

*Histories of
Scientific
Observation*

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Seeing Is Believing: Professor Vagner's Wonderful World

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In a word, he was a very original Cat, although he didn't like any kind of originality and persecuted it: first of all, because he couldn't differentiate at all the original from the fashionable, and chiefly because everything original, in his opinion, shielded from us everything ordinary, simple, that we should study and that demands our help.

NIKOLAI VAGNER, "Who Was Kot-Murlyka?"¹

Russian zoologist Nikolai Petrovich Vagner (1829–1909) enjoyed going for walks in the countryside armed with a clear head, a magnifying glass, and an avid sense of curiosity. You never knew what you might observe. For example, as he wrote in a German scientific article in 1863, describing one of his walks:

In the environs of Kazan' I found on 12 August 1861 under the bark of a dead elm a group of little white worms that didn't move. Under the microscope these little worms revealed themselves to be larvae of arthropods with antennae and tracheas, in a word, insect larvae. Each of them was filled with other larvae.

I believed at first that what I was dealing with was a case of parasitism, which is so common among insects. The similarity of the enclosed larvae with the enclosing ones, a similarity that extended to the chief external identifying marks, however, soon led me to the thought that I was dealing with a normal formation, not with a pathological occurrence. On the other hand this was something too unusual, that in an insect larva a second generation of larvae could develop, and only after much to-ing and fro-ing and after many investigations did I come to the conviction, supported by evidence, that I had finally found the truth.²

Vagner wielded his prose with agility: he moved from observation, to description, to investigation, to conviction—all in the span of a few sentences. His finding, later dubbed pædogensis, sparked intense disbelief and some sustained controversy. In the end, Vagner was vindicated, merely by sticking to his observations, invoking distinguished authorities among eminent scientists, and publishing early and often. This was a lesson of perseverance that he would long remember, much to the detriment of his reputation in later years.

He had made a high-stakes discovery against the objections of critics, and he would continue to stalk ever more elusive and unbelievable prey.

Vagner spent his life committed to the observation of animals in all their varieties, but especially two: invertebrates and humans. There are three major ways to consider the observation of people and bugs together. The first is to observe the bugs closely and then convince people of your observations (and the implicit interpretation that goes along with them). I shall call this "observation as persuasion." The second claims that one can observe humans as part of the same natural processes as their spineless counterparts. This approach flattens distinctions in the natural world in favor of comprehensive and general laws of biology—which the naturalist of course *also* claims to "observe": "observation as generalization." The third tactic capitalizes on the "observational authority" gained from observing insects—a tricky and painstaking business—to build credit for controversial observations of human phenomena, such as paranormal occurrences at séances. Vagner never did anything by halves. He would employ all three.

This essay follows several strands in Vagner's highly idiosyncratic career: professor of zoology and comparative anatomy first at Kazan' and then at St. Petersburg University, and also an author of classic children's stories published under the persona of Kot-Murlyka (lit. "Cat-Purr"). Although the narrative is biographical in structure, its purpose is to excavate the category of "observation" for naturalists in Imperial Russia and thus add to the taxonomy introduced by Katharine Park, Gianna Pomata, and Lorraine Daston in part 1 of this volume. Among the several dominant Russian terms to describe the investigation of nature—*opyt* ("attempt," "experiment," and "experience"), *issledovanie* ("research," with the definite connotation of literally following), and *ispytanie* ("probe," bearing whiffs of putting something to trial)—only "observation" (*nabliudenie*) carries the specific sense of the *visual*, a sense of being passive, of letting nature wash over one. That is as far as the etymology takes us, and it is not very far at all.

The reason to focus on Vagner, to explore how he connected both his practices of observation and his observational narratives of the insect and the human world for his intended audiences, is that he repeatedly made explicit many of the cultural assumptions that lay behind "observation," and that at times put the category in tension with contemporary interpretations of "science." Vagner did not perceive the three observational strategies mentioned earlier as distinct; each was simply part of what it meant to "observe" in a hostile universe. For him, what linked both strategies and observations together was the ubiquity of "struggle" (*bor'ba*) in the inorganic, organic, and

social worlds. It is commonplace now to emphasize the tropes of *control* in understanding experimental science, which prides itself on manipulation of an environment to heighten a single effect. Vagner, however, saw struggle as the defining feature of *observational* science as well: not only did one have to struggle to maintain clarity and focus on surprising phenomena, struggle to free oneself of preconceptions and biases, and then struggle to persuade people of the controversial reality; one also literally *observed* struggle. It was both the content and the form of what the naturalist-observer did. *Nabliudenie* was about as active as you could get.

Observation as Persuasion: Weird Sex

Even specialists on the history of the life sciences in Russia may not recall Nikolai Vagner. Although his name lightly veils his family's German ancestry, Vagner was Russian through and through. He was born in 1829 at Bogoslovskii Zavod in the region of Perm, but he moved as a child to Kazan', where his father, Pëtr Ivanovich Vagner, had obtained the chair in zoology at the local university. Nikolai received his secondary education at the second Kazan' *gymnasium* and entered the university in 1845. In 1849 he received his candidate degree and one gold medal for his thesis, "On the Best Characteristic Signs for the Classification of Insects." He then took a post as teacher of natural history and agriculture at the Nobleman's Institute in Nizhnii Novgorod, where he stayed until 1851, returning to Kazan' University for a master's degree.

From a career that began in the provinces, Vagner began to push to the metropolises. In 1855 he defended his doctoral dissertation, "A General View on Arachnids and a Particular Description of One of the Forms (*Androctoceus occitans*) Belonging to Them," in Moscow (it was later translated into Dutch).³ In 1858 he went abroad for postdoctoral work in Giessen, and then returned to Moscow to edit the *Journal of the Moscow Agricultural Society*. He returned to Kazan' in 1861 as an adjunct in comparative anatomy and physiology and became an extraordinary professor the same year. On 9 June 1862 he became ordinary professor of zoology. He edited the *Scholarly Notes*, the official academic journal of the university, from 1862 to 1864, and from 12 May 1869 was the first president of the Society of Naturalists at Kazan' University. Vagner traveled to Europe for another academic trip in 1870–1871 and returned as professor of zoology and comparative anatomy at St. Petersburg University.⁴

To hear Vagner tell it, this training had only limited impact on his abilities as an observer. As he imagined his own student training from the perspective

of the late 1880s, he and his schoolmates were not adept at observing from nature:

We were all patriots and unconditional monarchists and were not troubled by any doubts or questions. This absence of ideal interests was expressed also in the interests of science and life. We related to science completely superficially, not from the philosophical side. We studied lectures from their formal and factual sides. We wrote everything down accurately and constantly and, it stands to reason, considered it a sin to skip a lecture of the main subject. These written lectures were almost the only sources of our knowledge.⁵

Not that we should necessarily take all this too seriously. Vagner was prone to exaggeration in all his writings, and he was very fond of dramatic revelation.

We know, for example, something more about his practices of entomological observation—practices that informed all of his graduate work at Kazan—from the publications themselves. Consider, for example, that walk in the environs of Kazan that yielded those observations of insect larvae. Observation was a simple affair. In the context of the vastly understudied Russian steppe and Volga regions, there were plenty of publishable zoological finds to be obtained simply by walking around with a magnifying glass. This was fortunate, because at this stage in his career, Vagner did not have access to substantial state support for expeditions or even the less-elaborate makeshift sets arranged by René-Antoine Ferchault de Réaumur in the essay by Mary Terrall in this volume. For Vagner, one needed only to be alert and to take one's eyes to where they would do the observing for you. And on that particular walk, he found something worth publishing.

He translated his original Russian article into German and sent it to the *Zeitschrift für wissenschaftliche Zoologie*, published in Munich by Karl Theodor Ernst von Siebold. Von Siebold chose to sit on the manuscript, considering the findings too implausible to publish. St. Petersburg naturalist Karl Ernst von Baer (1792–1876) later articulated this feeling of disbelief:

One could expect that this discovery of Vagner's would create a great sensation, but also many doubts, before it was to achieve complete confirmation or refutation. That in a formed insect larva a brood of new larvae of the same sort could develop had until then never been observed; likewise, many deviations from the usual methods of reproduction in the higher animals also had never been observed in the lower orders.⁶

Only after von Siebold had found analogous phenomena (replicating Vagner's observations) outside Munich and received living samples from Vagner did he agree to publish the piece in 1863—with an introductory footnote explaining his delay.⁷

The findings remained controversial even as additional observations of the phenomenon poured in.⁸ The dispute over the existence of these unusual *Diptera* larvae was resolved not through Vagner's persistence, or additional eyewitness evidence, but mainly through the support of the grand old man of Russian biology, Academician Karl Ernst von Baer. Von Baer published two articles supporting the discovery in the *Bulletin* of the St. Petersburg Academy of Sciences. Not only did he add his own observations of Vagner's specimens, his tremendous authority in European zoology as the world's greatest living embryologist led the Petersburg Academy to award Vagner the coveted Demidov Prize in 1863.

On the one hand, von Baer sealed the credit for the discovery for Vagner, and on the other, he completely eclipsed it. Von Baer endowed the phenomenon of sexually immature larvae reproducing parthenogenetically with its still-current moniker of pædogenesis: "Provisionally only one difference from *parthenogenesis* has revealed itself, that the newly emergent individual, from an immature and for that matter unfertilized egg, emerges as a sexually mature individual."⁹ Although nationalist Soviet textbooks highlighted Vagner's role, most later accounts of the history of the phenomenon elided the Kazan entomologist completely. Stephen Jay Gould, in the standard reference on the history of theories of reproduction, devotes much attention to pædogenesis, but never mentions Vagner. Instead, he attributes the discovery to its namer, von Baer, even though the title of the source Gould cites references Vagner prominently.¹⁰

Vagner, of course, had no sense of his impending marginality, and in 1865 was ready to gloat, retelling his discovery as a victory of observation:

If each day one watches the larvae carefully with naked [*unbewaffneten*] eyes, one sees clearly that new larvae grow from these, and after 7–10 days again bring forth new larvae just as the former did.

Such observations must surely be proof enough for any skeptic, as long as there arises no suspicion that the observer himself has intentionally meddled with the facts.¹¹

We should note Vagner's stress on the *absence* of intervening instruments, on the importance of the trained *naked eye* as the conduit of (passive?) observations. Indeed, by the early twentieth century, it was considered so easy to find pædogenesis in the wild in various species of *Diptera* that it was touted as an excellent pedagogical tool to introduce students to fieldwork.¹² Pædogenesis had become entirely domesticated *qua* observation.

In his later entomological studies, such as his attempts to explain the coloring of butterfly wings by subjecting larvae to electric currents, Vagner again

returned to the tropes of observation explicitly—even though in this instance he was dealing with a more obviously *experimental* setup, a baby step toward Perrin's devices described in the essay by Charlotte Bigg in this volume.¹³ Vagner would later relate that in his sole meeting with famed French physiologist Claude Bernard, the latter expressed admiration for precisely this kind of experiment *cum* observation developed by the Russian with phrases like “zoology will only stand on real scientific ground when physiology becomes its leader.”¹⁴ (Bernard's emphatic writings on the inferiority of observation to experiment lead one to doubt the true extent of agreement between the two.)¹⁵

By this time, however, Vagner was less interested in being a narrow observer of insects. Instead, he shifted to grander schemes, hoping to observe even the abstract, the extremely general. As he commented in his St. Petersburg University lectures in 1879: “In the world there exists one phenomenon, which comprises in itself all of the rest. This world phenomenon, in which are assimilated all the facts observed in nature, is the gradual complexification (*oslozhnenie*) or development of everything that exists.”¹⁶ He wanted here to convince humans that they fit into the same patterns as insects. And this was not going to be just a struggle. It was to be a struggle *about* struggle.

Observation as Generalization: Where's Wallace?

Consider these three quotations by Vagner, the first drawn from a textbook for children, the second from one for adults, and the third from an editorial from his interdisciplinary magazine, *Svet*:

Thus, you see, in nature there is a constant battle. Here one can't be weak, clumsy, unaware, clueless and lazy. . . . Couldn't one truly call this battle a *battle for life* or *for existence*? And from this battle, in the very end, there constantly emerge more perfect, more solid, and stronger animals.¹⁷

[Nature's] goal is achieved by the battle for existence, the battle among the elements of organs, the battle among the organs themselves, the battle among organisms, finally, the battle among entire groups of organisms. Everything battles so that it can destroy everything weak, ugly, which doesn't harmonize with the environment and in general with surrounding conditions. In the strata of our planet, and maybe on other planets, there are buried many unharmonious, ugly forms, which were at their time and place made so that development would further new, more complex, harmonious forms via impossible anachronisms.¹⁸

In the life of the world, struggle continues as an endless, central theme, diversifying itself in billions of different forms. It began from the first steps,

from the first germs of the planetary system and, developing, moved wider, further—into the endless distance of the future.¹⁹

Struggle metaphors in the life sciences in the second half of the nineteenth century evoke natural selection: Darwinian evolution through Malthusian conflict. But there was a bit of a twist here: Vagner was the single prominent advocate in late imperial Russia of natural selection . . . in the form expressed by Alfred Russel Wallace, *not* Charles Darwin. This was a peculiar position, and one first needs to understand Vagner's motivations for advocating evolution, and then Russians' resistance to the same, in order to make sense of it.

After the acceptance of pædogensis, Vagner set his sights higher. He had a dim opinion of “those scientists who do not want to see in natural history anything besides naked data and facts.”²⁰ He exhorted an interdisciplinary meeting of Russian scientists to seek the whole picture:

Open a book of any scientific journal and you will see that fruitful scientific works, those which really push science forward, those which expand our worldview or give results directly applicable to life, stand out like bright oases.—Meanwhile, there follows a plethora of works that comprise the material for the future growth of science. Finally, there appears a large contingent of scientific workers who, with true pleasure, gather various petty facts with the firm faith that even these will one day prove useful. One should admit that this faith is sometimes justified, but how much labor in this blind, impassioned work falls in vain!²¹

In the small hive of Russian naturalists, Vagner did not want to be a worker bee. He wanted to throw his weight behind a monumental general law, recognizing that “[s]uch general laws are explicated slowly.”²² These laws were not the fruits of speculation; they were *observed realities* just like the multiplying larvae in the decayed elm stump (or like the economies observed in the essays by Harro Maas, Theodore M. Porter, and Mary S. Morgan in this volume). You just needed to know *how* to observe.

This is where natural selection comes in. The tortured history of the reception of Darwin's theory in Russia has been recounted many times. Russian naturalists were generally supportive of the idea of common descent. This can be easily observed in the publication history of the classic works: *The Origin of Species* was translated into Russian in 1864 by S. Rachinskii, with a second edition in 1865; noted physiologist I. M. Sechenov translated *The Descent of Man* in 1871, the same year as the English edition, with a second edition in 1874; *Variation of Animals and Plants, The Expression of Emotions*, and *The Voyage of the Beagle* all appeared in the 1870s; and between 1907 and

1909 botanist K. A. Timiriazev ("Darwin's Russian bulldog") oversaw an edition of eight volumes of *Darwiniana* in Russian.

Among the general enthusiasm, criticism came from two fronts. Conservative intellectuals, such as Nikolai Strakhov and Nikolai Danilevskii, attacked the theory for being irreligious, materialist, and corrosive of morals.²³ The main source of scientific objections, as detailed by Daniel Todes, was the perception among Russians that Darwin's reliance on the thinking of Thomas Robert Malthus was incorrect.²⁴ Alfred Russel Wallace, Darwin's rival for priority in discovering natural selection, is oddly absent in all of this scholarship.²⁵ And yet, if one wanted to test the resistance to Malthusianism in Russian culture, Wallace was the more Malthusian and human-directed of the two evolutionists.²⁶

There were not one but three Russian editions of Wallace's *Contributions to the Theory of Natural Selection* (1870). The first appeared in 1876, edited by a man named Lindeman, who mistranslated, arbitrarily reordered chapters, and cut out the theistic conclusions.²⁷ The second edition came out from a certain G. B. Our Vagner did not care for this version at all, mostly because G. B. "directed toward me his astonishing grumbles that I had the insolence to demand respect for the views of scientists such as Wallace."²⁸ Vagner had had enough; he would put out his own translation, complete and unexpurgated, with updated footnotes, new illustrations, and an appendix that included his own views about what Wallace had gotten right and wrong.²⁹ In 1879 a man named Gusev published an entire book devoted to these translations and interpretations of Wallace, and he found that "only in the translation under N. P. Vagner's editorship does Wallace appear before the Russian public with his present and full form of thought on the question of the origin of man."³⁰

Why so much attention to Wallace? The first reason was his strict adherence to natural selection, rejecting all vestiges of Lamarckian adaptationism, which Darwin's "pangenesis" theory of heredity in part preserved. Vagner saw pædogenesis as a consequence of a Malthusian pressure: there were not enough males to go around fertilizing eggs, and asexual reproduction by adult insects (parthenogenesis) would require resources to bring the females through gestation, so there was a selective pressure in favor of immature asexual reproduction. The second reason Vagner backed Wallace over Darwin concerns the most famous conflict between the two British naturalists: the adequacy of natural selection to explain human consciousness. Here is Wallace's judicious account of the difference:

My view, on the other hand, was, and is, that there is a difference in kind, intellectually and morally, between man and other animals; and that while

his body was undoubtedly developed by the continuous modification of some ancestral animal form, some different agency, analogous to that which first produced organic *life*, and then originated *consciousness*, came into play in order to develop the higher intellectual and spiritual nature of man.³¹

Wallace and Vagner both thought there were limits to natural selection, and they both found evidence for it in the same place: Spiritualism. Vagner's adherence to the doctrines of modern Spiritualism—table turning, table rapping, spirit materialization, automatic writing, and so on—will be addressed in the next section. Vagner's conversion was independent of Wallace's views on the subject, but it surely only enhanced Vagner's belief in natural selection as the best candidate for a universal law of development that the most prominent British scientific advocate of both natural selection and Spiritualism was Wallace.

For Wallace, belief in Spiritualism was crucially about *observation*:

Each fresh observation, confirming previous evidence, is treated [by critics] as though it were now put forth for the *first* time; and fresh confirmation is asked of it. And when this fresh and independent confirmation comes, yet more confirmation is asked for, and so on without end. This is a very clever way to ignore and stifle a new truth; but the facts of Spiritualism are ubiquitous in their occurrence and of so indisputable a nature, as to compel conviction in every earnest inquirer.³²

Wallace's observations of Spiritualism that led to his own conversion took place at séances in 1865–1866. Malcolm Jay Kottler and others have argued convincingly that this experience of supposed communication beyond the borders of death persuaded Wallace that more must be involved in the evolution of man than natural selection alone.³³ The supposed contradiction between Wallace the rigorous naturalist and Wallace the devoted mystical spiritualist has spawned the plethora of recent biographies of Wallace.³⁴ The same thing sparked some of Vagner's interest, and he threw himself into Spiritualism *à la* Wallace: first piggybacking on his observational authority from his entomology to argue for the validity of his findings, and then invoking Wallace (in counterpoint to von Baer's earlier intervention on his behalf) as an even *better* observer with a stronger reputation to justify his own claims.

Observational Authority: Psychic Polemic

Nikolai Vagner was an avid polemicist, but not an unfair one; he recognized that Spiritualism was particularly difficult for the arch-rationalist (and here the scientist was the prime exemplar) to swallow. In 1902, Vagner published

an appropriately titled monograph, *Observations on Spiritualism*, which attempted to explain how difficult these phenomena were to observe:

Here the conditions of observation are so capricious (i.e., varied and elusive) that it is almost never possible to predict that such and such a phenomena will appear and such and such an experiment will work. . . . The main reason for this is 1) the unusual complexity of these phenomena and 2) the impossibility of knowing and studying them as a consequence of the inadequacy and limitations of our own organism.³⁵

Anyone interested in Spiritualism required special instruction in how to conduct inquiries into the relevant phenomena: "In all these cases [of dark or dim rooms] I advise people who want to be convinced of the reality of these phenomena to maintain composure, patience, and not to arrive at a definitive conclusion after the first séances in which they have participated. Only after long and careful pondering can the observer arrive at the true conclusion."³⁶ Fundamentally, the observer *was supposed to resist* the existence of these phenomena at first: "I willingly concede that these facts are in the highest degree improbable, that they sharply contradict all contemporary psychological and natural-historical data. They unexpectedly open before us that quasi-fantastic world, in the existence of which we are unaccustomed to believe to the extent our consciousness has developed, developed apparently quite firmly, thanks to exact, experimental research. But nevertheless these are facts."³⁷

From his first public writings on Spiritualism in 1875, Vagner always stressed that Spiritualism should not be understood as a mystical belief system, but as a collection of "mediumistic phenomena"—raw observations—that needed to be investigated using the standard methods of science. (In this, his position foreshadows that of the stroboscopists in the essay by Jimena Canales in this volume.) The crucial ingredient for a Russian séance, exactly parallel to contemporary British standards, was a "medium," someone purported to channel phenomena between the two worlds. To the extent that Vagner thought a séance was an "experiment," it was an experiment to test whether the medium's claims were accurate. The way this was done was through "observation": one eliminated all interference that might disturb the medium (bright lights, intrusive experimental devices), and then simply observed. This is similar to Vagner's entomological research in its emphasis on mere presence and attention, for those were his proven mechanisms. One needed to be skeptical, to be sure, but if one were *too* skeptical, then this might distort the phenomena, scare the medium, and ruin the observational setup.

This form of open inquiry to establish the phenomena was where Vagner had started in the 1870s, although soon he began to consider Spiritualism

a quasi-religious system.³⁸ The stakes were quite high: "For me, spiritualist phenomena explain the life of the entire visible and invisible world. They connect the physical world and the transcendental, science with religion."³⁹ But one should not assume Vagner to be antirational or dogmatic from the beginning. By his own lights, this *profession de foi* was no different from his advocacy of the universal laws of biology. Wallace was not only an interlocutor and a source; he was an *exemplar* that Vagner observed and hoped to emulate.

When he returned from Europe in 1871 and began to teach at St. Petersburg University, Vagner had at first scoffed at his schoolmate and now colleague, chemist Aleksandr Butlerov, for advocating scientific investigation of mediumistic phenomena. But Butlerov insisted that Vagner at least attend a few séances with the noted European medium Camille Bredif, organized by himself and his cousin Aleksandr N. Aksakov. Vagner would later describe his conversion experience in terms analogous to his account of the discovery of pædogensis in the early 1860s:

In the fall of 1874 in Petersburg Bredif arrived, and Butlerov invited me, together with A. Ia. Danilevskii and A. I. Iakobi, to participate in his séances. The latter, however, could only participate in two séances. The whole array of strong visible phenomena convinced me finally of the existence of mediumistic facts and pushed me to print a letter in the *Messenger of Europe*. Butlerov and A. N. Aksakov took a lively part in this publication. They in no way believed that my letter would convince anyone of the existence of mediumistic facts. But in the end it turned out differently. My scientific authority and my firm conviction awakened the entire intelligentsia. From all sides Butlerov and I began to receive letters, with a request for admission to séances with Bredif. Meanwhile, the party of a priori skeptics did not dither and began to print articles in refutation of those facts that they had not seen.⁴⁰

The reference to pædogensis is not tendentious on my part. Consider the April 1875 article referred to above, the one that sparked the Spiritualist controversy of 1875–1876 by triggering chemist Dmitrii Mendeleev's campaign against Spiritualism.⁴¹ Vagner began this article with the oft-repeated quotation from *Hamlet* (I.v) when the doomed prince tells his friend, "There are more things in heaven and earth, Horatio, / Than are dreamt of in your philosophy." This quotation was very much in vogue among British Spiritualists, but Vagner was not interested in invoking them (yet). Instead, he recalled that the permanent secretary of the Academy of Sciences, Konstantin S. Veselovskii, had intoned these words in reference to Vagner's entomological discoveries.⁴² Vagner tried to bootstrap from his acknowledged reputation as a skillful observer in the realm of the small and wriggly to the dead and

immaterial. In a footnote to a German article on Spiritualism by Vagner, A. N. Aksakov cemented the connection:

Among the main scientific works of Prof. Vagner that are well known to specialists an entirely special sensation was aroused by his remarkable discovery of a particular form of asexual reproduction (pædogenesis). . . . This discovery of Prof. Vagner's was first met generally with distrust, the reported facts were seen as something unbelievable and impossible; new observations, however, soon set them firmly as facts.⁴³

Vagner's counterparts in the polemic understood what he was doing and called him on it.⁴⁴ S. Rachinskii (also the translator of Charles Darwin's *Origin of Species*) conceded that *something* must have occurred in the room if Vagner and Butlerov said it had; he just thought the medium produced these phenomena himself (or herself).⁴⁵ The hypothesis of spirit action from the beyond was simply unnecessary.

Perhaps no one agreed with Vagner more on the link between observational authority and Spiritualism than Mendeleev, who targeted Vagner (among others) with his supposedly impartial investigative commission.⁴⁶ Vagner maintained a constant back channel of correspondence with Mendeleev during the commission's activity (fall 1875–spring 1876), and he repeatedly insisted that the chemist was observing irresponsibly. First, observation was fundamentally an *individual* affair and did not require (or might even be harmed by) the presence of too many persons: "If you sincerely strove to convince yourself that mediumistic phenomena exist, then the form of your action would have been entirely different.—For this you didn't need to gather a commission of scholarly physicists and mechanics. You yourself are the authority and judge for yourself."⁴⁷ The second problem was the prejudice induced by excessive skepticism on Mendeleev's part: "The black worm [of suspicion] drove you further. He showed you things that any reasonable observer would have associated with the sphere of subjective sensations and hallucinations. And you?! You came forth with these sensations as with proofs against the medium, accusing him of charlatanry."⁴⁸ (Here also was an echo of entomology; the skepticism of von Siebert and others had hindered the acceptance of Vagner's findings.)

Mendeleev, for his part, emphasized two major problems with Spiritualists as observers of nature. The first was that they were convinced in advance that the phenomena existed, and hence were likely to conflate the very subjective and objective events that Vagner wanted to distinguish. Characteristically for a physical scientist, who demanded *experimental* confirmation of controversial claims, Mendeleev believed that predisposition could seriously

distort *observations* conducted in a purely natural-historical vein of nonintervention. The desire to observe would in turn yield the observation of what one desired.⁴⁹ The second problem was the refusal of many Spiritualists to recognize fraud. In this manner, Vagner was very similar to Wallace, who claimed that no medium had ever committed fraud in his presence. (Even fraudulent mediums produced mediumistic phenomena *despite themselves* when he was present.)⁵⁰

None of the criticism prevented Vagner from defending the faith. Long after Mendeleev had ceased to care about the propagation of Spiritualism by scientists, Vagner continued to explore new methods of observing the phenomena, such as the difficult craft of spirit photography, a significant concession on his part to the potential of instruments to aid naked-eye observations (and with resonances in the essay by Kelley Wilder on Henri Becquerel in this volume).⁵¹ Much like William James and Oliver Lodge in parallel contexts, Vagner continued to push a program of psychical research that would help uncover (via observation) the general laws of these phenomena. In fact, Vagner considered observation via automatic writing a superlative exemplar of observation for any scientist: "This phenomenon, by its objectivity, especially affords facility for observation, and deserves full attention and investigation from competent persons and institutions."⁵² He also never stopped engaging in "real science" during this period. He conducted a series of expeditions to the White Sea on Russia's Arctic coast in 1876, 1877, 1880, 1882, and 1887, and in 1881 helped to establish the first Russian marine biological station, which he directed until it closed down. His research on Arctic marine invertebrates, published in the 1880s, was a major collective achievement.⁵³

Vagner's visibility in the popular press sagged after Mendeleev's assaults, intensified censorship against mediumism in general, and direct attacks on his character by rationalist writers—and even some by pronounced anti-rationalists, such as Fedor Dostoevskii.⁵⁴ And then, after a decade, Vagner's polemic reemerged in a rather curious episode pitting him against the most famous of his contemporaries, writer Lev Nikolaevich Tolstoi. The conflict between Vagner and Tolstoi broke out in response to Tolstoi's four-act play, *The Fruits of Enlightenment*, first drafted in 1889 and finished in 1890. It had begun as a quick sketch in November 1886 but was then shelved until, as Tolstoi would have it, "my daughters asked to be able to play it, I started to correct it, in no way thinking that it would ever go further than our home, and it ended with its being distributed."⁵⁵ *The Fruits of Enlightenment* is essentially a classic farce, in which a smart peasant girl (Tania) manages to win her hapless lover (Semën) and persuade her noble master, Leonid Fedorovich Zvezdintsev, to sell land to Semën's village family at reasonable rates. The rub is how

Tania pulls this off. Zvezdintsev was an avid Spiritualist, and Tania rigs a séance by persuading him that Semën, while napping, has mediumistic powers, and then “materializing” the deed of sale during the séance.

Vagner was not amused, and he wrote an irate letter to Tolstoi after attending a reading of the play in Petersburg, horrified at what he saw as a “satire on professors, on scientists!”⁵⁶ In particular, he was upset with the learned professor, Aleksei Vladimirovich Krugosvetlov (meaning “surrounded by light,” which may have been a barb at Vagner’s crypto-Spiritualist magazine venture from the late 1870s, *Svet* [*Light*]). Tolstoi described Krugosvetlov thus: “Scientist, about 50 years old, with calm, nicely self-confident manners and a similar slow, singing speech. Speaks carefully. To those who don’t agree with him he relates curtly, contemptuously. Smokes a great deal. A thin, mobile person.”⁵⁷ This is a pretty good description of Vagner. The tone of the professor as he explains away other theories and defends his doctrines is also strongly Vagnerian. To pick one Krugosvetlov monologue: “The same thing here also. The phenomenon is repeated, and we subject it to research. And that’s just the start, we subject the researched phenomena to laws general to other phenomena. The phenomena, after all, appear supernatural only because the reasons for the phenomena are attributed to the medium himself.”⁵⁸ Perhaps most Vagnerian of all, Krugosvetlov refuses to admit the fraud after it is exposed by Semën’s rival for Tania’s affections, the valet Grigorii.⁵⁹

Whatever Vagner’s personal wounded feelings, his objective ire was sparked by Tolstoi’s refusal to accept mediumistic facts as they stood. Criticizing scientists for hubris is one thing—and Tolstoi had repeatedly attacked physicians (and Darwinists)—but refusing to accept the sincerity of Spiritualists was quite another. It was not simply insulting, it was uncharitable—and hence un-Christian, a criticism he felt sure would prick Tolstoi. Here, Vagner’s Spiritualism was bound together with his corporate identification with scientists, his insistence on observation, his orientation toward struggle, and finally, his literary persona. It is time, at last, to turn to Kot-Murlyka.

Observers Observed: Endless Childhood

As early critics of Spiritualism noted, one of the reasons why Vagner needed to be stopped from propagating his dangerous creed was that he was a gifted literary stylist: “The uncontrived sincerity of tone, the energy and literary achievements of exposition, finally, the adoration of scientific authority—all of these are very important tools, found in the hands of Mr. Vagner, and which he uses to the fullest.”⁶⁰ Perhaps the best comparison is with the writer who gave him the name for his literary persona: E. T. A. Hoffmann, whose

“Kater Murr” exhibited just the range of nonchalance, mockery, and sincerity that characterized Vagner’s writings. One of the foremost critics of classic Russian literature, D. S. Mirsky, lauded Vagner as the only author of his age to write well outside of the canons of the “natural school.”⁶¹ His anti-Spiritualist critics did not shy away from approaching Vagner as primarily a writer about nature; neither, I contend, should we.

I conclude with Vagner’s position in Russian literature for several reasons. First, separating off his scientific work from his literary activity implies an artificial separation denied by the subject himself and absent from the sources. More importantly, belles lettres in late Imperial Russia held a position of authority most closely reflected by science in contemporary Western culture. My goal is to show that the practices and theories of observation Vagner at first developed in the field and séance room became tools to develop a prominent literary status, and thus the history of Russian culture is incomplete without attention to “observation” as a category, scientific and otherwise. For Vagner treated his literary efforts like his Spiritualist publications and scientific articles: as tools to train Russian children to *observe*—not investigate, not experiment on—the world around them. Literature, and especially literature for children, was thus the highest stakes game of all.

According to an 1892 autobiographical piece, Vagner’s interest in literature emerged from folktales told to him by his family’s nanny, Natalia S. Ak-sénova. A precocious youth, he memorized extended tracts of various stories that pleased him with their rhythm and cadence, and performed impromptu one-boy shows for his relatives, but he did not endeavor to write fiction until he reached adulthood. The trigger for his own ventures was the 1868 publication of Hans Christian Andersen’s tales:

Reading the praiseworthy and even rapturous reviews of these tales in our magazines and newspapers, I bought them and read them through. Many of them I enjoyed as well, but I was also dissatisfied with many of them; I found them weak and asked myself the question: couldn’t I perhaps write something like this or even better? Thus the task was posed, and in three years I had written about a dozen stories, which comprised the first edition of the “tales” of “Kot-Murlyka.”⁶²

Andersen may have been the immediate trigger, but Kot-Murlyka took on further tasks. His writing for children assumed two forms: nonfictional guides to induce children to observe outdoor nature, and fantastical tales to induce children to observe their inner natures.⁶³

Although Vagner’s literary reputation hangs entirely on the second group, the first was more important to him. He produced several popular texts of

natural history for children of various ages, including two editions of a translation of Paul Bert's French textbook. As he indicated in his preface to the first edition, the purpose of having such a book available in Russian was to encourage children: "For them [children] it [nature] is an open book, in which they can, unwittingly, learn a great deal if only they had a guide near them. It would show them how one can observe, look into things, and chiefly, think about subjects and phenomena."⁶⁴ Children, more than adults, were natural observers, and must observe *Russia*: "Let's stop, although not for long, on still another country, which lies both in Europe and in Asia, but which for every Russian lies closer than any other, because it lies in his own heart. You, of course, have guessed, that I want to speak to you about the population of your mother country, with which you are connected through your birth, language, your faith, customs, habits, finally, your character."⁶⁵ Vagner was once again pushing for a repeat of his pædogenic discovery. Accomplished with a magnifying glass, a pair of walking shoes, and some natural curiosity, it had been a victory for Russian natural history. If children simply indulged the childlike in themselves, they would produce wonderful science.

Then one had the tales of Kot-Murlyka, which appeared in nine editions between 1872 and 1913, and in 1923 were issued in their first Soviet edition. This was also the last edition until 1990, right before the collapse of the Soviet Union.⁶⁶ The corpus ranges widely among morality tales, children's heroic narratives, just-so stories, and prose poems about nature.⁶⁷ Interestingly, some of his peers considered these stories deeply unsuitable for children:

They [the stories] are undesirable, first, because they are almost all unbearably heavy tales, full of woe, suffering, unilluminated human gloom. All of this acts too strongly on the reader, acts oppressively, even frighteningly in places. Second, these stories for children are not desirable even for those who are older because the philosophy of many of them can lead an impressionable, sensitive child to despair, to a total lack of desire to live.

One of the main themes of the tales of Kot-Murlyka is the inevitability of woe and sufferings, the naturalness of woe and suffering, the battle of knowledge and blind naïve faith in the wonderful [*chudesnoe*], in which the sympathies of the author are always on the side of the victor—knowledge. Next comes a description of the muddle of human society, in which poverty is completely unavoidable, and in which even the battle with poverty and human unhappiness is completely fruitless. Finally—the heavy battle for existence, the extinction of everything weak, incomplete, or not suitable for life.⁶⁸

Even here, in the realm of fictional tales for children, the same themes emerged: his opponents' resistance to careful observation, and Vagner's imperviousness to opposition. The man kept writing until the end of his life

(although his later works abandoned some of the fantastic features and took a regrettable slide into anti-Semitism),⁶⁹ just as he held on to his Malthusian Darwinism (or should we say Wallaceism?), as he had persisted with pædogogenesis, and as he continued to defend Spiritualism. All of these were marked with struggle, by struggle, and through struggle: in the discovery of pædogogenesis, it was the struggle of observation as persuasion, convincing recalcitrant entomologists; in his attachment to Wallace's natural selection, observation as generalization found struggle woven in the fabric of nature; and that struggle needed itself to be struggled against in order to achieve the expectant calm of the Spiritualist observer. It was not so much that Vagner believed his observational authority sufficed to bear him along against the slings and arrows of outrageous fortune; rather, it was the very nature of observation, properly done, to exhibit and elicit these kinds of attacks. The fact that his critics continued to attack him suited him just fine. He knew he would eventually be vindicated. All his observations supported it.

Notes

1. N. P. Vagner, "Kto byl Kot-Murlyka?" in *Skazki Kota-Murlyki* (Rostov-on-Don: Prof-Press, 2001), 5–10, on 5–6. Russian dates are given according to the old-style Julian calendar, European dates in the new-style Gregorian; transliterations follow the modified Library of Congress standard. All unattributed translations are my own.
2. Nicolas Wagner, "Beitrag zur Lehre von der Fortpflanzung der Insectenlarven," *Zeitschrift für wissenschaftliche Zoologie* 13 (1863): 513–27, on 514.
3. N. P. Vagner, *Obshchii vzgliad na klass zhivotnykh paukoobraznykh (Arachnidae) i chastnoe opisaniye odnoi iz form, k nemu prinadlezhashchikh* (Kazan': Universitetskaya tip., 1854).
4. Biographical facts are drawn from G. A. Kliuge, "Vagner, Nikolai Petrovich," in N. P. Zagoskin, ed., *Biograficheskii slovar' professorov i prepodavatelei Imperatorskago kazanskago universiteta (1804–1904)* 2 vols. (Kazan': Tip. Imperatorskago Universiteta, 1904), 1: 286–89; N. Knipovich, "Vagner (Nikolai Petrovich)," *Entsiklopedicheskii slovar' Brokgauza i Efrona*, v. 5 (St. Petersburg: I. A. Efron, 1891), 343–44; and V. I. Mil'don, "Vagner, Nikolai Petrovich," in P. A. Nikolaev, ed., *Russkie pisateli, 1800–1917* (Moscow: Sovetskaya entsiklopediya, 1989), 1: 385–86.
5. N. P. Vagner, "Vospominaniya ob Aleksandre Mikhailoviche Butlerove," in A. M. Butlerov, *Stat'i po mediumizmu* (St. Petersburg: A. N. Aksakov, 1889), iii–lxvii, on vi.
6. K. E. von Baer, "Über Prof. Nic. Wagner's Entdeckung von Larven, die sich fortpflanzen, Herrn Ganin's verwandte und ergänzende Beobachtungen und über die Paedogenesis überhaupt," *Mélanges biologiques tirés du Bulletin de l'Académie impériale des sciences de St. Pétersbourg* 9 (1865): 64–137, on 66.
7. Wagner, "Beitrag zur Lehre von der Fortpflanzung der Insectenlarven," 513n.
8. M. Ganin, "Neue Beobachtungen über die Fortpflanzung der viviparen Dipterenlarven," *Zeitschrift für wissenschaftliche Zoologie* 15 (1865): 375–90; Fr. Meinert, "Weitere Erläuterungen über die von Prof. Nic. Wagner beschriebene Insectenlarve, welche sich durch Sprossenbildung vermehrt," trans. and ed. C. Th. V. Siebold, *Zeitschrift für wissenschaftliche Zoologie* 14 (1864):

394–99, on 397; N. Wagner, Meinert, Pagenstecher, and Ganin, “La reproduction parthénogénésique chez quelques larves d’insectes diptères,” *Annales des sciences naturelles, Série zoologique* 5, no. 4 (1865): 259–91; and K. E. von Baer, “Bericht über eine neue von Prof. Wagner in Kasan an Dipteren beobachtete abweichende Propagationsform,” *Mélanges biologiques tirés du Bulletin de l’Académie impériale des sciences de St. Pétersbourg* 6 (1863): 239–41, on 240.

9. Von Baer, “Über Prof. Nic. Wagner’s Entdeckung von Larven,” 97. Emphasis in original.

10. Stephen Jay Gould, *Ontogeny and Phylogeny* (Cambridge, Mass.: Belknap Press, 1977); B. N. Shvanvich, *Kurs obshchei entomologii: Vvedenie i izuchenie stroeniia i funktsii tela nasekomykh* (Moscow: Sovetskaiia Nauka, 1949), 698–99. This elision had already begun in the nineteenth century: Otto Taschenberg, “Historische Entwicklung der Lehre von Parthenogenesis,” *Abhandlungen der Naturforschenden Gesellschaft zu Halle* 17 (1892): 366–453, on 398–400.

11. Nicolas Wagner, “Ueber die viviparen Gallmückenlarven,” ed. C. Th. v. Siebold, *Zeitschrift für wissenschaftliche Zoologie* 15 (1865): 105–17, on 107. Emphasis in the original.

12. E. P. Felt, “Miastor and Embryology,” *Science*, n.s. 33, no. 843 (24 Feb. 1911): 302–3, on 302.

13. Nicolas Wagner, “Influence de l’électricité sur la formation des pigments et sur la forme des ailes chez les Papillons,” *Comptes rendus* 61 (1865): 170–72, on 172.

14. N. P. Vagner, “Vospominanie o Klod-Bernar,” *Svet* 2, no. 2 (Feb. 1878): 64–65, on 65.

15. Claude Bernard, *An Introduction to the Study of Experimental Medicine*, trans. Henry Copley Greene (New York: Henry Schuman, Inc., 1949), 196–226.

16. N. P. Vagner, “Zoologiya,” stenograph from lectures [1879], Rossiiskaia Natsional’naia Biblioteka (hereafter RNB), St. Petersburg, Russia, 18.167.6.46.

17. Paul Bert and Nikolai Vagner, *Ocherk zoologii* (St. Petersburg: N. P. Vagner, 1883), 166. Emphasis in the original. Vagner became enmeshed in a publication dispute over this translation, since publisher F. Pavlenkov offered a rival translation at the same time. Vagner framed his case even in this domain in terms of battle metaphors: “In all of these conditions, I hope that the public will understand and value that *here there isn’t a simple competition, but a battle of scientific work with publishing capital and knowledge with its all too shameless exploitation.*” “Dokumenty po delu N. Vagnera s F. Pavlenkovym,” [1883], RNB, p. 4. Emphasis in the original.

18. N. P. Vagner, *Istoriia razvitiia tsarstva zivotnykh: Kurs filogeneticheskoi zoologii* (St. Petersburg: N. A. Lebedev, 1887), 33.

19. N. P. Vagner, “Bor’ba,” *Svet* 1, no. 11 (Nov. 1877): 241–47, on 241. This was the first in a series of editorials on struggle: idem, “Prisposobliaemost’ i tselesoobraznost’,” *Svet* 2, no. 3 (March 1878): 69–72; idem, “Bor’ba za sushchestvovanie,” *Svet* 2, no. 4 (April 1878): 105–10; and idem, “Organizm i obshchestvo,” *Svet* 2, no. 7 (July 1878): 105–10.

20. Vagner, *Istoriia razvitiia tsarstva zivotnykh*, 4.

21. N. P. Vagner, “O sredstvakh dlia resheniia slozhnykh nauchnykh voprosov,” in *Rechi i protokoly VI-go s’ezda Russkikh Estestvoispytatelei i Vrachei v S.-Peterburge s 20-go po 30-e dekabria 1879 g.* (St. Petersburg: Tip. Imp. Akademii nauk, 1880), otd. 1: 39–47, on 41.

22. Vagner, *Istoriia razvitiia tsarstva zivotnykh*, 1. See also N. P. Vagner, *Zhorzh Kiuv’e i Et’en Zhoffrua-Sent-Iler (Fiziologicheskii ocherk)* (Kazan’: Universitetskaiia tip., 1860), esp. 55.

23. N. Ia. Danilevskii, *Darvinizm: Kriticheskoe izsledovanie*, vol. 1, pt. 1 (St. Petersburg: Merkurii Eleazarovich Komarov, 1885); and N. N. Strakhov, “Durnye priznaki,” in *Kriticheskiiia stat’i (1861–1894)*, vol. 2 (Kiev: I. P. Matchenko, 1902), 379–97.

24. Daniel P. Todes, *Darwin without Malthus: The Struggle for Existence in Russian Evolutionary Thought* (New York: Oxford University Press, 1989).

25. Alexander Vucinich’s ostensibly comprehensive history of Darwinism in Russia—

Alexander Vucinich, *Darwin in Russian Thought* (Berkeley: University of California Press, 1988)—ignores Wallace completely and only mentions Vagner twice in passing. Even Todes minimizes our hero: he only receives three mentions, and two of them in the context of the work of Vagner’s student, Modest Bogdanov.

26. H. Lewis McKinney, *Wallace and Natural Selection* (New Haven: Yale University Press, 1972), 81.

27. See A. Gusev, *Naturalist Uolles, ego russkie perevodchiki i kritiki (K voprosu o proiskhozhdenii cheloveka): Po povodu perevodov knigi Uollesa: Estestvennyi podbor* (Moscow: M. Katkov, 1879), 4–5.

28. A. R. Wallace, *Estestvennyi podbor*, trans. G. Glazenap, ed. N. P. Vagner (St. Petersburg: F. Shushchinskii, 1878), ii.

29. He was in contact with Wallace during the production of this translation, since Vagner mentioned that Wallace had sent him some illustrations for inclusion (Wallace, *Estestvennyi podbor*, iv). I can find no mention of Vagner by Wallace, although the latter recalled having met Aleksandr Butlerov, a “biologist and also a spiritualist.” Alfred Russel Wallace, *My Life: A Record of Events and Opinions*, 2 vols. (London: Chapman & Hall, 1905), 2: 93. This misidentification of the *chemist* Butlerov might mean that Wallace confused him with Vagner.

30. Gusev, *Naturalist Uolles*, 8. Vagner himself reviewed Gusev: N. P. Vagner, “Otvét g. Gusevu na ego knigu: Naturalist Uolles i ego russkie perevodchiki,” *Svet* 3, no. 4 (April 1879): 200.

31. Wallace, *My Life*, 2: 17. Emphasis in the original.

32. Alfred Russel Wallace, *A Defense of Modern Spiritualism* (Boston: Colby and Rich, 1874), 33.

33. Malcolm Jay Kottler, “Alfred Russel Wallace, the Origin of Man, and Spiritualism,” *Isis* 65 (1974): 144–92.

34. Especially Ross A. Slotten, *The Heretic in Darwin’s Court: The Life of Alfred Russel Wallace* (New York: Columbia University Press, 2004); and Martin Fichman, *An Elusive Victorian: The Evolution of Alfred Russel Wallace* (Chicago: University of Chicago Press, 2004).

35. N. P. Vagner, *Nabliudeniia nad mediumizmom* (St. Petersburg: F. Vaisberg and P. Gershunin, 1902), iv, ellipses added.

36. *Ibid.*, xviii. See also N. P. Vagner to A. D. Butovskii, 2 Dec. (n.s.) 1883, Naples zoological station, Pushkinskii Dom, Institute of the History of Russian Literature (hereafter PD), f. 1, op. 2, d. 174, ll. 3–4ob., on 11. 3–3ob.

37. N. P. Vagner, “Mediumizm,” *Russkii Vestnik* 119 (Oct. 1875): 866–951, on 878, ellipses added.

38. Vagner, *Nabliudeniia nad mediumizmom*, 121.

39. N. P. Vagner to L. N. Tolstoi, 10 April 1890, PD f. 231, d. 279, ll. 4–9ob., on 1. 8–8ob.

40. Vagner, “Vospominanie ob Aleksandre Mikhailoviche Butlerove,” xxxix–xl. (This Danilevskii is *not* the anti-Darwinist referred to above.)

41. See Michael D. Gordin, *A Well-Ordered Thing: Dmitrii Mendeleev and the Shadow of the Periodic Table* (New York: Basic Books, 2004), chap. 4; and also the suggestive interpretation of Vagner in Ilya Vinitzky, *Ghostly Paradoxes: Modern Spiritualism and Russian Culture in the Age of Realism* (Toronto: University of Toronto Press, 2009), chap. 4.

42. N. Vagner, “Pis’mo k redaktoru: Po povodu spiritizma,” *Vestnik Evropy* (April 1875): 855–75, on 855.

43. Nicolas Wagner [Vagner], “Ueber die psychodynamischen Erscheinungen,” *Psychische Studien* 2 (1875): 97–106, on 97n. Ellipses added.

44. A. Shkliarevskii, "Chto dumat' o spiritizme?: Po povodu pis'ma prof. Vagnera," *Vestnik Evropy* (June–July 1875): 906–18, 409–18, on 906.
45. S. Rachinskii, "Po povodu spiriticheskikh soobshchenii g. Vagnera," *Russkii Vestnik* (May 1875): 380–99, on 380.
46. The chief target was Akaskov, not Vagner, as can be seen in Mendeleev's detailed footnotes to the protocols of his commission, published as D. I. Mendeleev, *Materialy dlia suzhdeniia o spiritizme* (St. Petersburg: D. Mendeleev, 1876).
47. N. P. Vagner to D. I. Mendeleev, 1 January 1875 [*sic*: 1876], Archive-Museum of D. I. Mendeleev (hereafter ADIM), St. Petersburg, Russia, Alb. 4/52.
48. N. P. Vagner to D. I. Mendeleev, 19 Feb. 1876, ADIM Alb. 4/56.
49. This argument is quite similar to Fedor Dostoevskii's writings on Spiritualism in his 1876 *Writer's Diary*. This dispute of tone between Mendeleev and Dostoevskii is addressed in Michael D. Gordin, "Loose and Baggy Spirits: Reading Dostoevskii and Mendeleev," *Slavic Review* 60 (2001): 756–80.
50. Fichman, *An Elusive Victorian*, 183. The Vagnerian equivalent was the Russian's attack against the self-proclaimed fraud (and Mendeleev ally) I. Livchak. See the account in N. Lerner, "Tainstvennye uzelki: Sluchai s Dostoevskim," *Literaturno-khudozhestvennyi sbornik "Krasnoi panoramy"* (Oct. 1928): 36–42.
51. V. Pribytkov, "O fotografiakh, predstavlenykh professorom N. P. Vagnerom v Tekhnicheskoe Obshchestvo," *Rebus* no. 13 (1894): 131; and N. P. Vagner, "Sine ira et studio. (Po povodu mediunicheskikh fotografii)," *Rebus* nos. 15–16 (1894): 151–52, 164–66; and A. N. Aksakov, *Animizm i spiritizm: Kriticheskoe issledovanie* (1900; Moscow: Agraf, 2001), 80–85.
52. Nicholas Wagner, A. Boutlerof, and A. Dobroslovina, "Seance for Autographic Writing with Mr. Eglinton," *Journal of Society for Psychical Research* (June 1886): 329–31, on 331.
53. The results of the White Sea research were published preliminarily as N. P. Vagner, *Predvaritel'noe soobshchenie o meduzakh i gidroidakh Belago moria* (St. Petersburg: V. Demakov, 1881); and then in the gorgeous volume of idem, *Bezpovochnyia Belago moria: Zoologicheskiiia issledovaniia proizvedennyia, na beregakh Solovetskago zaliva, v letnie mesiatsy 1876, 1877, 1879 i 1882 goda* (St. Petersburg: M. M. Stasiulevich, 1885).
54. Dostoevskii had brutally mocked Vagner's Spiritualism (and in print, too!) in his very funny 1878 feuilleton "From the Dacha Strolls of Kuz'ma Prutkov and His Friends, I: Triton" (F. M. Dostoevskii, *Polnoe sobranie sochinenii* [Leningrad: Nauka, 1972–90], 21: 250–51).
55. L. N. Tolstoi to N. P. Vagner, April 1890, PD f. 231, d. 287, ll. 1–4, on 1. 10b.
56. N. P. Vagner to L. N. Tolstoi, 22 March 1890, PD f. 231, d. 279, ll. 1–3, on 1. 1
57. L. N. Tolstoi, "Plody prosveshcheniia: Komediia v chetyrekh deistviiakh," in Tolstoi, *Sobranie sochinenii* (Moscow: Khudozhestvennaia literatura, 1978–85), ll: 101–94, on 101.
58. *Ibid.*, ll: 158.
59. *Ibid.*, ll: 192.
60. A. Shkliarevskii, "Kritiki togo berega," *Russkii Vestnik* 121 (Jan. 1876): 470–95, on 470.
61. D. S. Mirsky, *A History of Russian Literature: From Its Beginnings to 1900* [1926], ed. Francis J. Whitfield (Evanston, IL: Northwestern University Press, 1999), 296–97.
62. N. P. Vagner, "Kak ia sdelalsia pistalem? (Nechto v rode ispovedi)," *Russkaia shkola* 1 (Jan. 1892): 26–38, on 37.
63. I am uncertain how to classify Vagner's retelling of the Synoptic Gospels for young adults: N. P. Vagner, *Razskaz o zemnoi zhizni Iisusa Khrista po Sv. Evangeliiam, narodnym predaniiam i ucheniiam Sv. Tserkvi* (St. Petersburg: M. M. Stasiulevich, 1908).

64. Bert and Vagner, *Ocherk zoologii*, i. The same is true of the wonderful N. P. Vagner, *Kartiny iz zhizni zhivotnykh: Ocherki i razskazy* (St. Petersburg: A. F. Marks, 1901).
65. Bert and Vagner, *Ocherk zoologii*, 157. Chapter 9 was added to cover Russian nature.
66. Viktor Shirokov, "Russkii Andersen," in N. P. Vagner, *Skazki Kota-Murlyki* (Moscow: Pravda, 1991), 5–14, on 5.
67. For the complete collection, see N. P. Vagner, *Romany, povesti i razskazy Kota-Murlyki*, 4th ed., 7 vols. (St. Petersburg: Obshchestvennaia Pol'za, 1905–14).
68. Evgenii Elachich, *Sbornik statei po voprosam detskogo chteniia* (St. Petersburg: Khudozhestvennaia pechat', 1914), 132–33.
69. The relevant text here is Vagner's novel of the Crimean War, *Temnyi put'*, published as a book in 1890, although partially serialized from 1881 to 1884 in the Spiritualist journal *Rebus*. For an extensive discussion of its anti-Semitic tropes, see Savellii Dudakov, *Istoriia odnogo mifa: Ocherki russkoi literatury XIX–XX vv.* (Moscow: Nauka, 1993), 242–60.