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## Science, Myth and Eastern Souls: J. S. C. Schweigger and the Society for the Spread of Natural Knowledge and Higher Truth

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In nineteenth-century Germany, it was rare to find a German Protestant intellectual who had much positive to say about the historical role of the Jesuit order. Branded as anti-scientific, obscurantist and anti-modern, the Jesuits were one of liberal Protestants favorite targets of criticism. When a German Protestant used the word “Jesuit”, it was generally safe to assume the label was meant as an insult. It is surprising, then, to find the chemist J. S. C. Schweigger, the son of a Protestant theologian and himself a doctor of theology, holding forth at the 1837 meeting of the *Gesellschaft Deutscher Naturforscher und Aerzte* (the yearly annual meeting of German scientists) about the world historical importance of the early modern Jesuit missions to Asia. The birth of modern natural science, Schweigger claimed, was intricately bound up with the accomplishments of the Jesuits in the East; modern science had flourished in the seventeenth-century in no small measure because of the example the Jesuits provided of a successful marriage between theology and natural research.<sup>1</sup>

Much recent historical work has uncovered the importance of the Jesuit order for early modern science. For a German Protestant in the mid-nineteenth-century, however, this opinion was decidedly unusual, and previous research on Schweigger offers limited clues as to why and how he might have developed his idiosyncratic reading of the history of science. J. S. C. Schweigger (1779-1857),

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<sup>1</sup> I would like to thank the two anonymous reviewers of this article for their very useful suggestions. On German Anti-Catholicism, see Gross (2004).

professor of physics and chemistry at the University of Halle from 1819 until 1857, appears in the history of nineteenth-century German science in a number of conventional places. The editor of a specialized research journal, a professor in a university research seminar, and an advocate of the alliance of science with industry, Schweigger was part of developments well-known from historical treatments of the institutionalization and cultural consolidation of the exact sciences in this period.<sup>2</sup> From 1811 until 1828, Schweigger, a respected experimentalist himself, was the editor of an important periodical, the *Journal für Chemie und Physik*, whose contributors included many of the best-known researchers of the period: Hans Christian Oersted, Christoph Heinrich Pfaff, Henrich Steffens, Jöns Jacob Berzelius, Georg Simon Ohm and, in the late 1820s, a young Justus Liebig. A central forum for discussions about electricity and magnetism, the *Journal* was where Oersted chose to publish the first extended account of his famous experiment demonstrating a definitive connection between the two kinds of phenomena.<sup>3</sup> Schweigger did much to shape the University of Halle's natural scientific seminar, created in 1839 to teach research methods to students.<sup>4</sup> Beyond the university, he founded a *Gesellschaft für angewandte Naturwissenschaft* (Society for Applied Natural Science) in Halle, an educational association modeled on the English Mechanics' Institutes and intended as a helpmeet for German industry.<sup>5</sup> He was also one of the voices calling for a regular national meeting of German scientists in the late 1810s, discussions that eventually lead to the creation of the *Gesellschaft Deutscher Naturforscher und Aerzte* in 1822.<sup>6</sup>

Yet the central cause of Schweigger's scientific career, a cause that imbued meaning into his more conventional activities as well, is one that fits less easily into the dominant rubrics—professionalization, the growth of the research university—that have typically guided research on the history of German science. From 1820 on, Schweigger devoted much energy and ink to promoting “scientific propaganda” to India. The key to converting Indians to Christianity, he was sure, was to teach them natural science, and he worked tirelessly to convince his fellow Germans—and particularly German scientists—to take up this crusade. Schweigger's missionary plans, which focused on the expansion of natural scientific education in India, bear a striking resemblance to English educational and scientific projects in the period, activities that helped make much of English science simultaneously a tool, a symbol and a product of British colonialism.<sup>7</sup> Indeed,

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<sup>2</sup> See e.g. Turner (1971), and (1987); Olesko (ed.) (1989); Olesko (1991); Lenoir (1997); Brain and Wise (1994).

<sup>3</sup> A brief description of the experiment was initially distributed as a Latin pamphlet. See Snelders (1990), pp. 237-238.

<sup>4</sup> Langhammer (1979).

<sup>5</sup> Martius (1866), pp. 349-350; Langhammer (1979), p. 249.

<sup>6</sup> Zaunick (1964).

<sup>7</sup> See e. g. Drayton (2000); MacLeod (ed.) (2000); Prakash (1999); Ritvo (1987), especially Part III: Animals and Empire.

Schweigger followed English educational efforts closely. He looked to the East, however, through the eyes of middle-German academic; India, and “paganism” more generally, he saw through the lens of ancient Greece and Rome. The elaborate scholarly defense he created for his missionary plan, based on a research effort that occupied much of his scientific energy from the 1820s on, used a hybrid of physical and philological methods in an attempt to recover what he called the “primeval history of physics”. Pagan religions, Schweigger was convinced, had formed from an ancient natural scientific misunderstanding, the priestly caste’s misreading of surviving fragments from an earlier, more scientifically sophisticated culture. Correcting false natural scientific beliefs, therefore, was the surest path to proper faith.

Why did such aims hold strong attraction for a university professor of physics and chemistry in a small, landlocked Prussian university town? Though Schweigger’s missionary project, a unique combination of physical, philological, natural historical and religious concerns, ultimately proved compelling to few besides himself, his efforts cut an interesting diagonal across the terrain of *Biedermeier* scientific and scholarly life. If his combination of elements was unusual, the materials that he used were ready at hand. Schweigger was in fact one of several prominent scientific figures who chose to interweave philological and natural scientific research in the 1820s. His efforts accentuate, in a particularly dramatic fashion, the more mundane ways in which classical learning was still a part of the fabric of natural scientific communication in the early nineteenth century. His activities also throw light on the meaning and allure of the exotic in nineteenth-century Germany, offering a view of European global expansion from the perspective of a German *Gelehrten*, the colonial fantasies (to borrow Susanne Zantop’s phrase) that might be dreamed up in a scholar’s study.<sup>8</sup>

### Electromagnetism and the Lost Wisdom of the Ancients

Johann Salomo Christoph Schweigger was born in 1779 in Erlangen, the son of the theology professor Friedrich Christian Lorenz Schweigger. As a young man, he studied philology and theology at the university in his hometown, receiving his doctorate in 1800 for a dissertation on Homer. His serious interest in mathematics and natural science began only after his formal academic training was completed, but already in 1811 he began editing his highly successful periodical, the *Journal für Chemie und Physik*. After stints as a physics and mathematics instructor at schools in Bayreuth and Nürnberg, and a period at the Bavarian

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<sup>8</sup> See Zantop (1997). Alexander von Humboldt is the German figure who has received the most prominent treatment in the broader European literature on science and imperialism. See Pratt (1992), especially ch. 6 “Alexander von Humboldt and the Re-invention of America”; Dettelbach (1996). On the ways in which Germans memorialized Humboldt, see Rupke (2005).

Academy of Sciences in Munich (1816), he received a call to become a professor in Erlangen (1817). In 1819, he moved to a chair at the University of Halle, the institution where he would spend the rest of his career. A year later, Schweigger published a description of his electromagnetic multiplier, a device used to augment weak currents, his most famous and lasting scientific legacy.<sup>9</sup>

The basic outline of the intellectual and organizational project that would occupy J. S. C. Schweigger for the next thirty years of his life also appeared for the first time in 1820, in a speech entitled “Wie die Geschichte der Physik zu erforschen sey” (How to Conduct Research into the History of Physics) presented to his colleagues in a private natural scientific society, the *Naturforschende Gesellschaft* in Halle. In outlining a program for the history of physics, Schweigger took as his starting point the work of the late eighteenth-century French astronomer Jean Sylvain Bailly, who had proved, in Schweigger’s opinion, that in primeval times there had lived a “very learned people”, whose astronomical knowledge was comparable to modern Europeans.<sup>10</sup> Bailly, in his *Histoire de L’Astronomie ancienne* (Paris 1775; German edition, Leipzig 1777), had argued that the astronomical knowledge of the Chinese, the Indians and Chaldeans was the remnant of an earlier, more perfect astronomy developed by a now-dispersed people from northern Asia. The astronomer’s claim had in turn been taken up by several other French scholars, most notably by Buffon.<sup>11</sup>

To this strain of argument from French natural philosophers, Schweigger joined more recent German work on comparative mythology, building on other scholars’ attempts to trace significant features of Greek culture to Egypt, and from there back to India. His most important reference point in this respect was Georg Friedrich Creuzer’s *Symbolik und Mythologie der alten Völker, besonders der Griechen* (first ed., Leipzig 1810-1812), a work that at the time was inspiring vigorous debate among philologists over the meaning of mythology and the autonomy of Greek culture. Creuzer believed to have discerned a unifying base behind the apparent variety of mythologies, a set of symbols that constituted the core of an ancient natural religion that originated in the East.<sup>12</sup>

Behind the shared symbols that Creuzer identified, J. S. C. Schweigger claimed to find not a lost ancient natural religion, but a lost natural science. Pagan mythologies, he suggested, “emerged out of the misunderstanding of an eclipsed natural wisdom”, part of the lost culture described by Bailly. Asian and classical religions had been created from the fragments of a highly sophisticated prehistorical civilization that had been destroyed, he thought, by “that great ancient flood, of which stones would give evidence even if history were silent”. The power and persistence of ancient mythology was possible, Schweigger argued, only because a kernel of natural scientific truth lay at its core. If, like the invented

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<sup>9</sup> Martius (1866), pp. 349-350.

<sup>10</sup> Schweigger (1821a), p. 223.

<sup>11</sup> Engelhardt (1979), pp. 35-37.

<sup>12</sup> Blok (1994); Benes (2001), pp. 198-224.

state religion of the French Revolution, a belief system was purely “a religion of the imagination”, its hold on the human mind would be weak. Ancient mystery cults and popular mythology must share a common grounding, he concluded, in a set of fragmentary physical truths, survivals from an earlier time.<sup>13</sup>

This ancient wisdom, Schweigger claimed, coincided with the basic premise of his own physical research for the past ten years; namely, that polarity was a fundamental quality of all matter. He had presented the first version of his theory in 1811, arguing that matter’s smallest particles were crystalline in form, and that the opposing angles of these fundamental crystals, which he labeled *Differentiale*, had opposite electrical charges.<sup>14</sup> Similarly, he claimed, in primeval physics “polar attraction and repulsion was looked upon as a general natural law.” Physics since Newton had erred in assigning gravity the status of a fundamental natural law; it was far more likely that such apparently nonpolarized forms of attraction between bodies could actually be derived from a more general law of polarity.<sup>15</sup> Traces of a similar belief among the ancients, he argued, could be found in both philosophical and mythical garb. The Pythagorians believed that “opposites [Gegensätze] were the principles of all things.”<sup>16</sup> Furthermore, “Vossius, in his famous work on the origins and development of paganism considered the idea of two natural principles, an *active* and a *passive* (a positive and a negative) as in general a fundamental religious concept of great antiquity.” The multiplicity of androgynous deity figures outlined in a recent study by C. Heinrich, he claimed, should be seen as personifications of this basic insight into the structure of nature.<sup>17</sup>

Schweigger was also careful to distinguish his own views (and by extension those of the ancients) from the opinions of the other major contemporary advocates of polarity, the *Naturphilosophen*. Nothing in the “primeval history of physics” offered support to a “philosophy that took the polar natural law out of the sphere of the external and sensible and transferred it to the realm of the internal, spiritual and divine, and as a result (though to a certain extent without realizing it) sank into the crudest materialism.” In this respect, he claimed, certain modern

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<sup>13</sup> Cf. Schweigger (1821a), p. 226. Bailly and Buffon had attributed the dispersal of their North Asian people to the slow cooling of the earth, which would have forced them to migrate. Schweigger’s reference to the evidence of stones suggests that he believed Wernerian geology supported his account, though late eighteenth-century geologists did not necessarily draw parallels between the floods mentioned in various religious traditions and their account of the earth’s formation. Schweigger was certainly aware of developments in German geology; he published a *Nekrolog* to Werner in his *Journal* in 1818. Schweigger (1818). On Bailly and Buffon, see Engelhardt (1979), pp. 36-37; on Wernerian geology’s position vis-a-vis floods, see Guntau (1996), pp. 223-225.

<sup>14</sup> Snelders (1971), and (1978).

<sup>15</sup> Schweigger (1821a), p. 234.

<sup>16</sup> *Ibid.*, p. 235.

<sup>17</sup> *Ibid.*, p. 237.

philosophers (such as Schelling) had little in common with the ancient thinkers they so admired.<sup>18</sup>

Over the next several years, Schweigger developed this line of reasoning in greater detail, drawing detailed parallels between the symbolic structure of ancient mythology and the patterns of electromagnetic phenomena, using examples from his own experiments and from meteorological events culled from the records of Halle's *Verein zur Beobachtung des Gewitterzuges in Teutschland* (Society for the Observation of the Movement of Storms in Germany). In contrast to his other writings, which often included asterisk-marked parenthetical remarks along the bottom of the page, his historical essays included extensive endnotes, providing key passages in their original Latin or Greek. In addition to examining textual sources, Schweigger also analyzed ancient pictorial art; in particular, he attributed electromagnetic meaning to images from the Roman cult of Dioscuri and from the Cabeiri mysteries of Samothrace. These "scientific hieroglyphs", he argued, offered modern physics a rigorous qualitative language for the description of electromagnetic phenomena, a physical symbolic language that provided benefits analogous to those gained through the use of mathematics in other areas of physical research. Conversely, because modern Europeans now had rediscovered some of the knowledge possessed by primeval people, they would finally be able to decipher the lost physical meanings at the heart of much ancient religious symbolism.<sup>19</sup>

In combining humanist scholarship with his natural scientific concerns, Schweigger was not unique among his contemporaries. Of course, his own interests in philological and physical questions can be explained in part biographically. The scion of a well-established middle-German learned family, he had decided to focus on the natural sciences relatively late in his academic training, after he had completed a philological dissertation and had spent a brief period as a *Privatdozent* in theology.<sup>20</sup> Schweigger's younger brother August Friedrich, who had a degree in medicine and a chair in botany at the University of Königsberg, also had strong philological interests. In 1821, the younger Schweigger had left Germany for southern Europe, planning to travel through Sicily and Greece, in part to conduct natural historical research for Immanuel Bekker's new edition of Aristotle, a project being carried out under the auspices of the Prussian Academy of Sciences.<sup>21</sup> Another prominent botanical professor, Berlin's Heinrich Friedrich Link, brought his own jointly philological and natural historical project to completion in the same year, publishing *Die Urwelt and das Alterthum, er-*

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<sup>18</sup> See Schweigger (1821a), p. 239. On the importance of polarity in *Naturphilosophie*, see Snelders (1970); Jardine (1996).

<sup>19</sup> Schweigger (1823), and (1826a).

<sup>20</sup> Martius (1866), p. 348.

<sup>21</sup> August Friedrich's murder in the Sicilian countryside, however, put an end to this plan. Schweigger (1821b), p. 1 [Editor's Footnote]. On the Academy project, see Harnack (1900; reprint 1970), pp. 724-725.

*läutert durch die Naturkunde* (Berlin, 1821-22, second ed., 1834). Link also published an edition of Theophrastus' writings (Leipzig: Vogel, 1818-1821), and the professor of botany in Halle, Kurt Polycarp Joachim Sprengel, published an new edition of Dioscorides' *De materia medica* at the end of the 1820s (Leipzig: Cnoblauch, 1829-1830).

Though the degree to which Link, Sprengel and the Schweigger brothers joined physical with philological research was not necessary typical, the value they placed on erudition was not unusual among natural researchers in the period. Classical learning, of course, looms large in the cultural history of nineteenth-century Germany, both as a shared foundation for German educated culture and a defining quality of the nineteenth-century state servant.<sup>22</sup> Furthermore, historians of science have argued that classical philology provided other sciences with the model of a research-driven discipline, while neohumanism acted a crucial ideological source, the origin point for widely shared ideals of *Wissenschaft* and *Bildung*.<sup>23</sup>

Less attention has been paid, however, to the importance that the actual skills of classical erudition might have carried for university-educated natural scientists in the early nineteenth-century or to the continued prestige of humanist concerns within natural scientific forums. Schweigger's career was instructive in both respects. Though his focus would later expand, in the late 1820s Schweigger was less concerned with communicating his results to classicists than with convincing his own scientific peers. He presented his work on the "primeval history of physics" primarily in natural scientific forums, as articles in his *Journal für Chemie und Physik*, speeches in Halle's *Naturforschende Gesellschaft*, or talks at the national *Gesellschaft Deutscher Naturforscher und Aerzte*. He hoped that through his essays, "written with great scientific [*wissenschaftlichen*] rigor about several quite difficult topics in recent physics, a number of the misunderstandings of important physicists would be cleared up and removed."<sup>24</sup> Schweigger's proposal of ancient images as a "qualitative physical symbolic language" had some initial success; Gustav Fechner incorporated images of the Cabeiri into his textbook for experimental physics, presenting them in a section entitled "Symbols of Electromagnetism".<sup>25</sup>

At the simplest level, competency in Latin was important to natural researchers because it was still occasionally used for scientific communication. To take an example from Schweigger's own field, Oersted had first circulated a brief description of his 1820 experiments in a short Latin pamphlet, a format that al-

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<sup>22</sup> O'Boyle (1968); Marchand (1996); Führ (1985); La Vopa (1990), pp. 30-36.

<sup>23</sup> R. Steven Turner has argued for the importance of philology as a "model research discipline" in the first part of the nineteenth-century. See Turner (1972). Cf. also Schelsky (1963). For important qualifications of this account, see Olesko (1991); Coleman and Holmes (eds.) (1988); Schubring (ed.) (1991); Bollenbeck (1994).

<sup>24</sup> Schweigger (1826b), pp. 491-492.

<sup>25</sup> Schweigger (1843), p. 39.

lowed him to address scientific men from a variety of European countries through the same document.<sup>26</sup> In addition, a number of German journals carried Latin essays well into the 1820s. The *Nova Acta* of the pan-German academy, the Leopoldina, still contained a great deal of Latin writing, which dropped off markedly without completely disappearing by the 1840s. The first year of D. F. L. von Schlechtendal's *Linnaea* (founded 1826) had a number of articles written in Latin. Of course, the majority of scientific communication in the early nineteenth-century took place in the vernacular.<sup>27</sup> In fields like botany, however, a number of important works, particularly in systematics, were still written completely in Latin, inaccessible to practitioners who read only German.<sup>28</sup> As late as 1842, the authors of a work on the flora of Saxony still felt the need to justify their decision to write in German. Their book, argued authors Gustav Heynhold and Friedrich Holl, was intended to serve "the public good". Because theirs was a work intended for a broader educated audience as well as for academically-trained men, "we chose the German language, following the example of many outstanding German florists—for example, the author of the Wetterau Flora, the Silesian Flora etc.—as well as that of other nations, the English, the French, etc."<sup>29</sup>

Mastery of Latin had symbolic importance above and beyond its practical uses for communicating across vernacular linguistic borders; linguistic style and purity were important as well as substance. Ludwig Reichenbach's *Catechismus der Botanik*, an introductory guide to botany published from 1820 to 1826, included a question: "What is the best language for the description of plants?" Latin, the answer ran, because of its clarity.<sup>30</sup> When Schweigger decided in 1821, on Oersted's suggestion, to include Latin articles in his *Journal für Chemie und Physik*, he indicated that the journal would only take articles in which the Latin was "pure".<sup>31</sup> Indeed, philological correctness was a somewhat touchy point of honor for university-educated natural researchers in this period. Natural historians in particular had been mocked for their barbarous Latin neologisms. In 1815, Johannes Christian Mössler expressed the hope that his botanical handbook would help lead to the "complete extermination of that deleterious, though still widely spread prejudice ... that botany, the loveliest of all the sciences [*Wissenschaften*], simply consists of a dry artificial language and the knowledge of a bunch of barbaric names."<sup>32</sup> Along similar lines, Reichenbach began his *Cate-*

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<sup>26</sup> Snelders (1990), p. 228.

<sup>27</sup> On science and the German literary market, see Turner (1987); Houghton (1975); Pörksen (1983).

<sup>28</sup> Römer and Schultes (1817-1830).

<sup>29</sup> See Holl and Heynhold (1842), p. ix. For other examples of nineteenth-century scientific Latin, see Ijsewijn (1990), pp. 190-192.

<sup>30</sup> Reichenbach (1825), p. 25.

<sup>31</sup> Schweigger (1821b), p. 1.

<sup>32</sup> Mössler (1815), p. x.



*chismus* with questions about the proper words for different aspects of botanical science. Terms that had been adapted without proper attention to their Greek or Latin etymology he dismissed in acerbic footnotes. Reichenbach ridiculed “glossologia” (a synonym for “the science of descriptive terms” [*Bezeichnungslehre*]) as “an unneeded word, which emerged out of an ignorance of the Greek language.”<sup>33</sup>

Schweigger’s “primeval history of physics” was much more, however, than an academic exercise or a display of erudition. His mythological studies were also intended to provide support for a practical cause—the sending of scientifically-trained missionaries to Asia. He closed his first essay with the following observation:

If paganism emerged out of a natural wisdom that was eclipsed by [a] great flood and was afterwards unavoidably misunderstood, it follows that, to the extent that we are interested in the spread of better religious knowledge on the earth, we will be cultivating the ground and destroying the roots of paganism if we attempt to spread natural knowledge among the as-yet uncivilized people of the earth.<sup>34</sup>

A few months later, Schweigger announced the creation of a society for the support of scientific travelers, who would be sent to Asia with the goal of “preparing the ground” for Christianity through the spread of natural science. By 1825, his *Journal für Chemie und Physik* had received the subtitle “eine Zeitschrift des wissenschaftlichen Vereins zur Verbreitung von Naturkenntniß und höherer Wahrheit” (A Journal of the Scientific Society for the Spread of Natural Knowledge and Higher Truth).

In contrast to late eighteenth-century German anthropological writers, who had been fascinated with physical differences, Schweigger eagerly sought out cultural congruencies, compiling evidence to support his claim that the common roots of Asian, Greek, Roman (and later, by the early 1840s, ancient Germanic) religion lay in a fragmentary and distorted reception of natural scientific knowledge from an early and wiser age. India, which had loomed large in debates over the sources of classical mythology, was also the major focus for Schweigger’s missionary zeal.<sup>35</sup> Quoting the eighteenth-century French traveler Jean Baptiste Le Gentil, Schweigger argued that India’s caste system was in large part perpetuated by the Brahmin’s monopoly on astronomical knowledge inherited (albeit in fragments) from an earlier age; it was their ability to predict celestial events that

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<sup>33</sup> Reichenbach (1825), p. 20.

<sup>34</sup> Schweigger (1821a), p. 239.

<sup>35</sup> For a brief overview of late eighteenth-century German discussions of physical difference, see Zantop (1997), pp. 66-80; Zammito (2002). On British discussions, cf. Trautmann (1997).

secured their political power and social dominance.<sup>36</sup> He also combed the reports of English missionaries for statements that he believed supported his position that the current “degradation” of India was rooted in its people’s “false conceptions of nature”.<sup>37</sup> In principle, Schweigger believed that scientific missionaries would be successful in other Asian cultures as well. “The peoples who hold as sacred misunderstood fragments of the natural sciences belong to some of the oldest on earth, and in this respect it is primarily the Indians, the Chinese and the Japanese that are of interest.” Any of these cultures, therefore, would be receptive to “scientific propaganda”.<sup>38</sup>

The conviction that the roots of human civilization could be found in India had become increasingly common among German intellectuals in the first decades of the nineteenth century. In addition to Creuzer, other early writers on comparative mythology such as Johann Arnold Kanne and Johann Joseph von Görres had also argued that essential elements of Greek culture could be traced back to Asia, in particular to India. Indeed, a fascination with Indian literature, philosophy and religion was widespread in late eighteenth-century and early nineteenth-century German intellectual life more generally, as the works of the first generation of European Sanskrit scholars (who were primarily English) began to appear in German over these decades. For the early German Romantics, an idealized ancient India took on mythic importance as a place where religion, philosophy and aesthetic experience had existed in harmonious accord, where human beings, their emotional lives still natural and unspoiled, had lived in concert with Nature. A number of Romantic poets and thinkers made reference to Indian material in their works; writers such as the Schlegel brothers and Novalis used an idealized image of ancient Hindu culture in their critiques of contemporary Europe. Among the philosophers, Schopenhauer, one of the most widely read and influential thinkers of the period, repeatedly emphasized the parallels between his philosophy and Hindu and Buddhist thought.<sup>39</sup> Alongside this literary and philosophical interest, the first decades of the nineteenth-century also saw the flowering of more serious linguistic work; Franz Bopp began publishing his work on Sanskrit in the 1810s and 1820s.<sup>40</sup>

In comparison, Schweigger’s interest in Asia in general and India in particular was much less rigorously and enthusiastically pursued. Most of his discussion of Asian religions came not in his more scholarly articles, which were devoted primarily to Greek and Roman mythology, but in his more pragmatic and polemical writings. In comparison with his Romantic predecessors, Schweigger viewed

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<sup>36</sup> Schweigger (1821a), p. 248.

<sup>37</sup> *Ibid.*, pp. 249-251.

<sup>38</sup> Schweigger (1826c), p. 132.

<sup>39</sup> Clarke (1997), pp. 54-71; Wilson (1964); Sedlar (1982); Murti (2001); Irwin (2006).

<sup>40</sup> See Benes (2001), pp. 47-69; Benes (2004). On a slightly later scientific expedition motivated by similar interests, see Finkelstein (2000).

Asian religions through a much less positive lens. For him, they were regrettable superstitions, founded on misunderstanding and error, which needed to be rooted out and replaced. Beyond his readings of the comparative mythologists, he gleaned most of his information from the reports of missionary societies, such as the Basel-based publication the *Magazin für die neueste Geschichte der evangelischen Missions- und Bibelgesellschaften*.<sup>41</sup>

### **The Society for the Spread of Natural Knowledge and Higher Truth**

If, in his writings on the primeval history of physics, Schweigger used a simple dichotomy between “Christendom” and the “pagans”, his organizational efforts showed considerably more concern for the differences in power, connection and influence between the major European nations, in particular, between England and a (still loosely defined) Germany. Through his Society for the Spread of Natural Knowledge, he attempted to tie together three different contemporary fields of activity—missionary work, foreign trade, and scientific travel—all of which entailed, more or less self-consciously, an expansion of Germans’ presence and influence beyond Central Europe. Throughout the 1820s, he tried to marshal a diverse range of actors into cooperative relation. Though his attempts eventually failed, the interest that he did attract is instructive. The initial expansion of his society offers a snapshot of the different paths that might lead educated middle-class Germans to support activities that, later in the century, formed part of Germany’s drive to become a colonial power; the group’s failure also reveals the many tensions and conflicts among different impulses to establish contact with the “exotic” in nineteenth-century Germany.<sup>42</sup>

What led a professor of chemistry and physics in a middle-German university town to propose such an enterprise in the first place? Schweigger himself had left German-speaking Europe only once, for a trip to England in 1816, and his views of the advantages of missionary work drew heavily on his experience as a small-town academic.<sup>43</sup> First of all, he hoped to build on an already extant local institution, a survival from Halle’s role as an important eighteenth-century Pietist center. The *Dänische-Hallesche Mission*, an endowment founded in 1705 by the city’s famous reformer August Hermann Francke, had sent a handful of missionaries to a Danish trading colony in Tranquebar in India; it had worked closely

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<sup>41</sup> For example, Schweigger (1821a), p. 249. On the Basel Missionary Society, see Canker (1971), pp. 79-82.

<sup>42</sup> See Gründer (1983); Smith (1978); Friedrichsmeyer, Lennox, and Zantop (eds.) (1998); Pyenson (1985). For an account of how scientific and imperial concerns might diverge, see Penny (2002).

<sup>43</sup> Martius (1866), p. 347.

with the English Society for Promoting Christian Knowledge (founded in 1698). Affiliated with Halle's famous Pietist school and hospital, the endowment initially also sent medications along with its missionaries to Tranquebar. Since the second half of the eighteenth-century, however, the Halle institute had become much less active, losing support in the face of more general Enlightenment criticisms of missionary proselytizing and suffering disruptions due to broader inter-European struggles.<sup>44</sup>

For Schweigger, natural history collections offered the most concrete and material testimonials in favor of reviving Halle's fading missionary role. Such collections, a common part of educated middle class life in the late eighteenth and early nineteenth century, offered a microcosm of their owners' foreign connections, and the more extensive these were the better.<sup>45</sup> Missionaries' ability to procure new and unusual natural objects for colleagues back home was, consequently, one of their clear advantages. Schweigger remembered J. C. D. Schreiber's natural history cabinet in his native Erlangen, for example, a collection that had been enriched by "wide correspondence, particularly with missionaries ... whom he tried to encourage to concern themselves with nature, an activity so useful to them in their calling."<sup>46</sup> In similar terms, Schweigger pointed to the mutual benefits that missionary ties with India would produce. India would gain "help and liberation from a slavery to superstition that evolved out of a misunderstanding of an earlier natural wisdom, while, on the other hand, we are offered an abundance of as yet unresearched natural treasures ...." His Society for Natural Knowledge was set up as a geographically decentralized joint-stock company, organized to distribute the natural objects that would be collected by its missionaries. Depending on the level of their donation, members were to be given preferential choice of the naturalia sent back from abroad.<sup>47</sup>

Building on a broader fascination with exotic naturalia, other joint-stock endeavors in support of scientific travel were quite successful during this period in German-speaking Europe. The "Botanical Travel Society" in the small southwestern German town of Esslingen, for example, drew subscribers from across Central Europe, financing a number of scientific travelers over its almost two-decade-long existence.<sup>48</sup> In addition to interest in preserved specimens for natural history collections, gardening enthusiasm for live plants and seeds also helped fuel the search for new sources of exotic naturalia. Gardening and collecting made a form of virtual travel available to middle-class practitioners, allowing them to participate in the widely publicized adventures of famous scientific trav-

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<sup>44</sup> *Pietas Hallensis Universalis*, pp. 61-66.

<sup>45</sup> On popularity of mineralogy in this period, see Guntau (1996), pp. 211-229. On botany, cf. Koerner (1993) and on natural history collecting, Te Heesen (2002) and Hamm (2001).

<sup>46</sup> Schweigger (1830), p. 11

<sup>47</sup> Schweigger (1821c), p. 147.

<sup>48</sup> Kanz (1994), pp. 67-69.

elers. The gardening writer Friedrich von Lupin, for example, praised men like Alexander von Humboldt for introducing new exotic plants into his garden. "I invite the races of migrating plants as quiet friends into my neighborhood," he wrote, "and they are happy with me, because I love them fervently." Filled with foreign plants, Lupin's garden became a microcosm of the larger world. "Often I go with [my plants] on a trip through all the lands of the world," he wrote, "even in the farthest ends of the earth that my eyes will never see."<sup>49</sup>

For Schweigger, the pleasures of collecting also provided an important argument in favor of more permanent colonial activity. When Schweigger wrote of the benefits of foreign connections, the example of England's empire was never far from his mind. "One should also note," he wrote, "particularly when speaking of India, what riches stream into England" as recompense for a small amount of effort. Germans, he claimed, should be able to enjoy similar advantages. Building on an older eighteenth-century tradition that had seen the Germans' historical lack of imperial conquests as an argument for their national virtue, Schweigger went one step further, claiming that Germans' disinterested, cosmopolitan nature made them, in fact, uniquely suited for a greater global influence. A love of travel, and even emigration, was "a sensibility that seems to a certain extent in-born" in Germans. One should take advantage of "that inclination of our Nation, so filled with cosmopolitan sensibility, to visit foreign lands, more for a desire to learn and teach than for external profit ...."<sup>50</sup>

Currently, Schweigger felt, the German urge to travel and explore usually benefited foreign nations. German emigrants lost their ties to their fatherland, blending in among the subjects of other European powers. Such deliberations led him from missionary plans to suggest more extensive oversea ventures. Would it not, he asked "be advisable to send colonies to little or not yet inhabited areas, similar to those of the ancient Phoenicians, Greeks and Romans, *that will keep their ties to the fatherland and contribute to the prosperity of the same?* [emphasis in original]"<sup>51</sup> His society, he wrote, stood in natural alliance with the interests of German trade. "A Society for the Spread of Higher Truth must of necessity form ties with mercantile enterprises, because world trade and natural science have always gone hand in hand and both will be able to be helpful to the other." Indeed, "in so far as [the Society] plans to procure the funds for its existence through the natural scientific traffic and trade in natural objects, it also has a mercantile side."<sup>52</sup>

Schweigger's proposed missionary society was not merely a cover for material acquisition or national prestige, however. His most frequently expressed

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<sup>49</sup> Friedrich von Lupin, *Die Gärten: Ein Wort seiner Zeit*, Munich, 1820, cited in Van Dülmen (1999), p. 27. On the widespread enthusiasm for exotic plants in the period, see Van Dülmen (1999), pp. 128-131.

<sup>50</sup> Schweigger (1824), p. 410.

<sup>51</sup> *Ibid.*, p. 410.

<sup>52</sup> Schweigger (1825), p. 123.

motivations were religious, and his conviction that natural science offered the best path to a secure Christian piety drew on his own biographical trajectory from theology to natural research. Caught as a young man amidst the loud, vitriolic arguments of theologians, he had felt, he wrote, a deep “longing for mathematics”. Calculus had become “so dear to him” because “that analysis of infinity, which Leibniz says can be used so well on Nature because Nature carries throughout herself the character of her infinite Creator,” seemed to him “precisely in this respect much more theological than that extremely brazen and presumptuous analysis of infinity of another sort, namely that which we typically refer to as ‘learned theology’.”<sup>53</sup> He also believed that the history of Western missionary activity supported his view that natural science and religious propaganda were natural allies.

It was in this context that Schweigger often expressed admiration for the Jesuits. Early modern Catholic missions in particular offered a persuasive example of the efficacy of religious proselytizing and scientific education. “If the Jesuit missionaries could be theologians and natural researchers at the same time, ... why should not other missionaries besides the Jesuits also be able to accomplish the same thing?”<sup>54</sup> Schweigger was little inclined to draw out the theological details of his own Christian beliefs; the avoidance of dogmatics, he felt, was a major advantage of his “scientific propaganda”. His supporters included both Protestants and Catholics; the advantage, he claimed, of a society devoted to “*completely unarguable truths* [emphasis in original] ... , which can attract the support of even the most opposed religious parties.”<sup>55</sup>

Actual German support for missionary activity, however, was much narrower than Schweigger’s picture of a broad Christian alliance suggests. Missionary enthusiasm was in fact quite closely tied to a particular kind of religious community in this period, and Schweigger’s proposed strategies diverged from most contemporary German missionary plans. After a lull in the later eighteenth century, the most recent wave of missionary zeal had emanated from groups, primarily in England, with ties to nonconforming religious revivalism. Based on a form of religiosity that placed great emphasis on the individual’s encounter with scripture, these groups were first and foremost interested in disseminating Bibles. By the 1820s, this movement had begun to spread to German-speaking Europe; the *Deutsche Christentumsgesellschaft* [German Christian Society] was founded in Basel in 1815; groups appeared in Bremen and in Hamburg in 1820 and 1821, and they were joined by societies in Berlin and Barmen by the end of the decade.<sup>56</sup>

Schweigger, however, believed that the Word would have little effect so long as “pagans” had a false understanding of the Book of Nature. “Once a sense for

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<sup>53</sup> Schweigger (1830), p. 14.

<sup>54</sup> Schweigger (1825), p. 404.

<sup>55</sup> *Ibid.*, p. 130.

<sup>56</sup> Gründer (1983), pp. 20-24; Gundert (1987).

inquiry into truth has been awakened through the externally demonstrable, a sense for the internally demonstrable, on which rational faith is based, will naturally develop," he wrote.<sup>57</sup> Not surprisingly, he had trouble convincing other German missionary associations, with their emphasis on scriptural religion, to take an interest in his project. Furthermore, though the two directors of the *Hallesche Mission* had initially endorsed Schweigger's plan, he ultimately failed to turn this local institution to his cause. The Halle endowment's older loyalties to the broader Protestant European community remained strong, and, to Schweigger's chagrin, the *Hallesche Mission's* primary activity throughout the 1820s continued to be sending funds to support English and Danish missionary activity.<sup>58</sup>

Schweigger's blend of scientific collecting and missionary calling also encountered skepticism from scientific quarters. Judging from the tenor of Schweigger's arguments in his first reports on the society's progress, potential scientific travelers objected to the Society for Natural Knowledge's requirement that they stay and teach for several years in the countries they visited.<sup>59</sup> Schweigger promoted his society at the annual meeting of the *Gesellschaft Deutscher Naturforscher und Aerzte* (GNDA) and also published announcements in several German newspapers in the mid-1820s, but with less effect than he had hoped.<sup>60</sup> A resistance to the combination of missionary and scientific work should not be taken as evidence that most natural researchers in the period considered natural science and religion as somehow inherently antipathetic, or, alternatively, that they necessarily kept faith and reason in neat Kantian distinction from one another. The *Naturphilosophen*, for example, also saw natural research as a path to divine insight, and several prominent *Naturphilosophen* (men such as Lorenz Oken, founder of the GDNA, and Christian Nees von Esenbeck, president of the Leopoldina) initially endorsed Schweigger's society.<sup>61</sup> The most serious objection Schweigger faced, it seems, was the claim that it was unreasonable to require ambitious young scientific men, geared towards later academic careers, to teach elementary science in the countries through which they traveled. Missionary activity's strong association with a highly particular form of organized Protestant religiosity was doubtless another barrier to its combination with more general natural scientific travel, and Schweigger's suggestions ultimately inspired only limited concrete support in German-speaking Europe's major academic centers. Unable to find scientific travelers willing to divert part of their efforts to mission-

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<sup>57</sup> Schweigger (1824), p. 410.

<sup>58</sup> Schweigger (1830), p. 61.

<sup>59</sup> Schweigger (1824), p. 389.

<sup>60</sup> In 1826, the Society's 1824 "Jahresbericht des Vereins zur Verbreitung von Naturkenntniss" was reprinted in *Isis, Hersperus* and in the *Allgemeine Anzeiger der Deutschen*; Schweigger (1826b), p. 379.

<sup>61</sup> See Oken (1825), p. 132. On Nees von Esenbeck, see Schweigger (1824), p. 415; Gregory (1990), pp. 69-81; Engelhardt (1979), pp. 106, 162.

ary work, Schweigger was also unable to attract large numbers of natural historical enthusiasts to his cause. Without specific volunteers, his plans remained too diffuse to generate broad-based interest in the collecting public.

Schweigger continued collecting donations for his society until 1829, however, and his efforts did not go entirely unrewarded. He was able to amass about 1000 *Thaler* from private donors (a geographically scattered group of professors, apothecaries, ministers and bureaucrats) and a handful of scientific and commercial organizations. His most prominent institutional supporter was the St. Petersburg Academy of Sciences, already a subscriber to his journal, which sent several yearly donations of 10 Ducats, along with a letter explaining its intention to include four scientifically trained men on a mission to China planned for the near future.<sup>62</sup> A trading company in Hamburg sent in a donation, and Schweigger also received an offer of support from a recently founded commercial enterprise, the Rhineland-West Indian Trading Company. In 1825, he decided to invest the most of the Society's funds in this company, both as a financial speculation and as a show of moral support.<sup>63</sup>

A scientific society in another commercial center, the city of Frankfurt, also rallied to Schweigger's cause. The *Senckenbergische Gesellschaft* in the free city of Frankfurt am Main was one of the few scientific societies in the 1820s that was not in a major political capital or a university town.<sup>64</sup> Foreign scientific travel had been particularly important to this group's collective life; for much of the 1820s, the society had identified and ordered the natural historical specimens collected by native son Eduard Rüppel on a trip to northern Africa. They published a five-volume zoological atlas based on their efforts between 1826 and 1828.<sup>65</sup> In their eyes, their new "collection of the most varied natural objects from all parts of the world" was one of the "most prized jewels of Frankfurt".<sup>66</sup>

Schweigger's efforts also attracted interest from a group in Görlitz, the *Naturforschende Gesellschaft*, a provincial society with a straightforward physicotheological strain at odds with the questions posed by Germany's leading early nineteenth-century theologians.<sup>67</sup> The first issue of the Görlitz society's *Abhandlungen*, for example, began with an introductory essay "Die Naturwissenschaften aus religiösem Gesichtspunkte betrachtet" (The Natural Sciences from a Religious Point of View), written by a respected ornithologist, the Protestant minister Christian Ludwig Brehm.<sup>68</sup> The essay was also labeled as the "Introduction" to the volume, suggesting that it was meant to function as a statement of common purpose in the new society's debut effort before a larger reading public.

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<sup>62</sup> Schweigger (1826b), pp. 509-513.

<sup>63</sup> Schweigger (1830), pp. 79-80; Schweigger (1825).

<sup>64</sup> Schweigger (1826b), pp. 509-513.

<sup>65</sup> Senckenbergische naturforschende Gesellschaft (1826-1828).

<sup>66</sup> Museum Senckenbergianum (1834), p. vi.

<sup>67</sup> Gregory (1990); Gregory (1992).

<sup>68</sup> See Brehm (1827). On Brehm as an ornithologist, see Farber (1982), pp. 31-32.



In it, Brehm enumerated the many signs of God's providence and goodness within the animal kingdom, where "the form of every creature fits perfectly with the place in which it lives and the food it eats."<sup>69</sup>

All in all, however, public support and institutional patronage for the Society for the Spread of Natural Knowledge remained less enthusiastic than its founder had hoped. The association proved to be an unworkable hybrid of two kinds of private organizations—subscription societies to support scientific travel and missionary associations—successful in this period as independent projects, and support from trading interests proved insufficient to make up the gap created by ambivalent scientific and religious reactions. In 1828, Schweigger announced that he would stop collecting money and instead only take subscriptions for future donations. If, by 1836, he had not yet been able to arrange to send missionaries, he would return the money he had collected.<sup>70</sup>

Schweigger emerged from the 1820s convinced that his problem was primarily one of intellectual persuasion. In 1829, he handed over control of the *Journal für Chemie und Physik* to his brother's adopted son, Friedrich Wilhelm Schweigger-Seidel, writing that his "studies had turned more and more to what I have called the 'primeval history of physics,' and I must finally find the time to work through the material that I have collected." His style of missionary activity, he was sure, would receive widespread support "as soon as we have come to agree on the concept of an Indian Mission ...."<sup>71</sup> Dismayed by the uneven support for his project among Germany's major scientific societies, Schweigger also began collecting historical examples of ties between missionary activity and the European scientific community, finding in the many historical cases he uncovered yet another source of support for his conviction that the fate of Eastern religion and Western science were inextricably linked. "Can it be," he asked in 1828, "that our learned academies and societies have completely forgotten that Boyle, the founder of the Royal Society in London, was also one of the founders and the first president of the oldest English Mission since the Reformation?" Boyle was hardly an isolated example, Schweigger continued. "Have perhaps only the names of Pascal, Kepler, Newton, and Haller survived," he queried, "while their way of thinking has disappeared?"<sup>72</sup>

Seven years after retiring from the editorship of the *Journal*, Schweigger published the result of his research efforts, a lengthy book entitled *Einleitung in die Mythologie auf dem Standpunkte der Naturwissenschaft* (Introduction to Mythology from the Perspective of Natural Science), a work that he simultaneously described as a "Prolegomena for Oriental missionary institutions". In it, he still hoped to use the example of "a more familiar paganism, namely, the Greek and

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<sup>69</sup> Brehm (1827), p. 7.

<sup>70</sup> Schweigger (1828), p. xii.

<sup>71</sup> Schweigger (1829), pp. vii, x.

<sup>72</sup> Schweigger (1828), p. ii.

the Roman,” to prove that “Indian paganism” had its roots in the misunderstanding of ancient natural wisdom.<sup>73</sup>

By the mid-1830s, however, Schweigger’s hybrid of philology and physics had taken on additional meaning against the backdrop of bitter struggles over educational policy, arguments that often pitted natural scientists against philologists. Already rising to a fevered pitch by the late 1820s, the debates over school curricula, particularly in regards to the prestigious *Gymnasien* (the classical high schools), provoked vituperative rhetoric on both sides throughout the 1830s and 1840s. Philologists claimed that only a rigorous training in grammar and the classics could develop the properly unified personality that was the goal of the *Gymnasien*; in the process, they often cast aspersions on the potential of the natural sciences to serve the cause of moral *Bildung*. Like many of his scientific contemporaries, Schweigger argued with the humanists on their own rhetorical turf, making neohumanist pedagogical categories and goals his own.<sup>74</sup> In the foreword to his 1836 *Einleitung in die Mythologie*, for example, Schweigger countered tempt to “establish friendly relations between philological and physical perspectives.”

While in the 1820s he had mainly addressed natural scientists, he now explicitly aimed his “primeval history of physics” at philologists as well. Specifically, he presented his book as proof,

that physical conceptions of myth not only can be unified with philological, philosophical, aesthetic, and artistic conceptions within the same individual, but that they actually always should be so united, because these different forms of comprehension are mutually supportive—indeed, they are mutually essential to each other. The latter, however, is exactly what our humanist opponents deny.<sup>75</sup>

Turning the neohumanist ideals of unity against their specialized philological advocates, Schweigger criticized the tendency of learned pursuits to fragment—and in his mind, to distort fatally—their objects of study.<sup>76</sup> Natural science, he claimed, could restore the unity of experience that philological work had destroyed. In his writings from the 1830s and 1840s, Schweigger spoke with disdain of the operations of “so-called higher criticism” on the revered works of the classical canon. For example, since the late eighteenth-century, Wolf and his successors had pointed to textual inconsistencies within Homeric ballads as evi-

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<sup>73</sup> Schweigger (1836), p. ix.

<sup>74</sup> For an overview of the school debates, see Daum (1998), pp. 51-64; Clark (1986), pp. 471-478.

<sup>75</sup> Schweigger (1836), p. 18.

<sup>76</sup> On the growing gap between the unifying ideals of *Bildung* and the actual technical practice of nineteenth-century classical philology, see Grafton (1983).

dence that works like the Iliad were not the creation of a single author. In contrast, Schweigger believed that reading the Iliad as a collection of physical symbols restored its unity and coherence. The final chapter of his 1836 book interpreted the work as a symbolic rendering of ancient natural scientific mysteries. The poem only seemed disjointed, he claimed, because it was composed in code, written for initiates of ancient mystery cults who would have understood the unifying vision behind its apparent heterogeneity. He was thus able to rescue the work, he believed, from being considered a mere “patchwork of history”.<sup>77</sup> In response, philologists did not so much dismiss Schweigger’s work as ignore it. The book was only reviewed once, five years after its publication, in the *Jahrbücher der wissenschaftlichen Kritik*; the review was highly critical of Schweigger’s attempts to mix ethical with physical meanings.<sup>78</sup>

When speaking to his fellow natural researchers, Schweigger now presented missionary work in the East as central to the broader historical mission of European natural science. In a speech at the *Gesellschaft Deutscher Naturforscher und Aerzte* meeting in 1837, he argued that missionary successes in Asia had been a major cause for the emergence of the modern natural scientific community. The false spirit of bitterness that had stood between Christian culture and natural science had finally been lifted, he claimed, when the successes of early modern missionaries to Asia had shown the deep link between correct natural knowledge and the Christian faith. “It was the sight of all that had been accomplished in the Orient in a century and a half through natural science that first called the most important academies into being within a short period, the period of single human life span.” He hoped to turn natural scientists’ attention to “the relationship to the Orient, to which the most important academies owe their founding, to the East, where all eyes were gazing in that period that a Robert Boyle, a Newton, a Leibniz” founded Europe’s major scientific societies.<sup>79</sup> Despite the fact that his scientific audience remained little moved, Schweigger would continue to argue along these lines until his death in 1857. By then, his unusual hybrid of concerns seemed a mere curiosity, a strange passion that Carl Philipp von Martius gracefully tried to minimize in Schweigger’s official eulogy before the Bavarian Academy of Sciences.<sup>80</sup>

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<sup>77</sup> Schweigger (1836), pp. 327-358; Schweigger (1843), pp. 3, 31.

<sup>78</sup> Passages of the review are excerpted in Schweigger (1843), p. 41.

<sup>79</sup> *Bericht über die Versammlung deutscher Naturforscher und Aerzte in Prag im September 1837*, (1838), pp. 71, 72.

<sup>80</sup> Martius (1866).

## Conclusion

If J. S. C. Schweigger's major intellectual concerns left a good part of his life's work outside of the scientific mainstream by his death, the individual elements of his composite intellectual failure are nonetheless suggestive in a number of ways. Schweigger remained best remembered among the physical scientists of his day for a device, the so-called *Multiplikator*, that augmented the effects of weak electrical current, making it more experimentally tractable.<sup>81</sup> Like his signature instrument, Schweigger's Society for the Spread of Natural Knowledge magnified elements of his contemporary milieu, calling attention to aspects of early-nineteenth-century German scientific life easily missed when found in less exaggerated form. The continued role of classical erudition within the skill set of early-nineteenth-century German natural researchers is one of the broader patterns his case helps to illuminate. In the initial support his project received, one can also see a complementary connection between the interests and ambitions of the propertied middle classes and the global collecting projects of natural historians, connections that, while well known in the British case, have been less thoroughly explored in this period in Germany.<sup>82</sup>

Much like many useful experimental devices, Schweigger's case perhaps raises more questions than it answers. An older literature once assumed that broad German middle class support for colonialism was largely a product of the post-1871 era, a compensatory urge born out of domestic liberal frustration.<sup>83</sup> More recent research, however, suggests that formal colonial aims were already a part of German liberal-national discussion by the 1840s.<sup>84</sup> In addition, Susanne Zantop's work on "colonial fantasies" has mapped out the psychological terrain on which later explicit colonial discussions built, tracing the webs of possessive desire, spun through a variety of plays, novels, and philosophical works, that helped to mark out the later German colonial subject, eventually inspiring drives for the possession of foreign land.<sup>85</sup> Schweigger's own life history, his extrapolation from the fascinations of a well-stocked natural history cabinet to the possible pleasures of colonial activities, suggests another pathway along which educated Germans' colonial desires might have developed over the first decades of the nineteenth-century. Schweigger, in fact, argued explicitly that Germans should found trading colonies as a way to expand their cultural presence around the globe. Though a fascination with exotic objects certainly did not always lead to formal support for colonialism, Schweigger's story, much like the cases exam-

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<sup>81</sup> Ibid, p. 345; Snelders (1971), p. 328.

<sup>82</sup> For the eighteenth-century, see Te Heesen (2004); for the later nineteenth-century, Nyhart (1998).

<sup>83</sup> See e. g. Winkler (1978), pp. 5-28.

<sup>84</sup> Müller (1999), pp. 346-368.

<sup>85</sup> Zantop (1997).

ined by Zantop, calls attention to widespread set of cultural practices that were already interlaced with diffuse exoticist desires in the period. Zantop emphasizes fictional narratives of settlement as precursors to more concrete demands for land; the ambiguous relationship of Christian missionary work to the German colonial project has also received historical attention.<sup>86</sup> Schweigger's project points to another, intertwined tradition that structured early-nineteenth-century educated Germans' relationship to the rest of the world, a circuit of desire for objects, rooted in the material culture of natural history.

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<sup>86</sup> Gründer (1983).

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