
The Natural Turn in Early Modern Russian History¹

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Abstract:

This introduction to the Vivliofika special issue, Animal, Vegetable, Mineral, illuminates the rich scholarship examining ideas about nature in the early modern Russian context. Starting with the basic question of how early modern Russians conceived of the natural world, the authors explore the numerous ways in which this question has been asked and answered by Russian historians and historians of science from the mid-twentieth century on. Acknowledging that these questions have recently been treated differently, the authors argue for a 'natural turn' in the scholarship. This introduction brings together Anglophone and Russophone literature to sketch the state the field before offering a relatively brief but nuanced history of the concept of the 'Three Kingdoms of Nature' (Tria Regna Naturae) which frames the project as a whole. The authors show how the early eighteenth-century articulation of the Tria Regna Naturae sat at the confluence of ancient Greek, early Christian, and more modern, cameralist attempts to classify and divide, and thereby understand the natural world. Muscovite and early modern Russian approaches to the question of the natural world were influenced by this Western historiography, and yet they stood apart from those traditions in interesting ways detailed by the essays in this volume. Ultimately the authors here advance new methods for understanding how early modern Russians understood the natural world, methods which focus on the practices of knowledge making in general, and those of transcription, translation, and illustration in specific.

Keywords:

¹ The guest editors of this special edition would like to thank our authors for collaborating with us on this collection, the participants in the original series of panels on this topic for beginning this conversation, the Association for Slavic, East European, & Eurasian Studies for providing us with the opportunity to have that conversation as a series of panels at their annual convention in 2015, the Vivliofika team, especially Robert Collis, Gary Marker, and Ernest Zitser, for allowing us to put together this collection and all of their patient support along the way, and Michael Gordin, Matthew Romaniello, and Tricia Starks for their productive and critical comments on this introduction. The support of all of these generous scholars has been invaluable in creating the present edition. All remaining errors, oversights, or unfortunate exclusions are our sole responsibility as guest editors.

classification, collections, cosmology, herbalism, knowledge-making, medicine, translation, *Tria Regna Naturae*, *Tri Tsarstva Prirody*, Natural History, the natural turn, witchcraft.

How did early modern Russians conceive of the natural world? Though an issue central to the understanding of Russian cultural and intellectual history, the study of Russian cosmology is a relatively new development in both the Russophone and Anglophone scholarly literature. In her recent article, Olga Chadaeva compares the views of the seventeenth-century churchmen Semion Polotskii and Avvakum Petrov. The duo is a familiar one to historians of early modern Russia, as comparing and contrasting the two is a staple of many histories of the period. Polotskii (1629-1680) and Petrov (1620-1682) were contemporaries, and both had significant links to the Moscow Kremlin and Tsar Aleksei Mikhailovich (r. 1645-1682). Chadaeva takes a rather new approach to the study of these prominent figures: she compares their cosmological views, their conceptions of the nature and functioning of the universe. And nature is indeed vital here. Chadaeva notes that both authors were fundamentally concerned with the essence of the earth, and its place in the universe. Avvakum, for instance, goes into such specifics as the matter from which the earth was created, arguing: "[He] took earth from water, not from foam, thus the earth is heavy, and foam is a light thing; the nature of water is heavy, so earth is akin to water."² Chadaeva is one of a growing number of contemporary scholars around the world who are now devoting attention to the various ways in which early modern Russians thought about the natural world. This special edition contributes to this growing field, and highlights the value of this natural turn for both historians of Russia and historians of science.

How did early modern Russians make sense of nature? And how was that understanding informed both by the Russian Empire's landscape and by its culture? Asking questions such as these immediately reveals the ambiguity of the very term 'nature,' by which we the editors mean the landscape, the environment, the animals, vegetables, and minerals, of the early modern Russian empire. The idea of 'nature' has its own history, and in the Western tradition has been used to indicate both essence and object, from the internal principle of change (following Aristotle), to the tendency towards a certain behavior (following Pliny), to the surrounding landscape of the non-human, physical world (following Kant). Here, we are concerned with the historical construction of 'nature' in the early modern Russian context. Our goal is to examine the processes of knowledge-making about the natural world, as seen in the changing definitions of words and enacted in the creation and arrangement of categories both historical and scholarly.

Turning to Nature

² Chadaeva's translation. Olga Chadaeva, "Two Authors, Two Universes: Cosmological Models in the Works of Simeon Polotskii and Archpriest Avvakum Petrov," *Russian Literature* 99 (2018): 1-37, see 18.

This collection of essays presents cutting-edge scholarship by an international group of leading academics, scholarship that utilizes new sources, and advances fresh arguments about how early modern Russian views on nature should be understood. In creating this new collection on Russian views of nature we stand on the shoulders of giants. Foremost among those giants are the Russian scholars who, starting in the late 1970s, combined a renewed interest in cultural history with access to rich archival resources, producing profoundly important work on early Russian science, medicine, and cosmological thought. One such scholar is R. A. Simonov, key figure in the Moscow-based history of early Russian science, who combines paleographic expertise with a close reading of pre-modern scientific and mathematical texts, urging readers to understand them on their own terms.³ A. V. Artsikhovskii, in his two-volume history of Russian culture in the seventeenth century, deals extensively with the natural world, cosmological texts, and medical practice, while D. S. Likhachev gives a nuanced, semiotic reading of Russian gardens as a fundamental point of encounter between early modern Russians and the natural world.⁴ More recently, Russian scholars have continued to develop and innovate within this tradition, notably A. V. Ippolitova (included in this volume), A. V. Chasovnikova, and V. D. Chernyi, who bring together the history of the book, folklore, and anthropology to uncover Russian interactions with the botanical world before the eighteenth century.⁵ Their work focuses largely on the vegetable kingdom, a realm similarly well represented in this volume; however, scholars like O. V. Belova have devoted attention to early Russian conceptions of the animal world.⁶

For at least the past decade, the English language literature has also contributed to this tradition of understanding the natural world as an aspect of Russian cultural history. In 2006, Valerie Kivelson published her now-classic *Cartographies of Tsardom*, exploring how seventeenth-century Russian mapmaking could serve as a window into Russian understandings of landscape and environment.⁷ A number of scholars have since tackled Russian ideas of nature as a part of cultural history, notably in the recent edited volume by Matthew Romaniello and Tricia Starks, *Russian History Through the Senses*.⁸ Kivelson herself has continued to examine early modern Slavic conceptions of the natural world, more recently within the context of magic and witchcraft. Her article “Prosaic Witchcraft

³ See, for example, R. A. Simonov, ed., *Estestvennonauchnye znaniia v Drevnei Rusi* (Moscow: Nauka, 1980); Simonov ed., *Estesvennonauchnye predstavleniia Drevnei Rusi* (Moscow: Nauka, 1988); Simonov, *Matematicheskaiia i kalendar'no-astronomicheskaiia mysl' Drevnei Rusi* (Moscow: Nauka, 2007).

⁴ A. V. Artsikhovskii, *Ocherki russkoi kul'tury XVII v.*, 2 vols. (Moscow: Moskovskaia Universiteta, 1979); D. S. Likhachev, *Poeziia sadov: k semantike sadovo-parkovykh stilei. Sad kak tekst* (Moscow: Novosti, 1998).

⁵ A. B. Ippolitova, *Russkie rukopisnye travniki XVII-XVIII vekov: issledovanie fol'klora i etnobotaniki* (Moscow: Indrik, 2008); A. V. Chasovnikova, *Khristianskie obrazy rastitel'nogo mira v narodnoi kul'ture: petrov krest, adamova golova, sviataia verba* (Moscow: Indrik, 2003); V. D. Chernyi, *Russkie Srednevekovye Sady: opyt klassifikatsii* (Moscow: Rukopisnye pamiatniki drevnei rusi, 2010).

⁶ O. V. Belova, *Slavianskii bestiarii: slovar' nazvanii i simboliki* (Moscow: Indrik, 2001).

⁷ Valerie Kivelson, *Cartographies of Tsardom: The Land and its Meaning in Seventeenth-Century Russia* (Ithaca: Cornell University Press, 2006).

⁸ Matthew P. Romaniello and Tricia Starks, eds., *Russian History Through the Senses: From 1700 to the Present* (London: Bloomsbury Publishing, 2016).

and Semantic Totalitarianism" focuses on the issue of how witches in Russia were seen as manipulating nature, what their tools of the trade were, and why those objects were seen as having magical efficacy. Kivelson, and her co-author Jonathan Shaheen, emphasize the quotidian nature of Muscovite *materia magica*, the important role simple plants and herbs played in ideas of the powers of witchcraft.⁹

In focusing on premodern Russian witchcraft, Kivelson has joined a number of Anglophone scholars who have researched Slavic magic over the past few decades. The study of magic is important to us here, as the practice and prosecution of magical activities is always based upon ideas of the workings of the natural world, and the possibilities and limitations humans have in manipulating that world. A central figure in Slavic magic studies is W. F. Ryan, author of a major work on medieval Russian magical texts, as well as a series of articles on the Russian witchcraft trials, and Muscovite occult texts.¹⁰ Eve Levin has also made substantial contributions to the understanding of Muscovite magic, publishing on magical incantations and seventeenth-century witchcraft trials.¹¹ Those authors follow in the footsteps of Russell Zguta, who, starting in the 1970s, considered various aspects of early Slavic ideas relating to magic and witchcraft.¹² Collectively, they have dismantled much of the famous historian of Western European witchcraft Hugh Trevor-Roper's claim that Russia did not take part in the early modern European "witch craze," emphasizing the importance of consulting Russian sources and specialist scholarship on Russia when making sweeping statements about broad trends.¹³

As the witchcraft trials on which Kivelson, Levin, and Ryan have focused were taking place in the mid to late seventeenth century, Russian society was undergoing major changes. At the start of the century, Russian literate culture had been largely restricted to churchmen and the secretaries tasked with creating government documents. Tsars like Alexei Mikhailovich, and later his son Peter the Great (r. 1682–1725), approved of, and so fueled, a fashion in late Muscovite elite society towards a broader appreciation for literacy, for the learning of languages, and for Western, more specifically, Jesuit-style education. This trend was codified in the establishment of the Slavo-Greco-Latin Academy in 1685. As Nikolaos Chrissidis has recently shown, this vital institution, led by

⁹ Valerie Kivelson and Jonathan Shaheen, "Prosaic Witchcraft and Semiotic Totalitarianism: Muscovite Magic Reconsidered," *Slavic Review* 70, no. 1 (2011): 23–44. See also Valerie Kivelson, *Desperate Magic: The Moral Economy of Witchcraft in Seventeenth-Century Russia* (Ithaca: Cornell University Press, 2013); special edition on East Slavic Witchcraft, *Russian History* 3–4 (2013).

¹⁰ See in particular, W. F. Ryan, *The Bathhouse at Midnight: An Historical Survey of Magic and Divination in Russia* (University Park: Pennsylvania State University Press, 1999); Ryan, "The Witchcraft Hysteria in Early Modern Europe: Was Russia an Exception?" *The Slavonic and East European Review* (1998): 49–84.

¹¹ See in particular Eve Levin, "Supplicatory Prayers as a Source for Popular Religious Culture in Muscovite Russia," in *Religion and Culture in Early Modern Russia and Ukraine*, eds. Samuel H. Baron and Nancy Shields Kollmann (DeKalb: Northern Illinois University Press, 1997), 96–114; Levin, "Healers and Witches in Early Modern Russia," in *Saluting Aron Gurevich: Essays in History, Literature and Other Related Subjects*, eds. Yelena Mazour-Matusevich and Alexandra Korros (Leiden: Brill, 2010), 105–133.

¹² Russell Zguta, "Witchcraft Trials in Seventeenth-Century Russia," *The American Historical Review* 82, no. 5 (1977): 1187–1207; Zguta, "Witchcraft and Medicine in Pre-Petrine Russia," *Russian Review* 37, no. 4 (1978): 438–448.

¹³ Hugh Trevor-Roper, "The European Witch-Craze of the Sixteenth and Seventeenth Centuries," in *Religion, the Reformation and Social Change* (London: Macmillan, 1967).

Greek monks familiar with Jesuit educational practices, fused Orthodox values with a Jesuit curriculum, training students in languages and translation, rhetoric, and astronomy.¹⁴ The Slavo-Greco-Latin Academy was one of the Muscovite institutions that led to the creation of the later and more famous Russian Academy of Sciences in 1725.¹⁵ This new enthusiasm for Western European intellectualism also led to an elite fascination with Western European esotericism that spanned the late seventeenth and eighteenth centuries, a trend that has been explored in depth by Robert Collis.¹⁶ Similarly, the preference for Western European medical practitioners at the seventeenth-century Russian court evolved into a prominent position for such foreign doctors in eighteenth-century Russia, an arc that has been explored in both English-language and German-language scholarship.¹⁷ As Collis has shown, many of those figures known for their role in Russian medicine also played a large part in early eighteenth-century Russian esotericism.

Anglophone scholars have contributed much to premodern Slavic magic studies; there has here been important cross-pollination with Russophone work: Ryan's *Bathhouse at Midnight* is also available in Russian translation as *Bania v polnoch*.¹⁸ Much of the scholarship on Russian witchcraft trials of the seventeenth century has been published in English; much of the scholarship on Russian witchcraft trials of the eighteenth century has been published in Russian, with key works on trials from that period being published by E. B. Smilianskaia and A. S. Lavrov.¹⁹ Russophone scholars have also devoted attention

¹⁴ Nikolaos A. Chrissidis, *An Academy at the Court of the Tsars: Greek Scholars and Jesuit Education in Early Modern Russia* (DeKalb: Northern Illinois University Press, 2016).

¹⁵ On the early history of the Russian Academy of Sciences, see P. P. Pekarskii, *Istoriia Imperatorskoi Akademii nauk v Petersburge*, vol. 1 (St. Petersburg: Tipografiia Imperatorskoi Akademii Nauk, 1870); K. V. Ostrovitianov, ed., *Istoriia Akademii nauk SSSR*, vol. 1, 1724-1803 (Moscow: AN SSSR, 1958); Iu. Kh. Kopelevich, *Osnovanie Peterburgskoi Akademii nauk* (Leningrad: Nauka, 1977); Michael D. Gordin, "The Importation of Being Earnest: The Early St. Petersburg Academy of Sciences," *Isis* 91, no. 1 (2000): 1-31; Simon Werrett, "The Schumacher Affair: Reconfiguring Academic Expertise across Dynasties in Eighteenth-Century Russia," *Osiris* 25 (2010); Alexander Iosad, "Sciences Strange and Diverse': Europeanization Through the Transfer of Scientific Knowledge in Russia, 1717-65" (doctoral dissertation, University of Oxford, 2017).

¹⁶ See in particular Robert Collis, *The Petrine Instauration: Religion, Esotericism and Science at the Court of Peter the Great, 1689-1725* (Leiden: Brill, 2012), and Ernest A. Zitser and Robert Collis, "On the Cusp: Astrology, Politics, and Life-Writing in Early Imperial Russia," *The American Historical Review* 120, no. 5 (2015): 1619-1652.

¹⁷ See in particular, Eve Levin, "The Administration of Western Medicine in Seventeenth-Century Russia," in *Modernizing Muscovy: Reform and Social Change in Seventeenth Century Russia*, eds. Jarmo Kotilaine and Marshall Poe (London and New York: Routledge Curzon, 2004), 363-89; Sabine Dumschat, *Ausländischer Mediziner im Moskauer Rußland* (Stuttgart: Franz Steiner Verlag, 2006); Andreas Renner, *Russische Autokratie und Europäische Medizin. Organisierter Wissenstransfer im 18. Jahrhundert* (Stuttgart: Franz Steiner Verlag, 2010); Clare Griffin, "Bureaucracy and Knowledge Creation: The Apothecary Chancery," in *Information and Empire: Mechanisms of Communication in Russia, 1600-1850*, eds. Simon Franklin and Katherine Bowers (Cambridge: Open Book Publishers, 2017), 255-286.

¹⁸ W. F. Ryan, *Bania v polnoch': istoricheskii obzor magii i gadanii v Rossii* (Moscow: Novoe literaturnoe obozrenie, 2006).

¹⁹ E. B. Smilianskaia, *Volshebnyki, bogokhulniki, eretiki: narodnaia religioznost i "dukhovnye prestupleniia" v Rossii XVIII v.* (Moscow: Indrik, 2003); Smilianskaia, "Fortunetellers and Sorcerers in the Service of a Russian Aristocrat of the Eighteenth Century: The Case of Chamberlain Petr Saltykov," *Russian History* 40

to the pre-1700 period, notably A. L. Toporkov, who has published extensively on magical spells and incantations.²⁰ As Kivelson and others follow in the footsteps of Zguta, Toporkov and his colleagues follow a long Russophone tradition of focus on Russian magic, dating back at least to M. E. Zabelin's work of the 1850s.²¹

The works referenced above are rooted in the long tradition of early modern Russian cultural history; their concerns mirror work on early modern natural philosophy produced within English-language history of science. Historical views of nature have been central to this field, in particular over the past twenty years. A key figure in this has been Lorraine Daston, who has published her own articles on the subject, such as "The Nature of Nature in Early Modern Europe," as well as collaborating with other scholars, co-writing *Wonders and the Order of Nature* with Katherine Park and co-editing *The Moral Authority of Nature* with Fernando Vidal.²² A number of other scholars have also made major contributions to this historiography: Paula Findlen's *Possessing Nature*, Alix Cooper's *Inventing the Indigenous*, and Sachiko Kusukawa's *Picturing the Book of Nature* have all explored the rich intersection between early modern cultural history and the history of science in the Western European context.²³

During the twentieth century, Anglophone history of science was heavily focused upon Western Europe and North America, but the past two decades have seen an increasing interest in both global science, and scientific traditions beyond 'the West.' Some works seek to link Western European views of nature to the globalizing early modern world, often dealing with European attempts to understand American nature and human populations in the aftermath of the Atlantic Encounter. Such works include Daniela Bleichmar's *Visible Empire* and Surekha Davies' recent *Renaissance Ethnography and the Invention of the Human*.²⁴ Kapil Raj has been at the forefront of a group of scholars who

(2013): 364-380; A. S. Lavrov, *Koldovstvo i religiia v Rossii, 1700-1740 gg.* (Moscow: Drevlekhranilishche, 2000); Lavrov, "Witchcraft and Religion in Russia, 1700-1740," *Russian Studies in History* 45 (2007): 8-34.

²⁰ A. L. Toporkov ed., *Russkie zagovory iz rukopisnykh istochnikov XVII-pervoi poloviny XIX v.* (Moscow: Indrik, 2010); Toporkov, "Verbal Charms from a Seventeenth-Century Russian Manuscript," *Incantatio* 2 (2012): 42-54; Toporkov, "Verbal Charms Against Authorities and Judges in Seventeenth- and Eighteenth-Century Russia," *Russian History* 40 (2013): 532-9.

²¹ M. E. Zabelin, "Sysknye dela o vorozheikh i kolduniakh pri tsaria Mikhaile Fedoroviche," *Kometa. Ucheno-literaturnyi almanakh* (1851): 469-92.

²² Lorraine Daston, "The Nature of Nature in Early Modern Europe," *Configurations* 6 (1998): 149-172; Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150-1750* (New York: Zone Books, 2001); Lorraine Daston and Fernando Vidal, eds., *The Moral Authority of Nature* (Chicago: University of Chicago Press, 2004).

²³ Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley: University of California Press, 1994); Findlen, "Jokes of Nature and Jokes of Knowledge: The Playfulness of Scientific Discourse in Early Modern Europe," *Renaissance Quarterly* 43 (1990): 292-331; Alix Cooper, *Inventing the Indigenous: Local Knowledge and History in Early Modern Europe* (Cambridge: Cambridge University Press, 2007); Sachiko Kusukawa, *Picturing the Book of Nature: Image, Text, and Argument in Sixteenth-Century Human Anatomy and Medical Botany* (Chicago: University of Chicago Press, 2012).

²⁴ Daniela Bleichmar, *Visible Empire: Botanical Expeditions and Visual Culture in the Hispanic Enlightenment* (Chicago: University of Chicago Press, 2012); Surekha Davies, *Renaissance Ethnography and the Invention of the Human: New Worlds, Maps and Monsters* (Cambridge: Cambridge University Press, 2016).

have mobilized ideas about early modern global exchanges of objects and of knowledge to undercut the very concept of Western European science, showing, for example, the major contributions non-European actors made to Western European botany.²⁵ Still other scholars have re-enlivened the tradition of Anglophone work on premodern East Asian science that dates back to scholars such as Joseph Needham.²⁶ Major works in that field include Carla Nappi's *The Monkey and the Inkpot* and Frederico Marcon's *The Knowledge of Nature and the Nature of Knowledge in Early Modern Japan*.²⁷ All of these works—both those that remain concerned with Western Europe and those that seek to understand scientific endeavors beyond that geography—share a tight focus on how people in the early modern world conceptualized nature.

Despite their shared concerns, Anglophone and Russophone cultural histories of nature, and Anglophone histories of science, have long been separate disciplines, with few cross-citations between them, even when they do share a language. Scholars seeking to understand the early modern intersection of nature and culture with scientific and medical practice have only recently begun to synthesize these bodies of literature. The essays in this collection pull these threads more closely together, and tie them to the East Slavic locale.

Regnum Animale, Regnum Vegetibale, Regnum Lapideum

This volume springs from a set of conference panels, collectively titled 'Animal, Vegetable, Mineral,' drawing on the world of the eighteenth-century natural historian for whom the 'kingdoms of nature' were necessarily three.²⁸ Natural philosophers have long been concerned with dividing and categorizing the natural world. Until the nineteenth century, those who studied the natural world traditionally separated plants from animals. In this, they followed the pattern set by Aristotle (384-322 BCE) in *Historia Animalium* and developed by Theophrastus (372-287 BCE) in *De Plantis*.²⁹ Both wrote about minerals in separate texts. The tripartite division was to prove highly influential to western natural philosophy for the following two millennia.³⁰ Pliny the Elder (23-79 CE) used such a schema in his *Naturalis historia*; natural philosophers of the early modern period closely

²⁵ Kapil Raj, *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650-1900* (Basingstoke: Palgrave Macmillan, 2007).

²⁶ Joseph Needham, *Science and Civilization in China* (Cambridge: Cambridge University Press, 1956).

²⁷ Carla Nappi, *The Monkey and the Inkpot: Natural History and its Transformations in Early Modern China* (Boston: Harvard University Press, 2010); Frederico Marcon, *The Knowledge of Nature and the Nature of Knowledge in Early Modern Japan* (Chicago: University of Chicago Press, 2015).

²⁸ A series of three panels entitled "Animal, Vegetable, Mineral" that took place during the 2015 Association for Slavic, East European, & Eurasian Studies annual conference.

²⁹ Andrea Falcon, *Aristotle and the Science of Nature: Unity without Uniformity* (Cambridge: Cambridge University Press, 2005); Armand Marie Leroi, *The Lagoon: How Aristotle Invented Science* (New York: Penguin Books, 2014).

³⁰ Roger L. Williams, *Botanophilia in Eighteenth-Century France: The Spirit of the Enlightenment* (Dordrecht: Springer, 2001), 11-12.

mimicked his approach; copies of Pliny's *Naturalis historia* itself could be found in the libraries of Western European natural historians at the dawn of the seventeenth century.³¹

Up through the Renaissance, therefore, Western European scholars thought of plants, animals, and minerals primarily in terms of *historia*, meaning they were the subject of extensive description. As Roger French writes, "for the Greeks, a *historia* was an enquiry into what was remarkable."³² But it was also, he continues, a form of field research, based on the gathering of stories from different sources, with the goal of providing an encyclopedic and supposedly impartial view of the subject at hand. Thus, the entry for the horse in Pliny's *Naturalis historia* combines his own observations of horse bodies, breeding, and behavior with many stories of particularly remarkable individual horses. The thirty-seven books of Pliny's *Naturalis historia* leave almost no subject untreated, and moreover are heavily concerned with divisions and sub-divisions: not only are plants separated from animals, but terrestrial animals, fishes, and birds are all given separate consideration as distinct sub-groups; the volumes on plants create classifications such as fruiting trees, medicinal plants, and flowers.

For Pliny, the three kingdoms served as major divisions in a natural world filled with a near-overwhelming abundance of kinds in nature. This abundance was thought to be arranged along the *scala naturae*, the all-encompassing hierarchy of the natural world. Sometimes translated as the "great chain of being," the idea of the *scala naturae*, perhaps best known through the work of Arthur Lovejoy, was a model as much as a metaphor, placing natural objects (from horses to ores) in order along a spectrum defined largely by ideas of 'perfection.' As Lovejoy notes, Aristotle's concept of 'perfection' as the criterion of rank along the *scala naturae* developed from the latter's research on animals in particular.³³

Beginning in the early middle ages, the Christianization of Western European natural philosophy reintroduced the ideas of the Old Testament, particularly from the book of Genesis, into discussions on the order of the natural world. Christianity brought the centrality of humanity to the fore, a theme that was less prominent, though certainly present, in the work of the pre-Socratics, the Ionian philosophers, Aristotle, and Pliny. As Susannah Gibson has put it: "Although the idea of distinct realms of animal, vegetable, and mineral had previously existed in several cultures, it was Genesis that ensured the endurance of the idea of three clearly delineated natural kingdoms."³⁴ Moreover, it was in the book of Genesis that the land also appeared as a category distinct from but equal to the plants and animals. The reintroduction of selected Aristotelian texts to Western Europe in the twelfth century, in combination with medieval Catholic thought, led

³¹ Edward Grant, *A History of Natural Philosophy: From the Ancient World to the Nineteenth Century* (Cambridge: Cambridge University Press, 2007), 96.

³² Roger French, *Ancient Natural History: Histories of Nature* (London: Routledge, 2005), 1.

³³ Arthur O. Lovejoy, *The Great Chain of Being: A Study in the History of an Idea* (Cambridge, MA: Harvard University Press, 1964), 58. See also Clarence J. Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century* (Berkeley: University of California Press, 1967).

³⁴ Susannah Gibson, *Animal, Vegetable, Mineral?: How Eighteenth-Century Science Disrupted the Natural Order* (Oxford: Oxford University Press, 2015), 27.

Thomas Aquinas (1224-1274), for instance, to cite Aristotle's *Politics* while theorizing the relationship between the physical environment and the governing of a state. Aristotelian politics merged with medieval European geography and Christian eschatology to produce a new and powerful definition of a "kingdom" as an expression of both place and inborn "nature."³⁵

The *scala naturae* and the practice of *historia* have a long and rich history. Yet, despite the appearance of the phrase "*tria regna naturae*" in several early seventeenth-century publications, the birth of the "three kingdoms of nature" as a unified concept was a distinctly eighteenth-century phenomenon. This development was inspired by the proliferation of competing classificatory systems but was cemented by the ongoing popularity of the cabinets of curiosity, and a growing interest in other kinds of physical collections through the organization and arrangement of which natural philosophers could express their ideas on the order of the natural world. When the Swedish botanist Carl Linnaeus (1707-1778) used those three kingdoms as the foundation of his *Systema Naturae* in the 1730s, it fueled a trend in natural history writing that did not slow until the second half of the nineteenth century.³⁶ The three kingdoms were built in the eighteenth century, but on foundational ideas about the inherent divisibility of nature that had been laid much earlier; eighteenth-century natural philosophers fixed the limits of the kingdoms in place through their collections—cabinets, zoos, herbaria, mineralia—where concrete objects marked the boundaries.

Tsarstvo zhyvotnykh, tsarstvo rastenii, tsarstvo mineralov

As Western European naturalists of the seventeenth and eighteenth centuries reset the categories by which they understood the natural world, Russians were coming into increased contact with Western European notions of nature. By the eighteenth century, Russian thinkers were participating in pan-European conversations about the natural world. The views on nature held by natural philosophers in Western Europe were fundamentally shaped by the Latinate Western Church; Russian thinkers similarly inherited a related set of categories and concepts about nature from the Eastern Church and Byzantium. But, as the articles in this issue detail, Russian understandings of the natural world often stood in sharp contrast to Western European ideas. We here explore the processes by which Russians selectively adopted and adapted a Western European system of natural knowledge, detailing a series of transcriptions, translations, and illustrations performed by a variety of artisans and scholars. These actors, sometimes anonymous, made Western European natural history compatible with Russian ways of knowing and using nature.

We, as editors of this collection, are just as much the inheritors of this complex history of the study of nature as were Russian academicians and Western European natural

³⁵ Glacken, *Traces on the Rhodian Shore*, 273-4.

³⁶ Carolus Linnaeus, *Systema Natura, sive Regna Tria Naturae Systematice Proposita per Classes, Ordines, Genera & Species* (Leiden: Theodorum Haak, 1735).

philosophers. This rich history continues to suggest new ways forward. New categories in the study of nature are often derived from older ones, just as Linneaus made use of those three kingdoms that would have been familiar to Pliny. By intentionally invoking the categories of the three kingdoms of nature—animal, vegetable, and mineral—we hope to inspire the creation and discussion of new ones. We aim here not only to present, but also to complicate, the kingdoms of our research.

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Following the trend for Russian cultural histories of nature focusing on plants, this collection begins with a piece that addresses issues of categories and boundaries through botany. A. B. Ippolitova's piece, "К истории русской ботанической иллюстрации," analyzes the history of botanical illustration in Russian herbals, teasing apart iconographic differences between translated herbals and those with no foreign language precursors, commonly referred to as 'learned' and 'folk' herbals respectively. Here Ippolitova builds on her own previous work on Russian ethnobotany and folk knowledge, moving from her earlier and influential considerations of how plants were described textually, to a consideration of how they were depicted visually. Those herbals with no foreign precursors, she notes, rarely feature images or drawings. When they do, they tend to show general plant shapes not necessarily recognizable, but often set within more easily determined ecological landscapes, like the swamp, the forest, or the sea. In this case, the plant body is defined mostly by context, not in absolute terms, but in relation to its surroundings and to its purported powers. The herbals Ippolitova examines refuse to separate botanical specimens from the landscape, but insist instead on the unity of nature in a given locale, challenging the very idea that plants can be so easily extracted from the universe of nature to rule only the kingdom of plants.

Complementing Ippolitova's considerations of Muscovite illustrations of plants, Charles Halperin and Ann Kleimola's article focuses on Muscovite views of the animal kingdom. Their essay, "Beastly Humans and Humanly Beasts in Seventeenth-Century Russia," examines the boundary between two categories. Their focus on the deeply porous boundaries between the human and the animal is trained primarily on instances of transgressive behavior, such as humans acting like animals and animals exhibiting the qualities of humans. This liminal zone did not simply separate one category from another, but was mobilized to express a third: the supernatural. Humans who were too close to the category of animals, or animals that showed too human an outlook, could be either demonic or holy. The problematic boundary between animals and humans revealed the close relationship between the evil and the beneficent supernatural elements of the created world. Halperin and Kleimola, gathering their evidence both from witchcraft trials and church documents, explore how the slippage between human and animal behavior could be attributed to such radically different categories.

This collection crosses the difficult Rubicon of 1700, to see how Russian views on nature changed between the late Muscovite and early Imperial periods. Indeed, Rachel Koroloff's contribution directly considers changing views between the early seventeenth and late eighteenth centuries. In her essay, "*Travniki, Travniki, and Travniki: Herbals,*

Herbalists and Herbaria in Seventeenth- and Eighteenth-Century Russia,” Koroloff attempts to unpack one word that meant many things over the course of two centuries. The Russian word *travnik*, she shows us, could be used simultaneously to indicate a herbal, herbalist, or a herbarium; a book, a person, or a collection. The physical form of the *travnik* itself, be it codex, human, or dried collection of pressed plants, could be, and repeatedly was, left to context in seventeenth- and eighteenth-century Russian documents; the chancellery clerks of the seventeenth century and the academicians of the eighteenth century both used this term without qualifiers to indicate the kind of *travnik* in question. Koroloff argues that the body that early modern Russians were indicating when they used the word *travnik* was the body of knowledge about plants that the *travnik* invariably contained. Koroloff’s essay, drawing on sources as varied as state medical records and private book collections, understands the *travnik* not so much as a physical form (book, individual, microcosm) but as collected wisdom that was cultivated and valued throughout the early modern period. Instead of offering a new category with which to think about the relationship between early modern Russians and the natural world, she uncovers the capaciousness of an old category.

The kingdom of minerals is represented here by Daria Novgorodova’s essay. Unlike Koroloff, Novgorodova tackles a much shorter time period, focusing on the 1720s-1780s; like Koroloff, Novgorodova reveals notable changes to views on nature over time, as Russian academicians considered and reconsidered kingdoms and categories. Novgorodova’s article, “Произведения искусства и игры природы в каталогах минерального кабинета кунсткамеры XVIII в.,” looks at art and the play of nature in the mineralogical cabinet of the Kunstkamera, the Cabinet of Curiosities first put together by Peter the Great, as that collection was understood by eighteenth-century academicians from the Russian Academy of Sciences. Working closely with the catalogues and the extant collections of the Fersman Mineralogical Museum, Novgorodova details how shifting classificatory systems could fundamentally change the ways in which minerals were understood. She looks specifically at a unique collection within the museum that includes naturally occurring ‘landscapes’ on marble slabs and artificially produced mosaics done in marble. How to classify these objects, as art or nature or both, confounded the various organizers of the Kunstkamera’s mineralogical collection, demonstrating the inevitable limitations of any classificatory scheme. By the 1780s, the marbles lost all meaning as pictorial objects and were instead defined solely according to their chemical substance and judged according to an economical and chemical classification of minerals developed by mining assayers. They were no longer considered to illustrate phenomena, but rather became part of an order; they were put into a universal and rationalized understanding of nature. Novgorodova shows how early modern scholars in search of categories of nature were constantly making and remaking their natural worlds.

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All these essays grapple with problems of categories, boundaries, and contexts. Yet if we are problematizing boundaries and categories, which remain? Can any? Or should

they all? Can we helpfully recategorize or reconceptualize? All our authors point to a similar solution: by studying the process of knowledge making, we can see both how these categories are formed and how early modern Russians moved from what we see as one sphere to another. There is no spectrum, no boundary in many of these cases, only a process of shaping and reshaping knowledge, where those with power—such as seventeenth-century governmental clerks and eighteenth-century academicians—selectively created and recreated new meanings from a wealth of popular natural knowledge. We can then consider and dissect categories, both those of historical actors and recent scholars, by considering how knowledge about the natural world has been made and unmade through a succession of categories. This approach, our natural turn, suggests a fertile way forward for historians of science and cultural historians of Russia to engage in a dialogue over how those knowledge making processes regarding nature intersected with and impacted both Russian culture and early modern science. We hope that this collection of essays will just be the beginning of that conversation.