reforms on culture see Evgenii V. Anisimov, *The Reforms of Peter the Great: Progress through Coercion in Russia*, trans. John T. Alexander (London: Sharpe, 1993), p. 224; and Georges Florovsky, "The Problem of Russian Culture," *Slavic Rev.*, 1962, 21:1–15. On the efforts to make Russians look and act like Westerners see Walter Gleason, "The Image of the West in Journals of Mid-Eighteenth Century Russia," in *Russia and the West*, ed. Cross (cit. n. 30), pp. 109–117; and Weidél, *Russia* (cit. n. 30), p. 46. Even Western controversies such as the quarrel between ancients and moderns were treated by eighteenth-

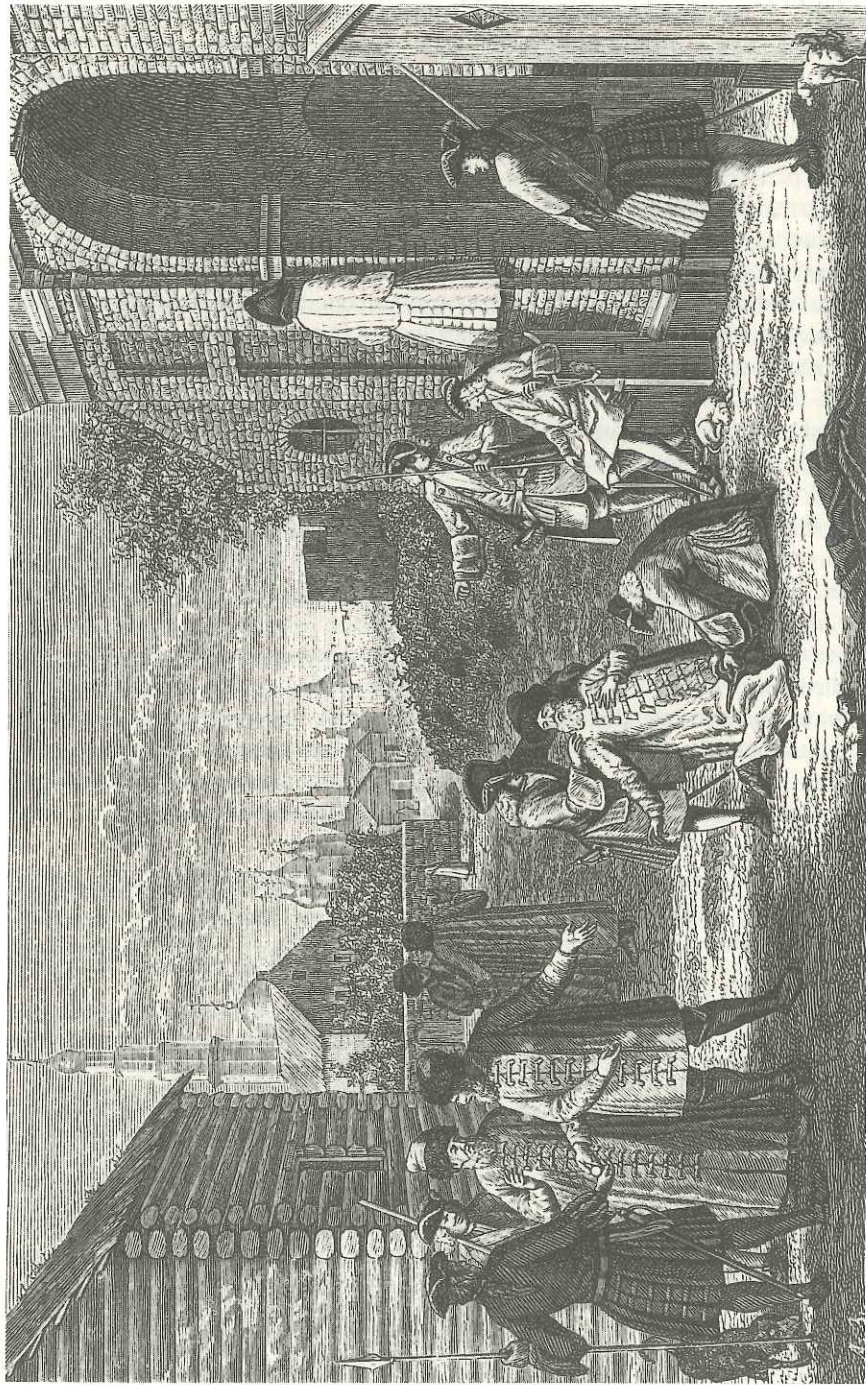


Figure 1. A (somewhat romanticized) Dutch engraving depicting the coercive enforcement of the clothing reforms, with the contrast in attire well depicted. Reproduced in A. Brinker, *Istoriia Petra Velikago* (St. Petersburg, 1882), Volume 1, opposite page 240.

Changing outside appearances was only part of the reforms, however. Peter was very concerned that Russians start acting the role he had carved out for them, not just look the part. He undertook a series of popular etiquette reforms designed to make the elite conform to his ideal of Western society. Two particular means deserve to be singled out for closer examination: etiquette handbooks and assemblies. Both of these functioned under a principle common to Peter's other court reforms, the use of the tsar (or some other exemplar) as a model or *obrazets* to be copied. The first Russian etiquette book, the 1717 *Honest Mirror of Youth; or, A Testimony to Social Intercourse Collected from Various Authors*, contained general and specific Western etiquette protocols. Among other things, it instructed readers not to eat with their mouths open or spit while talking to ladies. Public violation of any of these codes could result in corporal punishment.³³

Assemblies were taken even more seriously. These gatherings were under the jurisdiction of the Policemaster General, and their nature was clearly defined in the 26 November 1718 founding ordinance:

Assemblies (*asamblei*) is a French word which cannot be expressed in Russian by one word, but to speak in detail: a free assembly or gathering in a house not only for amusement, but also for business, for one may see each other there and talk over every need, and also hear what is going on somewhere else, and at the same time amuse oneself. And in what manner these assemblies are to be arranged, this is defined below this point until it will become a custom.

Attendance at these events was not optional. The nobles who had to come (and even the host, for that matter) were sometimes informed on very short notice. One of the most important features of the assemblies was their part in advancing the position of women in Russian society. Whereas Muscovite society had traditionally excluded women from public life, Peter turned the assemblies into salon-like gatherings where women played the crucial role of facilitating conversation and dancing.³⁴ (See Figure 2.) Recall now the assemblies that were ordained for the Academy of Sciences: just as the conventional assemblies were schools for the social graces, the scientific assemblies were schools for intellectual conduct. In both contexts, Peter's presence had to be announced and praised—or else.

There is a connection between the civilizing process that Peter was engineering at court and in society and the role he perceived for the Academy of Sciences. While in some circumstances—for instance, in matters of personal conduct—the only proper *obrazets* was the tsar himself, the cultural *obrazets* for civilized, nonviolent interactions among

century Russians in order to display the cultural tropes upon which one had to have an opinion to be "civilized." See Karen Rosenberg, "The Quarrel between Ancients and Moderns in Russia," in *Russia and the West*, ed. Cross, pp. 196–205. On public humiliation as an effort to curb the power of the ruling families see Anisimov, *Reforms of Peter the Great*, trans. Alexander, pp. 219–220. Although this was the intention, these old families by and large adapted to the Petrine reforms and continued to dominate the new state apparatus, albeit in Western clothing. See Meehan-Waters, *Autocracy and Aristocracy* (cit. n. 30). Dancing in the Naval Academy is discussed in Okenfuss, "Technical Training in Russia" (cit. n. 21), p. 334.

³³ *Iunosti Chestnoe Zertsalo ili Pokazanie k Zhiteiskomu Obkhozhdenniu* (St. Petersburg, 1717). See also Anisimov, *Reforms of Peter the Great*, trans. Alexander, pp. 220–222. On the old nobility's very prickly sense of honor see Meehan-Waters, *Autocracy and Aristocracy*, p. 99. On the "mimetic ethos" that held that modeling after the tsar led to salvation see Baehr, "Political Icon" (cit. n. 30), pp. 69–71. Peter frequently took the *obrazets* metaphor quite literally, apprenticing himself in many trades and encouraging others to learn both by his example and from him as a "master craftsman."

³⁴ The 1718 ordinance is quoted in Anisimov, *Reforms of Peter the Great*, trans. Alexander, p. 223. See also Meehan-Waters, *Autocracy and Aristocracy*, p. 102. On assemblies and gender see E. Karnovich, "Assamblei pri Petre Velikom," *Drevniaia i Novaia Rossiia*, 1877, 1:77–83; Wortman, *Scenarios of Power* (cit. n. 30), Vol. 1, p. 55; and Black, *Citizens for the Fatherland* (cit. n. 19), p. 32.

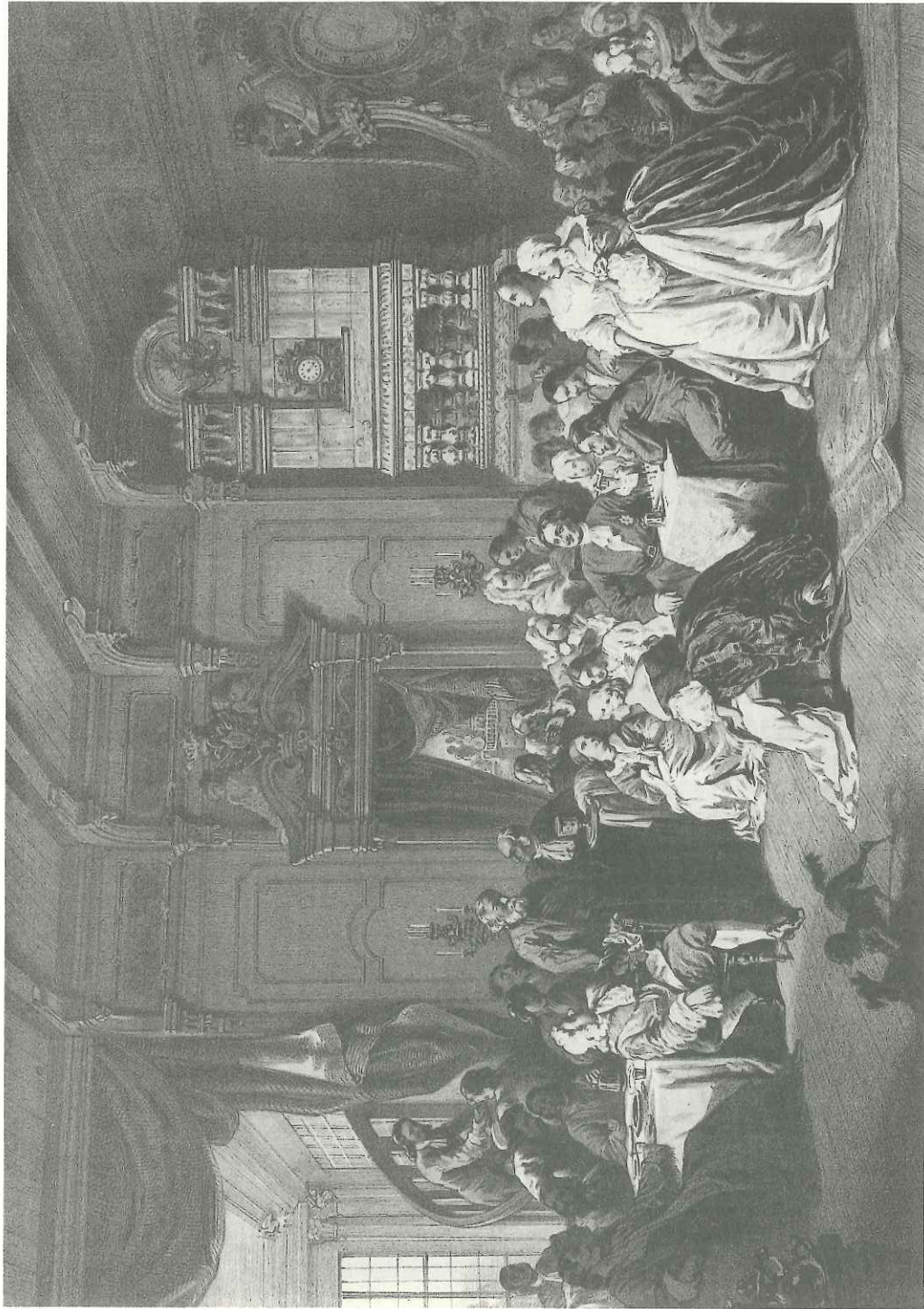


Figure 2. A typical assembly in Peter's time, set in a noble's drawing room furnished in the Dutch fashion. Women and men, clad in Western garb, associated publicly at such meetings for the first time in Russian history. Sitting at the table in the center, calmly smoking a pipe and observing, is Peter the Great. Engraving from the original painting by S. Khlebovskii, in E. Karnovitch, "Assamblei pri Petre Velikom," *Drevniaia i Noviaia Rossiia*, 1877, 1:77-83, opposite page 80.

individuals was to be the academy, whose members were culled from the most civilized group that Peter had ever interacted with: the Republic of Letters. This is why he intended the academy to be as visible as possible while still carrying out the business of science. (If he made it too public, after all, the scientists would never produce any results, and that would compromise the status of the academy in Europe.) Unfortunately, in practice the academicians did not always behave according to expectation. So long as the nobility knew nothing of academic cultural misconduct there was no problem; but if such news might reach the elite the administration clamped down:

One day [academy president Lavrentii Blumentrost] came to express his dissatisfaction with certain academicians, for which a special session was called on 14 May 1726. In the minutes about this it was noted that one day the president had been informed that certain academicians, entering into a Russian church when a holy service was being conducted, behaved not as the propriety of the academy and the respect due a holy place demanded. The president, to whatever degree it was possible, excused those who were guilty of this and expressed chagrin at the occurrence; but then he again received testimony from a person, invested with a most knowledgeable calling, that a very similar transgression had taken place in church not only before the common folk but also before many persons of consequence. Since the academy was thus exposed to censure and danger if Russians began to cultivate a hatred toward it, the president did not consider it possible to hide this and, gathering the academicians, seriously expounded to them about this with a firm hand. Then he noted the impropriety of academicians going to eating-houses and inns (*in cauponis atque tabernis*) with people of lower ranks.³⁵

The issue of "ranks" here is not incidental. The academy was left out of the Table of Ranks—Peter's system for ranking nobles in the service hierarchy—and so did not qualify as official state service: generating the perception of academicians as servants of the state would contradict their intended image as free intellectuals. (Foreign technical consultants, on the other hand, were often allowed to enter the Table of Ranks.)

Implicit behind this ideal view of the academy was the fact that some groups would suffer as a result of the reforms. The academy was widely perceived as an attack on the Church and the old noble culture. The reasons why the academy was seen as anti-Church are fairly clear; but unless it is understood as a purveyor of new courtly protocols, we might be hard pressed to conceive how it threatened the nobility. The academy reflected a more general trend in the restructuring of court dynamics and the establishment of secure links between the court and the evolving autocratic state. It was an indicator of general cultural change at the same time as it brought that change about. The third loser in this process was the lower ranks. As the elites were becoming more enlightened, the lower classes became comparatively more ignorant. The immense technical development of Russia required a great deal of unskilled labor, which the lower classes furnished. Providing a setting in which good manners can flourish requires work; that labor came from the bottom of society.³⁶

But nevertheless the project succeeded, if only gradually. During most of Peter's reign the status of nobles and their property was tenuous, as Russia mutated from a patrimonial state to an autocratic regime with an elaborate state apparatus. The nobility's status stabilized only to the degree that the etiquette protocols imported from the West took hold.

³⁵ Pekarskii, *Istoriia Imperatorskoi Akademii Nauk*, Vol. 1, pp. xl-xli. This is very similar to the need to sequester the French Académie des Sciences from public appearances until they developed the appropriate etiquette protocols. See Biagioli, "Etiquette, Interdependence, and Sociability" (cit. n. 2), p. 225.

³⁶ Ostrovitianov, *Istoriia Akademii Nauk SSSR* (cit. n. 1), Vol. 1, pp. 28-29.

The nobility legitimated the reforms by participating in them, and they were in turn legitimated by their participation. For the same reasons, after the 1747 charter it was no longer necessary to have the academy—the link to the West—connected to the university—the link to the elites. The protocols had been internalized to such a degree that the two institutions could be uncoupled. The academy was, so to speak, initially a hybrid creation, with roots in courtly protocols, and not purely an appendage to the bureaucracy. The fact that the academy later lost its close connection to the court is evidence of Peter's success in establishing firm distinctions between the court and the state.³⁷

THE KOSMOTHEOROS: THE CULTURAL PROJECT AT WORK

Before concluding, it will be valuable to examine two detailed instances where the cultural function of academic Western science was exemplified: the publication in 1717 of the Russian translation of Christiaan Huygens's posthumous *Kosmotheoros sive de terris coelestibus earumque ornatu conjecturae* (1696); and the dispute in 1729 between Georg Bilfinger and Daniel Bernoulli. First to Huygens's book.³⁸ Note that the publication date of the translation is well before the founding of the Academy of Sciences, possibly even before the genesis of the idea for it. Yet, given that Peter the Great explicitly chose this work to be the first printed Russian translation from a significant Western natural philosopher, we can explore Russian popular natural philosophical culture by asking how it might have been read by Peter's noble contemporaries. The publication of this work was not conceived as part of the academy project, but it entered the same culture as that project and thus produced effects within the same cultural field. For that reason, although independent of the academy, the book should not be considered to have appeared in a vacuum. Instead of looking at this work as a popularization of the Copernican worldview or as a technical manual, we can read the *Kosmotheoros* as a cultural document demonstrating to the small Russian reading public the natural philosophical form of life.³⁹

³⁷ On the academy's impact on the assimilation of European eighteenth-century thought and manners in Russia see Hans Rogger, *National Consciousness in Eighteenth Century Russia* (Cambridge, Mass.: Harvard Univ. Press, 1960); J. Scott Carver, "A Reconsideration of Eighteenth-Century Russia's Contributions to European Science," *Can.-Amer. Slavic Stud.*, 1980, 14:389–405; and Marc Raeff, "The Enlightenment in Russia and Russian Thought in the Enlightenment," in *Eighteenth Century in Russia*, ed. Garrard (cit. n. 19), pp. 25–47, on p. 31. Raeff has argued that the Westernization of the Russian nobility can be understood as a process of internalization of the Petrine reforms throughout the eighteenth century; see *Origins of the Russian Intelligentsia: The Eighteenth-Century Nobility* (New York: Harcourt Brace Jovanovich, 1966).

³⁸ The Russian translation of the title was quite literal: *Kniga mirozreniia ili mnenie o nebesnozemykh globusakh i ikh ukrasheniakh*. The 1717 St. Petersburg edition is quite rare, as only thirty copies were printed instead of the intended twelve hundred because of the interference on religious grounds by M. P. Avramov, the man Peter the Great placed in charge of the printing. A second, and more common, edition was produced in Moscow in 1724 under Peter's orders but without Avramov's participation. A valuable publishing history is provided in B. S. Kirsanov, "Pervyi Russkii Perevod 'Kosmoteorosa' Giugensa," *Voprosy Istorii Estestvoznaniia i Tekhniki*, 1996, 2:27–37. I cite from the English translation: Christiaan Huygens, *Celestial Worlds Discover'd; or, Conjectures Concerning the Inhabitants, Plants, and Productions of the Worlds in the Planets* (London, 1698).

³⁹ It has been claimed (see Vucinich, *Science in Russian Culture*, p. 56; and Pekarskii, *Nauka i Literatura* [cit. n. 6], Vol. 1, p. 283) that this book was the first popularization of Copernicanism in Russia, translated in order to introduce heliocentric cosmology. Copernicanism, however, had been known in Russia long before 1717. There had been a Russian market for Western astrology since the early seventeenth century, and even though texts circulated as manuscripts, limiting readership, at least two translations of heliocentric texts were produced in the second half of that century. The first was the translation of a work by the Dutch geographer Johann Blaeu by Epifanii Slavinskii done before 1675. The second was Hevelius's *Selenographia*. Both of these circulated at court. On the Blaeu translation see Raikov, *Ocherki po Istorii Geliotsentricheskogo Mirovozzreniia* (cit. n. 24), pp. 69, 117, 130, 155. On Hevelius see T. Rainov, *Nauka v Rossii XI–XVII Vekov: Ocherki po Istorii do*

Consider the book's manifest cultural content: it functioned as an attractive introduction to the various etiquette protocols used in Western European natural philosophy. Even when the book was first published in The Hague, its political overtones were recognized, and many viewed it as a direct response to Bernard de Fontenelle's widely read *Entretiens sur la pluralité des mondes*. In Russia, a nation with no experience of this type of popular, "mannerly" natural philosophical text, the implications were even more profound. Since the book was not addressed to Russia's technical specialists (who could have read it in Latin, French, or English), its more likely target was the narrow stratum of educated Russians, the same individuals who were targeted by the reforms already discussed and who would later be alleged to benefit from the Academy of Sciences. The topic of the book bears this out. It presents an extensive discussion of the probability of life on other planets. Reasoning by analogy, Huygens argues that our Earth cannot be the only planet to have life on it but, rather, that all the planets must have their inhabitants, a claim that would have served as excellent bait for drawing curious Russians to the book—much as the *Kunstkamera* was supposed to do in another setting.⁴⁰

Huygens stakes much of the argument of his book on a particular conception of Reason and its proper application. In fact, it is no great stretch to see the book as merely an example of how to use this particular form of reasoning. Given the preponderance of popularizations of the Newtonian or Cartesian systems at this time, it is likely that *this* work (which is an exposition of neither) was carefully selected by Peter precisely to showcase this form of reasoning rather than any particular subject matter. For Huygens, the salient quality of Reason is its universality. When he argues for the existence of "Planetarians" he asserts that they would have developed a system of sciences but that their sciences, just like their social structure, would be very similar to those on Earth. This similarity stems from the unity of truth: all sciences derive from one Reason that obtains everywhere in the universe—as exemplified by geometry.⁴¹ This message must have been encouraging to mem-

Nauchnykh i Estestvenno-Nauchnykh Vozzrenii v Prirodu (Moscow: AN SSSR, 1940), pp. 438–440, 454–455. The *Kosmotheoros* was not even the first printed work on Copernicus in Russia. Ten years earlier, in 1707, a poster was printed comparing the cosmologies of Ptolemy, Copernicus, Tycho Brahe, and Descartes in rhyme. The Copernicus stanza translates roughly as "Copernicus presents a general system, / The sun in the middle supports the entire world. / He thinks the moving earth is in the fourth heaven, / And the moon moves around it. / The beams of the sun from the center of the world wash / The entire earth, moon and stars illuminated": quoted in Raikov, *Ocherki po Istorii Geliotsentricheskogo Mirovozzreniia*, p. 156. The *Kosmotheoros* was certainly a more detailed description, but these prior introductions to Copernicus indicate that this translation was about more than just heliocentrism. It has also been argued that the *Kosmotheoros* was translated to serve as a textbook for Newtonianism or Cartesianism; see Boss, *Newton and Russia* (cit. n. 3), p. 54. This is unlikely, since the text refers to Descartes only twice and to Newton just once: Huygens, *Celestial Worlds Discover'd*, pp. 20 and 157, and p. 158, respectively (and none of these instances deserves to be called a textbook treatment). The book was also an unlikely candidate for a technical manual, since any of the many other manuals available had greater mathematical content. On technical textbooks in Russia see Okenfuss, "Technical Training in Russia" (cit. n. 21); and V. V. Danilevskii, *Russkaia Tekhnicheskaia Literatura Pervoi Chetverti XVIII veka* (Moscow: AN SSSR, 1954), pp. 24, 32, 48, 72.

⁴⁰ On perceptions of Huygens's work as a response to Fontenelle see Sutton, *Science for a Polite Society* (cit. n. 2), pp. 157–164. The history of the *Entretiens* in Russia is in itself an interesting saga. It was translated into Russian by the courtier and poet (and nonacademician) Antiokh Kantemir in 1731 but, owing to intense opposition from the Orthodox Church, did not see publication until 1741. The publication was an extremely important literary event, since it served to codify the terminology of Russian popular-scientific prose in a way that Huygens's work did not. See Raikov, *Ocherki po Istorii Geliotsentricheskogo Mirovozzreniia*, pp. 214–235. On the *Kosmotheoros* as a wonder-based drawing card see *ibid.*, p. 163. Passages from the Russian translator's introduction to the *Kosmotheoros*, which was most probably written with the assistance of Peter the Great, emphasize the wondrous aspects of the work. See fragments from the introduction provided in Pekarskii, *Nauka i Literatura*, Vol. 1, p. 283.

⁴¹ Huygens, *Celestial Worlds Discover'd* (cit. n. 38), pp. 84, 41–42. Music is another of these universal sciences (p. 86).

bers of Russian society who wanted to become part of European culture (not that Peter's etiquette reforms left them a choice in the matter). Here was a science that was not historically contingent, that yielded the same accurate results whether done in the Netherlands, in London, on Jupiter—or in St. Petersburg.

Though Huygens makes a determined argument for universal Reason, he does not contend that the application of it always yields the same results or even has the potential of achieving something approximating "absolute Truth." Rather, the application of Reason through analogy can achieve only a probability of truth at best. Analogy is the instantiation of Reason in the *Kosmotheoros*: "'Tis therefore an Argument of no small weight that is fetch'd from Relation and Likeness; and to reason from what we see and are sure of, to what we cannot, is no false Logick. This must be our Method in this Treatise, wherein from the Nature and Circumstances of that Planet which we see before our eyes, we may guess at those that are farther distant from us." Through this process of reasoning by analogy, Huygens concludes that all of the planets must be roughly equal in quality, since God could not have both created them all and favored one over the rest; he thus would have to have given all of them the same types of life (although they may look slightly different), including inhabitants who live in society and do natural philosophy. Huygens is always aware, however, that this kind of reasoning can achieve only a degree of probability. All proper knowledge in natural philosophy (as in any other endeavor) must be probabilistic. The goal of the community of natural philosophers is to exercise judgment over the variously probable claims and select the more probable.⁴² Once again, there is a role for outsiders—such as Russians—since they can contribute probable knowledge without fear of not being totally correct.

Universal, probabilistic knowledge may be the foundation upon which one builds natural philosophy, but this tells our fictive Russian reader very little about how this knowledge is used and validated in practice. Huygens gives no examples of experiments to show how such knowledge is secured; rather, he shows how one conducts and resolves disputes and how one distributes credit. The internal machinery of the system is left opaque, but Huygens supplies all the tools needed to understand how credit and knowledge validation operate. First of all, in order even to engage in the community of natural philosophers, one must understand the fundamental principles of astronomy and geometry. Once aware of the ground rules, one can participate in natural philosophy. This does not mean, however, that all reasoning is legitimate. On the contrary, there are frequent disagreements within natural philosophy, some of which are conducted with civility and some with impolitic harshness. Huygens engages in both sorts in the *Kosmotheoros*, and it is easy for a reader to deduce the line between the two. Civil disputes appear more frequently in the work (and thus give the impression that civility is the normal mode of operation of natural philosophy). If you find yourself in a disagreement, say, over astronomical issues, you are under obligation to "impartially weight those Answers that *Galilæus*, *Gassendus*, *Kepler*, and others have given to all Objections proposed, which have so satisfied all Scruples." If you still do not agree with the opposing position, you can at least "not say [your claims] are without their faults," as Huygens admits about some of his own disagreements with

⁴² *Ibid.*, p. 18. The places where Huygens invokes analogy are too numerous to attend to in detail here. A partial listing is *ibid.*, pp. 17, 21–23, 27 (where all planets have some liquid substance that functions as "water," even if it is not exactly like what we have on Earth), 37 (why they have to have rational inhabitants to govern over the other life forms), 38–40, 65 (on the sciences in the planets), 78. On the goal of the community of natural philosophers see *ibid.*, pp. 9–10. On the centrality of probability in Enlightenment thought see Lorraine Daston, *Classical Probability in the Enlightenment* (Princeton, N.J.: Princeton Univ. Press, 1988).

others (on measuring stellar distances, for example).⁴³ This impartiality and honest admission of the limits of proof establish good conduct in disputes.

On occasion, however, someone makes and defends claims in a manner inappropriate to natural philosophy. It is impossible, given their transgression of the "rules of the game," to treat these disputants with the same respect and deference accorded those who honestly quest after probabilities and knowledge. The only instance of such uncivil disputation in the *Kosmotheoros* is the argument with the Jesuit Athanasius Kircher's *Ecstatick Journey*, a work that makes claims about planetary inhabitants very similar to those that Huygens defends. Despite their similar conclusions, Huygens lambastes Kircher mercilessly for his violation of proper disputation procedures. He rejects Kircher's claims because the latter criticizes authors like Copernicus without engaging their arguments. As a result, Huygens feels no compunction about attacking Kircher's honor, morals, and intellect. Huygens's conduct of the dispute is explicitly formulated to demonstrate the consequences of violating those rules. Whether he is correct in his attacks on Kircher is not relevant here; what matters is that the book showed that there were consequences within the community of natural philosophers for not behaving in a civilized manner. Thus, Peter's choice of this work for Russia's educated community makes sense: the book is meant to show people not how to achieve specific results but how to conduct oneself generally in a manner befitting a true natural philosopher.⁴⁴

It further accords with our reading of the book as an exemplar of etiquette that Huygens makes several references to man's universal sociability and how society was supposed to conduct itself—this in a treatise "about" natural philosophy. Not only is society a good thing, Huygens insists; it is such an asset that to deny "society" (here understood as Western European gentlemanly society) to the Planetarians (or anyone else) is unthinkable:

What I am now going to say may seem somewhat more bold, and yet it is not less likely than the former. For if these new Nations live in Society, as I have pretty well show'd they do, 'tis somewhat more than probably that they enjoy not only the Profit, but the Pleasures arising from such a Society: such as Conversation, Amours, Jestings, and Sights. Otherwise we should make them live like so many *Catos*, without Diversion or Merriment; we should deprive them of the great Sweetness of Life, which it can't well be without, and give our selves such an advantage over them as Reason will by no means admit of.

He further characterizes society as "a settled, not a wandering *Scythian* way of living."⁴⁵ Ordinarily, this brief reference might escape notice; but not in Russia, and especially not in a Russia torn between tradition and innovation. Scythians were the mythic ancestors of

⁴³ Huygens, *Celestial Worlds Discover'd*, pp. 13–14, 4–5, 15–16 (quotation). This is reflected also in the dispute between Huygens and Gian Domenico Cassini about what the lighter spots on Jupiter really are, which is presented by Huygens as an honest disagreement over interpretations of the data (p. 26). Civility was also necessary because Cassini and Huygens had been associates in the French Académie des Sciences.

⁴⁴ For examples of the treatment of Kircher see *ibid.*, pp. 101–102. Simon Werrett differs with this interpretation of the reasons for Peter's choice, linking the *Kosmotheoros* not to the Petrine tradition of etiquette manuals but to the alternative heritage of military manuals and regulations. He interprets the publication of this text as part of an attempt by Peter to impose military discipline and strict decorum on the nobility, an impression they would receive from observing the (in practice) hierarchical and ordered manner of the working academy. See Werrett, "Glorious and Regulated People" (cit. n. 31), Ch. 1. While plausible, Werrett's view requires some evidence that the nobility was aware of the hierarchies and disputations within the academy; absent such proof, the public face of the academy is more consistent with the etiquette interpretation advanced here.

⁴⁵ Huygens, *Celestial Worlds Discover'd*, pp. 80–81. Huygens (or his translator) slips in the word "gentlemen" in several places to describe such things as the satellites of Jupiter and Saturn, further reinforcing this image of the kind of "society" he means. See *ibid.*, pp. 7, 8, 114. The reference to Scythians is on p. 78.

the Russians, well popularized in the revival of Greek culture in early eighteenth-century Russia. Given Peter's overt support of this treatise and its specific denigration of Russia's ancestry, the message was quite clear. Luckily, the book also offers a mechanism for overcoming this backwardness. Since knowledge is universal (even if probabilistic) it can be produced everywhere, even in Russia, as long as the proper cultural procedures are followed. There was hope for Russia yet.

Some did not take this suggestion kindly. B. S. Kirsanov has recently analyzed the *Kosmotheoros* as part of Peter the Great's attack on the Church, noting that the Orthodox Church responded in kind. For example, in 1740 M. P. Avramov, the man placed in reluctant charge of the book's first Russian publication in 1717, wrote a letter of protest to the Empress Anna Ioannovna asking her to pull it, along with Fontenelle's *Entretiens*, out of circulation. In both books, he wrote, "a satanic insidiousness is clearly visible."⁴⁶ There was further intense protest of the *Kosmotheoros* by the Old Believers, groups of religious dissenters who held that Russia's religious and moral fiber was being destroyed by top-down religious and societal reforms. The fact that this particular group opposed the book so violently on religious grounds is a further indication that certain aspects of its cultural message were taken to heart: the Old Believers recognized the publication of the *Kosmotheoros* as part of a transformation of Russian culture orchestrated by the state. So, it seems, did members of the nobility, given the prevalence of the book in their libraries. The culture of natural philosophy was taken into the homes of the elite.

BEHIND CLOSED DOORS: DISPUTING IN THE ACADEMY

Disputatious natural philosophy, however, was never intended to enter the homes of the nobility, and measures were taken to see that the inevitable disputes that raged in the Imperial Academy never made it into public view. An example is the dispute between Georg Bernhard Bilfinger and Daniel Bernoulli, which was so intense that the Academy of Sciences stopped printing minutes from 29 October 1728 to 11 September 1730 to prevent word of the argument from leaving the academy. Elements of the dispute revolved around conflicting interpretations of gravitational theory, with Bilfinger advocating a Cartesian vortex theory and Bernoulli opting for a revised Newtonian model.⁴⁷ Examination of the correspondence relating to the controversy, however, shows that the heart of this confrontation was not the technical details of planetary gravitation. The issue was *honor*, and the academy's president, Lavrentii Blumentrost, did everything in his power to defuse the debate before reputations were tarnished and the academy's position irreversibly damaged.

It is difficult to pinpoint what initiated the argument, but it seems clear that Bilfinger escalated it. Bilfinger, who had had a difficult time in the German states because of his Leibnizian metaphysical commitments, was one of the first individuals brought to the academy, recruited by Christian Wolff. He quickly became one of the more visible members; appointed in the area of ethics and theology, he was commissioned to read a Latin oration at the first public meeting of the academy on 27 December 1725. Daniel Bernoulli's

⁴⁶ Quoted in Pekarskii, *Nauka i Literatura* (cit. n. 6), Vol. 1, p. 511. See also Kirsanov, "Pervyi Russkii Perevod 'Kosmoteorosa' Giugensa" (cit. n. 38); and Boss, *Newton and Russia* (cit. n. 3), p. 52.

⁴⁷ These aspects of the debate are treated in Boss, *Newton and Russia*, pp. 106–109; and E. J. Aiton, *The Vortex Theory of Planetary Motions* (London: Macdonald, 1972), pp. 168–171, 238. The minutes of the academy, absent the excision, are published in *Protokoly Zasedanii Konferentsii Akademii Nauk s 1725 po 1803 goda*, Vol. 1 (1725–1743) (St. Petersburg, 1897), p. 22.

position was quite different. He arrived in St. Petersburg in 1725 with his brother Nicholas. The story goes that neither was sure which of them had been offered the appointment at the academy, so they both went: Nicholas took the chair in physics, Daniel that in physiology. Nicholas died suddenly on 29 July 1726. The dispute seems to have begun with objections raised by Bilfinger and his colleague Jakob Hermann concerning the appropriateness of a eulogy to Nicholas to be presented at a public meeting of the academy scheduled for 29 July 1729. Daniel felt that his family's reputation was wounded by the objections and argued for the eulogy. Eventually it was read (mostly because the programs had already been printed); the rupture in relations between Daniel and Bilfinger deepened, however, as the eulogy ceased to be the focus of their conflict. More seriously, Hermann and Bilfinger alleged that Daniel Bernoulli had stolen the idea for a machine he was scheduled to present at the meeting when the eulogy was read and that he had shamelessly plagiarized from fellow academician Leonhard Euler, Hermann, and his own father, Johann Bernoulli.⁴⁸

Accusations of plagiarism raised the dispute to a new level of acrimony. Bernoulli saw such allegations not just as an insult to his honor but to that of "the whole body" (the academy) and to his "entire family."⁴⁹ This made adjudication of the affair both a personal issue for Bernoulli and an academic matter with consequences for the institution's reputation. What is interesting for our purposes here is not whether the charges of plagiarism were valid (they were not), or whether Bilfinger had reason to believe that they were (which is less clear), or any of the important technical differences between the two men, but, rather, how the dispute was handled by the administration of the academy. As the cessation of the minutes shows, the academy felt that the argument was too sensitive to risk its being leaked to the public. Why? And how did the establishment of a commission—the academy's solution—address the problem? The answers to these questions provide a final illustration of how the academy's cultural project was worked out in practice.

Contrary to the case of the seventeenth-century French academy, where such disputes were considered matters of academic protocol that should be dealt with by the academy, in St. Petersburg they were excluded from the public record not because it was thought better to keep them private but because they were not actually part of the academy. Blumentrost made this explicit in a letter to Bilfinger by contrasting the academy and a typical Central European university, a context in which Bilfinger had personally felt the stings of uncivil disputation:

For you must become accustomed to the fact that this is an academy and not a university; otherwise the professors in law and in medicine would have a certain advantage. I regret going into details, and would rather see the academy in good harmony [*bonne harmonie*] and applied to researches in the science, for which all the members were uniquely engaged and named, and not see it directed toward affairs of order, these things being the area of the president, and you, Monsieur, engaging in a quarrel which is not of any consequence for the good of the sciences, and which instead marks clearly the animosity and misunderstanding between persons who should be helping and mutually supporting each other.⁵⁰

Academicians, Blumentrost felt, behaved courteously, and when they did not some extra-academic commission must be placed in charge to adjudicate the matter. The academy

⁴⁸ Pekarskii, *Istoriia Imperatorskoi Akademii Nauk*, Vol. 1, pp. 83–85 (the oration was translated into Russian), 103. In the end, Daniel Bernoulli did not introduce the machine at the 27 July meeting.

⁴⁹ See the complaint Bernoulli sent to Blumentrost: Daniel Bernoulli to Lavrentii Blumentrost, July 1729, *MIAN*, Vol. 1, p. 509.

⁵⁰ Blumentrost to Georg Bernhard Bilfinger, July 1729, *ibid.*, p. 532.

was not a site of disputes; disputes were removed from its purview as a matter of course. This is made quite clear by Blumentrost's handling of the plagiarism charges.

Correspondence on both sides of the affair expanded to such a level during May and June 1729 that Blumentrost—who had moved to Moscow with the temporary return of the imperial court during the brief reign of young Tsar Peter II—decided that action had to be taken. He appointed a commission to hear the disputants' grievances—Johann Schumacher (*de facto* head of the academy during the Moscow hiatus), Friedrich Mayer, and Joseph Delisle—but it never convened because Mayer died shortly before the first scheduled meeting. The point of this commission was to create a forum that was explicitly separate from the academy so that the fallout from the dispute would not permanently disrupt the larger body and tarnish its reputation.⁵¹ There is a double move here: the commission that was to resolve the affair required the academy's authority in order to be effective, but it could not be *of* the academy without creating more strife. While the members of the commission were academicians, they were to act via the delegated authority of the academy and not as its direct authority. With Mayer dead, the dispute continued and the academy was still at risk, so eventually the commission met under Blumentrost's guidance and resolved the issue by demanding that Bilfinger and Hermann apologize for their behavior. They did, but relations with Bernoulli remained strained until Bilfinger left in 1731. (He settled down quietly in Tübingen to teach theology.) Despite lingering private animosity, however, public amicability was restored, as was Blumentrost's aim from the start. When secretary Gerhard Müller recorded the end of the dispute in 1730, he described it as an exemplary model of proper behavior:

I do not want to pass in silence over one circumstance, which relates to Bilfinger and Bernoulli. It is pleasant to know the details about great scientists and their moral character, especially when they exert influence for the perfection of sciences and can be put forward as an edification and example to others. The separation of Bernoulli and Bilfinger put to an end the entire discord between them. . . . Mr. Bilfinger, who made himself very polite in his return to Tübingen, wrote a very friendly letter to Mr. Bernoulli in Petersburg, and the latter did not hesitate to answer in a similar manner.

Blumentrost felt the same way about the letter Hermann sent to Bernoulli closing the affair, in which he "found nothing . . . which was not entirely confirming of both your character, and the politeness and modesty which one must observe on such occasions. I would require you, Monsieur, to continue always to conduct yourself so laudably, and to give an example to others, and to confirm to everyone . . . your honest manners." Now that the dispute had been handled in the manner befitting gentlemen, it became a matter for the Academy of Sciences once again.⁵² Only when all the players conducted themselves

⁵¹ See Bernoulli to Blumentrost, 7 July 1729, which outlined his grievances; Bilfinger sent a similar letter on 15 July: *MIAN*, Vol. 1, pp. 504, 516. Secretary Müller laconically recorded the entire course of the dispute to date in a memorandum submitted on 1 July 1729, *ibid.*, p. 501. For a discussion of the commission see Pekarskii, *Istoriia Imperatorskoi Akademii Nauk*, Vol. 1, p. 104. The change of jurisdiction of the dispute is clearly spelled out in the founding memorandum of the special commission, reproduced in *MIAN*, Vol. 1, pp. 550–551.

⁵² Pekarskii, *Istoriia Imperatorskoi Akademii Nauk*, Vol. 1, p. 106 (quoting Müller); and Blumentrost to Jakob Hermann, 25 Aug. 1729, *MIAN*, Vol. 1, pp. 554–555. The *Commentarii*, especially in its Russian translation, also showed the Russian public how proper disputes were to be conducted. When the Englishman James Jurin disputed some of Bilfinger's comments about Newtonian gravitation, the comments were published with Bilfinger's response in the footnotes. Thus the academy simultaneously maintained good relations with the Western academies and showed Russian elites a cultural pattern. See Boss, *Newton and Russia* (cit. n. 3), pp. 106, 112.

according to the codes of "politeness and modesty" was it appropriate for the academy to claim jurisdiction, as Blumentrost was the first to admit. He had, after all, been Peter the Great's personal physician before becoming president of the academy, and he was well versed in the manners of courtly life that were also guidelines for running a community of natural philosophers.

CONCLUSION: RUSSIA'S ENLIGHTENMENTS

Situating the Imperial Academy of Sciences in the Petrine reforms requires looking beyond the utilitarian benefits Peter hoped to extract from its establishment. Instead of viewing the academy as simply part of general reforms intended to tap the technical potential of Russia, situating it at the crossroads of the education and manners projects provides a much-needed perspective on the academy's origins in Leibniz's courtly proposals, on its structure, and on how early disputes and publishing projects under its control were conducted. Further implications can be taken from these observations. For example, there has been a substantial debate in the secondary literature on whether Russia underwent an "Enlightenment" and, if so, when it occurred and what its relation to the French Enlightenment was. The reevaluation of the academy proposed here provides a different angle on some of these older debates.

The standard view of the Russian Enlightenment dates back to the first biography of Peter the Great, written by Voltaire in 1764, which basically extended the vision of Peter presented by Fontenelle in his eulogy of the tsar before the Académie Royale des Sciences. Peter's reforms were a subject of intense debate in the French Enlightenment, and positions ranged from the almost uncritically positive (Voltaire) to the damningly negative (Rousseau). Voltaire's picture of Peter, related in his two-volume *Histoire de Russie*, was that of a cataclysmic transformer who came upon Russia in the slumber of the Middle Ages and brought it forth to civilization through nothing but the force of an indomitable will. Voltaire's Peter had no master plan, no set of agendas he wished to accomplish beyond taking advantage of the resources available to him to solve contingently pressing problems.⁵³ Peter coerced both his environment and his people to accomplish these ends, but he had no rational program.

This view of Peter, which has been repeated to the present day, is compelling, and many facts support it. It does, however, specifically deny Peter the status of an "Enlightenment ruler"—at least by the usual definition. Such rulers, it would seem, have a rational framework that they try to impose on their countries, utilizing the principles of "Enlightenment" to achieve "progress." The view of Peter constructed so adeptly by Voltaire has led historians who speak of a Russian Enlightenment to observe that epoch in the reign of Catherine the Great (1763–1796). Given the claims I have advanced here, however, it appears that such a conception misreads both Peter and the Enlightenment. Peter had more of a

⁵³ Voltaire, *Russia under Peter the Great*, trans. M. F. O. Jenkins (Rutherford, N.J.: Fairleigh Dickinson Univ. Press, 1983), pp. 200, 251. For a detailed analysis of the publishing history and concepts of Voltaire's *Histoire* see Carolyn H. Wilberger, "Voltaire's Russia: Window on the East," *Stud. Voltaire 18th Cent.*, 1976, 164. See Larry Wolff's detailed study of the way "Eastern Europe" as a category was constructed by representatives of the Western Enlightenments to provide a contrasting picture of backwardness to French "civilization": *Inventing Eastern Europe: The Map of Civilization on the Mind of the Enlightenment* (Stanford, Calif.: Stanford Univ. Press, 1994). On the debates over Peter the Great in France see Wilberger, "Peter the Great: An Eighteenth-Century Hero of Our Times?" *Stud. Voltaire 18th Cent.*, 1972, 96:9–127; and Dmitri S. von Mohrenschildt, *Russia in the Intellectual Life of Eighteenth-Century France* (New York: Columbia Univ. Press, 1936).

master plan than many have given him credit for, as the integration of the Academy of Sciences into the educational and manners reforms indicates. And it was by no means characteristic of Enlightenment rulers to try to apply "Enlightenment ideas"—usually the armchair recommendations of French *philosophes*—to practical situations. Rather, Peter and his associates were exemplary Enlightenment figures in their selective appropriation and application of elements of Western European thought to advance certain ends.⁵⁴ This view of "Enlightenment" as opportunistic appropriation provides an alternative understanding of Peter the Great as an Enlightenment ruler that avoids the pat classifications of Soviet Marxists, recognizing instead the heterogeneity of the Enlightenment in Russia that has been forcefully defended by Marc Raeff.⁵⁵ Raeff's view of the Russian Enlightenment points to an active borrowing from a wide variety of "West," mostly Germanic states, that insisted on practical applications rather than epistemological preoccupations.

This view of Peter as a specific kind of Enlightenment ruler is accurate, but only partially so. He was without doubt a man interested in gaining practical advantages for his country: that much cannot be disputed. But, as noted earlier, there has been significant debate as to whether Peter's reforms were part of a master scheme or were merely *ad hoc* responses to pressing needs. It is difficult to find a concrete master plan in his reforms—the network of activities is far too heterogeneous. But this does not mean that there were not elements within a set of chaotic reforms that formed part of a "minor plan," a plan with something beyond pragmatism as its goal.⁵⁶ The Academy of Sciences was one such "minor plan." It involved the integration of several levels of reform in order to give the newly formed

⁵⁴ This is apparent in his creative use of Western European political thought to attack the political prominence of the Orthodox Church and the ascendant aristocracy. See Sumner Benson, "The Role of Western Political Thought in Petrine Russia," *Can.-Amer. Slavic Stud.*, 1974, 8:254–273. For recent views of Peter akin to Voltaire's picture see, e.g., Cynthia H. Whittaker, "The Reforming Tsar: The Redefinition of Autocratic Duty in Eighteenth-Century Russia," *Slavic Rev.*, 1992, 51:77–98. On the history of this view in Russia see Nicholas V. Riasanovsky, *The Image of Peter the Great in Russian History and Thought* (Oxford: Oxford Univ. Press, 1985). On a "Russian Enlightenment" in the reign of Catherine the Great see Paul Dukes, "The Russian Enlightenment," in *The Enlightenment in National Context*, ed. Roy Porter and Mikuláš Teich (Cambridge: Cambridge Univ. Press, 1981), pp. 176–191. See also J. G. Garrard, "Introduction: The Emergence of Modern Russian Literature and Thought," in *Eighteenth Century in Russia*, ed. Garrard (cit. n. 19), pp. 1–21, on p. 6.

⁵⁵ On the problems of Soviet cookie-cutter attempts to classify the eighteenth-century Enlightenment in terms that derive from a nineteenth-century ideological framework see the essay review by David M. Griffiths, "In Search of Enlightenment: Recent Soviet Interpretation of Eighteenth-Century Russian Intellectual History," *Can.-Amer. Slavic Stud.*, 1982, 16:317–356; and, on the specific issue of the Academy of Sciences, Griffiths, "The Early Years of the Petersburg Academy of Sciences as Reflected in Recent Soviet Literature," *ibid.*, 1980, 14:436–445. Marc Raeff's position on the Enlightenment has been enormously influential. See "Enlightenment in Russia and Russian Thought in the Enlightenment" (cit. n. 37); *The Well-Ordered Police State: Social and Institutional Change through Law in the Germanies and Russia, 1600–1800* (New Haven, Conn.: Yale Univ. Press, 1983); and "On the Heterogeneity of the Eighteenth Century in Russia," in *Russia and the World*, ed. Bartlett *et al.* (cit. n. 18), pp. 666–680.

⁵⁶ An anonymous referee has suggested that one can understand Peter's "pragmatism" alternatively as the internalization of Leibniz's Principle of Determination. According to this principle, an enlightened ruler must always strive to produce the maximum effect with a minimum of cost; this implies that reform should be gradual and focused on an elite that can both modify the ruler's reforms through conversation and transmit the reforms to a broader population. See Meyer, *Leibniz and the Seventeenth-Century Revolution*, trans. Stern (cit. n. 6), pp. 96–97; and Riley, *Leibniz' Universal Jurisprudence* (cit. n. 8), pp. 225–226. While this interpretation provides an admirable and comprehensive philosophical understanding of Peter's projects and could be traced to Leibniz's meetings with Peter, it seems unlikely to be the actual source of the tsar's reforms. Peter was characteristically impulsive and deplored abstract philosophizing, especially about matters of state. It seems unreasonable to assume that a man whose command of Russian and Dutch was semiliterate and who insisted on practicing carpentry and dentistry himself at court understood Leibniz's principle, especially since there is no extant correspondence on such abstract ideals.

Russian elite a code of conduct and an etiquette regime in keeping with the Western and Central European pattern of nationhood being adopted by the ruling classes. At moments like this within his tumultuous reign, one sees the nature of Peter the Great as an Enlightenment transformer on a par with Leibniz, waiting to grind his cultural crops with his newly built mill.