



# Visions in sand: the sound figures in Goethe, Schopenhauer, and Nietzsche

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*Visions in sand: the sound figures in Goethe, Schopenhauer, and Nietzsche*

A dissertation presented

by

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**Abstract**

On the reception of the sound figures, an eighteenth-century acoustical experiment, in the writings of Goethe, Schopenhauer, and Nietzsche. It focuses especially on the philosophical ramifications for literary studies and the history of science.

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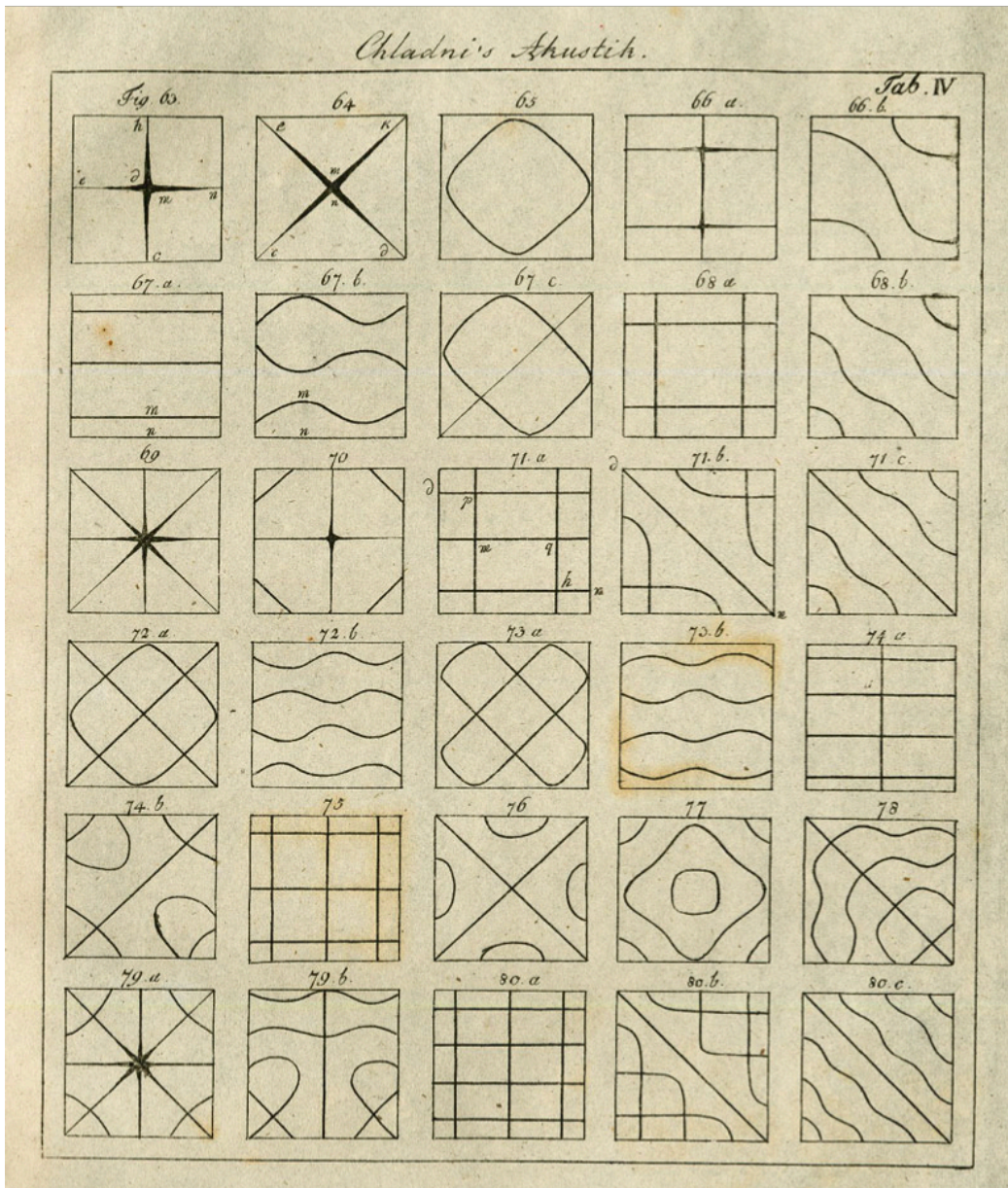


Fig. 1: Ernst Chladni's sound figures, *Die Akustik* (1802).

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## **Introduction**

## The sound figures between metaphysics and metaphor

Ernst Chladni drew his violin bow along a metal plate as symmetrical patterns formed in the sand. These figures were produced by human intervention, yet they were hardly conscious dictations. For as Chladni notes in *Die Akustik* (1802), “producing many of the most complicated figures will often depend on chance” (my translation).<sup>1</sup> In this respect Chladni was less artist than medium. To call forth nature itself, he combined technique and serendipity. What distinguished Chladni from his peers in mathematics was his tolerance for ambiguity. So too did Chladni's innovative popularizing efforts set him apart: thanks to his performances around Europe, the sound figures became famous enough to attract the attention of Napoleon Bonaparte himself (who had retained an interest in mathematics since childhood).<sup>2</sup> Noticing that an explanation for the sound figures was conspicuously absent, Napoleon inaugurated a national competition in France, and commissioned a French translation of *Die Akustik*. But to no avail. For although the sound figures are recognised as a feat of popularization, they are unexplained to this day.<sup>3</sup>

That the sound figures were unexplained did not initially provoke concern. Chladni's research was exploratory rather than definitive. But as time passed, and the proofs failed to materialize, some began to suspect that the sound figures would require an “entirely new type of mathematical analysis.”<sup>4</sup> Others drew a more radical conclusion: mechanical physics had exhausted itself. Recent developments in electricity and magnetism, alongside action at a distance, facilitated this diagnosis.<sup>5</sup> These innovations did not calculate the motion of bodies through impact, but instead theorized matter using attractive and repulsive forces. So a

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<sup>1</sup> "La production de beaucoup de figures très compliquées dépendra souvent du hasard." Chladni 1809, 123.

<sup>2</sup> Stöckmann 2007, 21.

<sup>3</sup> Ullmann 1983, 65

<sup>4</sup> Bucciarelli/Dworsky 1980, 41.

<sup>5</sup> Beiser 2002, 366.

longstanding philosophical complaint – that physics could show *that* something took place, but not *how*<sup>6</sup> – was given a meaningful new target. For physicists, the sound figures were a clarion call to future progress. But for the dissenters, such deductions were little more than attempts to prove what was already self-evident, and thus little more than a tautology. The conflict between those who persevered in spite of diminishing returns, and those who envisaged another way forward, brings into view the limit.

The same year Chladni announced the sound figures, Immanuel Kant published *Die Kritik der reinen Vernunft* (1789). If Kant knew about the sound figures, he never said so – but they entered his orbit nevertheless. For in the *KrV*, Kant uses the "limit" (Grenze) to mark what is beyond perception.<sup>7</sup> This means we are unable to confirm whether objects carry objective reality independently of our senses. So the limit shrouded nature in darkness, even as it provides the compensation of demarcating two separate domains: the sensible and supersensible. With this, Kant proposed to determine the objectivity of the subject, and restore the viability of metaphysics. Yet some drew little comfort from Kant's innovation. Taking his cue from the Platonic renaissance (Beiser 2002, 365), Friedrich Wilhelm Joseph Schelling denied the supersensible was unknowable, and sought to reformulate Kant's limit as nature itself. Chladni's sound figures provided a dramatic fulcrum for this endeavour. Relying on Gottfried Leibniz's *characteristica universalis*, Schelling posited in the sound figures a hypothetical *Signatura rerum*.<sup>8</sup> And though Schelling did not yet claim to have deciphered this language of all things, he did insist with Leibniz that any such language would have to be "necessary:" a quality that categorically distinguishes this language of nature from ordinary language, which would emerge instead through a merely "contingent" and accretive process

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<sup>6</sup> Schopenhauer, *Die Welt als Wille und Vorstellung*, hereafter W1 for volume one and W2 for volume two. Here, W1 66, 112.

<sup>7</sup> Kant 1789, A 759/B 787. Hereafter *KrV*.

<sup>8</sup> Schelling I.8, 443. Further reference to Schelling will refer to the collected works listed in the bibliography, and will mirror the format of this citation.

(I.8, 443). In this sense, Schelling's language would not simply derive from nature – it *would be nature itself*. This puts into question the representational character of universal language, whose purpose would not, like ordinary language, be to mediate the world of objects for the community of subjects. Deciphering the language of nature would mean renouncing the subject-object distinction, and philosophizing, as Schelling does, in the medium of the absolute.

Schelling never dedicated a treatise specifically to the sound figures; they crop up in various contexts between 1800 and 1811. But the amateur physicist Johann Wilhelm Ritter elaborated Schelling's thought empirically and philosophically, claiming to discover an "Ur-oder Naturschrift auf elektrischem Wege."<sup>9</sup> Benjamin Specht's *Physik als Kunst* (2010) and Caroline Welsh's *Hirnhöhlenpoetiken* (2003) have reconstructed Ritter's theories amidst their estimable literary reception. By showing that science and literature rely on shared metaphors, Specht and Welsh suggest that a common epistemological framework unites these disciplines. In this effort, they build upon Hans Blumenberg – a growing influence on Anglo-Saxon Germanistik<sup>10</sup> – and especially his *Die Lesbarkeit der Welt* (1981), which thematizes the language of nature. Yet this inheritance has not been without compromise. For it remains open to question whether "metaphorology" can adequately theorize nature as Schelling understands it.<sup>11</sup> Schelling makes abundantly clear that nature is beyond representation – as the most recent scholarship would appear to confirm. Situating *Naturphilosophie* in retrospective dialogue with Gilles Deleuze, Iain Hamilton Grant argues the two worlds thesis attributed to Plato is a modern corruption.<sup>12</sup> Instead Schelling advocated a one world Platonism, in which Ideas too are material. Grant's innovative reading amplifies the recent

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<sup>9</sup> Harding 1920, II.225.

<sup>10</sup> Weatherby 2016, 39.

<sup>11</sup> Blumenberg 1981, 16. Hereafter LW.

<sup>12</sup> Grant 2006, viii.

historical work on Schelling by Frederick Beiser, Paul Franks, Lore Hühn, and others.<sup>13</sup> The cumulative result of these studies is 1) to frame Schelling's philosophy as a coherent body of work, and to relinquish the perennial focus on its developmental stages; 2) to liberate Schelling from the dubious historiography of Georg Friedrich Wilhelm Hegel, who framed Schelling as an intermediary step on the path to *Geist*. All this implies Schelling's exegesis is still ongoing, and in turn, that the admixture of literary theory and *Naturphilosophie* should be treated cautiously. For as Grant argues, "Schelling is a contemporary philosopher" (Grant 2006, 19).

When the respective presuppositions of theory and text begin to diverge, there emerges a sense of anachronism. This anachronism signals that theory might be in need of historicization. Blumenberg's LW is by now recognizably a product of the twentieth century: metaphorology eponymously announces its debt to Friedrich Nietzsche's "Über Wahrheit und Lüge im außermoralischen Sinne" (1873),<sup>14</sup> an essay that was unpublished in its time, but was elevated into the canon by the linguistic turn around 1970. Postmodernists celebrated the claim that "truth" originates in "metaphor,"<sup>15</sup> provoking controversy as Nietzsche's Anglo-Saxon reception evolved.<sup>16</sup> But what has gone unnoticed until now – aside from occasional, fleeting remarks<sup>17</sup> – is that the key lines in WL harbour no less than two references to the sound figures. And it is certainly relevant for the dominant, empiricist reading of this essay, which is common to both naturalism and postmodernism, that Nietzsche's surrounding notes make several further references to the sound figures, and that these carry ontological overtones. Such cases become even more striking when the sound figures are historically

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<sup>13</sup> Hühn 2006; Franks 2005.

<sup>14</sup> Hereafter WL.

<sup>15</sup> Kofman 1993, 33; Rorty 1986, 11; Danto 1965, 38.

<sup>16</sup> See Leiter's (2002) caustic preface.

<sup>17</sup> Kofman 1993, 40; Babich 2007, 61; Otis 2001, 46-7; Clark 1990, 78.

contextualized. Eighty years after Chladni, the sound figure analogy reflects Nietzsche's engagement with the tradition at a critical, formative stage.

As Nietzsche knew, Arthur Schopenhauer had interpreted the sound figures as "words" without meaning, deliberately reframing an established touchstone of speculation (W2, 120). No longer did the sound figures represent a serious object of analysis. Now they refracted as mere "analogy" the pretense of theoretical knowledge of being. For his part, Schopenhauer is content merely to *evaluate* being, answering no more than the practical question of whether life is worth living. That is the general problematic that informs Nietzsche's early focus on "values."<sup>18</sup> And Schopenhauer's intervention would continue to motivate writers long afterwards, such as Sigmund Freud, who perceived in *Das Unbehagen in der Kultur* (1930) a social malaise not dissimilar to Nietzsche's. This connection is not entirely spurious, because it is Blumenberg who on the first page of LW invokes Freud's "Unbehagen," and proceeds to elaborate via Kant's epochal question: *Was können wir wissen?* Blumenberg thereby imparts to "Unbehagen" an unmistakably epistemological inflection. With "wissen," Kant had summarized his lifelong effort to determine the limits of knowledge: a project which continued well into the twenty-first century. Michel Foucault's historical apriori led to New Historicism, which influenced the first society for literature and science in Berkeley University.<sup>19</sup> Joseph Vogl celebrated the "Begriff des Wissens" in an effort to "localize the objects of knowledge not in their referents, but in the forms of exposition that make them possible." And it is no coincidence that Bettina Menke interpreted the sound figures as "metaphor of sound" in the same volume (Vogl 1999, 16).

But if it is correct, as I argue, that Nietzsche's sound figure reference carries ontological resonance, then this contemporary branch of Neo-Kantianism will struggle to

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<sup>18</sup> Friedrich Nietzsche, *Kritische Gesamtausgabe* III.2, 274. Hereafter KGW III.2, 274.

<sup>19</sup> Weininger 1989, XIV.



locate it. The postmodern reading intentionally purges WL of its philosophical context, including Schopenhauer's concern with value. For his part, Blumenberg gets closer to Nietzsche's "Unbehagen" by including Kant's more expansive second question: *Was dürfen wir hoffen?* With "hope" Kant invokes the relationship between moral action and ideal values, not to mention the possibility of an afterlife. Evidently, Kant recognised the limits of representation were not merely theoretical, but entwined with essential human desires. Schopenhauer interpreted this as an expression of the "metaphysical need," or the urge to find meaning and purpose in existence (W1, 175), and Nietzsche inherited this perspective when he asks in WL "wie unter den Menschen ein ehrlicher und reiner Trieb zur Wahrheit aufkommen konnte" (KGW III.2, 371). But just as it would be absurd to suggest Nietzsche solved the riddle of Kant's noumenon, so it would be absurd to suggest he quenched the metaphysical thirst. Indeed, the decline of truth into metaphor underlines precisely the disintegration of values. So Blumenberg's nonchalance regarding the metaphysical need is puzzling: Kant's *Was dürfen wir hoffen?* becomes, for Blumenberg, *Was war es, was wir erhoffen dürften?* (Blumenberg 1981, 1). Much as Nietzsche looked upon Schelling's intellectual intuition as a "dream" (KGW VI.2, 19), Blumenberg looks upon Kant with estranged wonderment.

It therefore seems prudent to ask: with what license does Blumenberg renounce the metaphysical need? To be sure, many have philosophized in its absence, as pragmatists like Richard Rorty (1979), Hans Ulrich Gumbrecht (2003), and Florian Klinger (2011) have amply demonstrated. Yet in these cases, the plea for justification would fall on deaf ears, as pragmatism simply ignores what it cannot explain. More convincing to argue the point from another angle: in the disavowal of metaphysics, precisely what has been lost? More than scholastic formalism, I would argue, or some vague caricature of "essentialism." By tracing the sound figure reception, it becomes evident that ontological questions were always part of

science, and moreover, that such questions were often aesthetically mediated. The first step towards this conclusion has already been taken by recent history of science, which has thematised the cultural and artisanal qualities of the experiment. Indeed, since Myles Jackson's *Harmonious Triads* (2006), reference to the sound figures has practically become *de rigueur* in sound studies.<sup>20</sup> But the rush to enculture the sound figures, to reveal them as construct, has overlooked one important detail. For all its widespread sensible appeal, the experiment was elevated by the demand for explanation. The lacuna surrounding this question, despite broad attention to the sound figures, is surprising: especially since this problem is what drew artists and philosophers to the experiment in the first place.

Like his emphasis on metaphor, Blumenberg's disdain for the metaphysical need is characteristic of his era. But whether as hope or need, the notion that mankind could aspire to higher goals is worth entertaining – not as the hopeless plea of some retrograde humanism, but as contemporary exigency. On October 16th 2014, the International Commission on Stratigraphy (ICIS) gathered in Berlin to debate the arrival of a new epoch in Earth's history. They chose the term anthropocene to denote human activity becoming the supreme geological force. This announcement had been anticipated by Bruno Latour. Just one year prior at the Gifford Lectures in Edinburgh, Latour stated that “man” has once again become a topic of “global interest.”<sup>21</sup> Truly striking, however, is how Latour characterised this event: the geological motto of the ICIS, *mente et malleo*, would “have fitted fairly well my own profession.” This is because the geologists had shown how “our most cherished values, when they were struck, rendered a rather hollow sound” (Latour 2017, 111). With his reference to the well-known preface of Nietzsche's late work *Götzendämmerung: oder, wie man mit einem Hammer philosophiert* (1889), Latour not only restores value to its legitimate place

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<sup>20</sup> Hankins and Silverman 2014, 130; Pesic 2014, 184; Hui 2014, 6; Pantolony 2009, 228.

<sup>21</sup> Latour 2017, 112.

within Nietzsche's thinking; he provocatively suggests that the sceptical postmodern attitude towards humanism was an idol all along.

No small irony, Latour observes, that this rejuvenation should come from science: the archetypal antagonist of the humanities (Latour 2017, 117). Yet it remains to be seen if the humanities can "hear" (aushorchen) this Nietzschean hammer strike (KGW VI.3, 52). For Latour pursues what is by now deeply contrary to habit: the restoration of nature and "anthropos" to the center of humanistic inquiry. Although Latour has recently offered one possible approach, I will prefer to mobilize Schelling's *Naturphilosophie* to dissolve the binary science and "culture" (which, for all its protest, the sociology of science has been unable to shake off)<sup>22</sup> into a more fundamental polarity between mind and nature. With his "metaphysical empiricism" (XIII, 114) Schelling arguably came closer to unifying *Natur-* and *Geisteswissenschaften* than either Wilhelm Dilthey or Hermann von Helmholtz, who sealed off these domains conceptually and institutionally.<sup>23</sup> In contrast, Schelling provides the resources to think fundamentally about nature, beyond the hypostatized binary of science and culture.

At its best, recent history of science approaches journalism or documentary, insofar as it explores beyond the archive and historicizes the present. Peter Galison has supplied a definitive example with *Image and Logic* (1997), and his cinematic work (2015) has expanded the possibilities of historical scholarship. But just as pure historical research must work to articulate its present relevance, so do studies of the present risk losing their grip on the past. This establishes a dual prerogative: to acknowledge history without sacrificing the forward momentum of thought. Schelling offers one possible solution when he declares "Es ist wahr, daß uns Chemie die *Elemente*, Physik die *Silben*, Mathematik die *Natur lesen* lehrt;

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<sup>22</sup> Steege 2006, 300.

<sup>23</sup> Dilthey 1922, 1; Helmholtz 1862, 6.

aber man darf nicht vergessen, daß es der Philosophie zugesteht, das Gelesene *auszulegen*" (II. 6). With this programmatic statement, Schelling proposes to limit the (still accelerating)<sup>24</sup> forward thrust of progress by viewing it *sub specie aeternitatis*. This limit would not seek to interrupt or commandeer the path of science, but to critique it in the authentic sense: to develop its essential problematic. So metaphysical questions need not compromise the intimate empirical detail for which recent history of science is rightly praised. This may seem hard to accept, so many years after Thomas Kuhn's paradigm shift model of development in the sciences. But in a striking intervention, Dennis Des Chenes convincingly argued for continuity between Aristotelian and Cartesian natural philosophy, as opposed to Kuhn's "rupture."<sup>25</sup> This provides an example of how theoretical approaches towards history are inevitably confronted by philosophical problems. The pragmatic attitude has tended to avoid such questions, representing them as irrelevant or bothersome. But that simply represents a loss for scholarship.

By taking Schelling and Nietzsche as beginning and end points respectively, my dissertation charts via the sound figures how the language of nature became words without meaning. With this, I do not propose any direct channel of influence between Schelling and Nietzsche (though at least one study has thematised the parallels between these authors).<sup>26</sup> I am more concerned to reveal an overall trajectory between Schelling and Nietzsche as polarities, in order to account for the various interactions and skirmishes the sound figures gave rise to, and the diverse approaches to science and nature they manifest. My first chapter focuses on Chladni himself, and his immediate reception in Schelling, August Wilhelm Schlegel, and Clemens Brentano. This should establish a broad sense of the *Signatura rerum* as it emerged from Romantic philosophy and literature. My second chapter focuses on

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<sup>24</sup> Deleuze/Guattari 2004, 260.

<sup>25</sup> Des Chenes 1996, 2.

<sup>26</sup> Wilson 2013, 1.

Johann Wolfgang von Goethe, who developed an idiosyncratic interpretation of the sound figures through his experimental work on vision and colours. In my third chapter Arthur Schopenhauer represents a turning point, insofar as he consciously departed from Schelling, and emphasized the sensible focus of Goethe's work. Jean Paul Richter provides a literary cognate for Schopenhauer's darker vision of nature. This supplies the essential background for Nietzsche's sound figure interpretation in my final chapter.

## Chapter One

### ***Signatura rerum: Chladni's sound figures in Schelling, August Schlegel, and Brentano***

Ernst Chladni discovered the sound figures in 1787. After scattering fine sand on a metal sheet, he produced a musical note by playing a violin bow at a right angle against the sheet. The resulting oscillations prompted the sand to settle in a range of two-dimensional, symmetrical patterns that corresponded to the nodal lines (a node is an area that does not vibrate). Each note resonated differently with the sheet, producing unique shapes, which he then proceeded to catalogue. Chladni announced the sound figures in *Entdeckungen über die Theorie des Klanges* (1787), and subsequently elaborated in *Die Akustik* (1802). These books made Chladni the first physicist to focus almost exclusively on acoustical experiments. Combined with his practical inclination, and his penchant for writing compendiums that surveyed the field, Chladni is recognized today as the father of acoustics: a discipline that was not previously independent from physics.<sup>27</sup> Curious, therefore, that his most famous experiment represented a seemingly intractable problem: the sound figures were impossible to calculate mathematically. In this chapter, I will suggest that the full extent of this problem was not appreciated until the sound figures were interpreted in literature and philosophy, and in particular the strand of reception running through Friedrich Wilhelm Joseph von Schelling, August Wilhelm Schlegel, and Clemens Brentano.

The problem in question followed recent breakthroughs in physics. Daniel Bernoulli, Leonhard Euler, Jean Baptiste le Rond d'Alembert had used differential calculus to determine the oscillation of single strings.<sup>28</sup> Chladni studied these equations intensively, and sought to verify them experimentally. It became apparent that existing methods were not easily transferable to multiple, curved, and mutating nodal lines of the kind Chladni specialized in:

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<sup>27</sup> Ullmann 1983, 7.

<sup>28</sup> Truesdell 1960, 335.

such objects were "noch in die tiefste Dunkelheit eingehüllt."<sup>29</sup> The sound figures crystallized this problem in the public mind. After witnessing Chladni's demonstration in Paris, Napoleon Bonaparte commissioned a French translation of *Die Akustik*<sup>30</sup> and inaugurated a national competition at *Institut de France* in 1809.<sup>31</sup> These competitions received notable submissions, yet even the prize winners could not claim to have arrived at a complete explanation.<sup>32</sup> Joseph-Louis Lagrange suspected the sound figures might require an "entirely new type of mathematical analysis."<sup>33</sup> Sophie Germain, who provided the first tentative equations, saw in Lagrange a "great mathematician, who was himself intimidated by the demands of the analysis" (my translation).<sup>34</sup> By 1829 Siméon Denis Poisson had fallen short, alongside Gustav Robert Kirchhoff in 1850, whose difficulties "bis heute nur in Annäherung gelöst werden können," in the words of Chladni's first biographer (Ullmann 1983, 65).

But already in Chladni's time, some wondered if the sound figures were simply not amenable to existing modes of analysis. Immanuel Kant's *Kritik der reinen Vernunft* (1789) was published the same year as the *Entdeckungen*. In it, Kant distinguished between a "limit" (Grenze) and "boundary" (Schranke).<sup>35</sup> The limit designates what lies beyond perception, whereas the boundary presses forward as knowledge increases.<sup>36</sup> In making this distinction, Kant was responding to developments in empirical science that threatened to decommission apriori philosophy.<sup>37</sup> With his Copernican return to the subject, Kant sought to resuscitate metaphysics qua sensible experience and its conditions of possibility. So for the physicists,

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<sup>29</sup> Chladni 1787, 1.

<sup>30</sup> The French mathematicians who edited *Traité d'acoustique* (1809), as the translation was named, reorganized and streamlined the text.

<sup>31</sup> Stöckmann 2007, 21. Similar events were held at The Royal Academy of Sciences in St. Petersburg, and the Batavia Academy of Sciences in Haarlem.

<sup>32</sup> Sophie Germain made the first three efforts. Bucciarelli and Dworsky 1980, 1.

<sup>33</sup> Quoted in Bucciarelli and Dworsky 1980, 41.

<sup>34</sup> Quoted in Szabó 1977, 412.

<sup>35</sup> Kant 1789, A 759/B 787.

<sup>36</sup> Ferrarin 2015, 66.

<sup>37</sup> Adorno 1959, 39.



the sound figures would represent a boundary: any eventual solution could only be mechanical. Hoping with his *Entdeckungen* a "noch sehr unbearbeiteten Theiles der Mechanik liefern zu können" (Chladni 1787, 1), Chladni considered himself a mechanist. Yet others were taking inspiration from more recent experiments in electricity, magnetism, and chemistry. To study these phenomena, analysts did not calculate the motion of bodies through impact, but instead theorized matter using attractive and repulsive forces. Because these forces involved action at a distance, they were difficult to explain via mechanism.<sup>38</sup> Pursuing the implications of this, Schelling developed a "dynamic" physics, which would show how matter *arose* from basic forces – as opposed to the mechanists (and Kant himself), who had "analyzed" matter *into* basic forces (Beiser 2002, 534). For Schelling, it was already clear that mechanical efforts to derive nature from the sound figures were limited, in this Kantian sense. The task was now to understand how the sound figures "emerged" (entstehen) from the forces of nature (Schelling II, 11).<sup>39</sup>

In this respect, Schelling exploited the aura of possibility surrounding the sound figures, which Chladni had been working to cultivate through his public performances around Europe. Myles T. Jackson has pointed to the "artisanal" character of this practice, which situates Chladni at "the nodal point between acoustician and musical-instrument maker." Such interdisciplinarity is no quirk of circumstance, in Jackson's view, but actually representative of a broader historical trend: it "marks the rise of the role of science within the world of music... [from] the design of instruments to the very heart of musical aesthetics itself."<sup>40</sup> Viktoria Tkaczyk deepened this narrative by highlighting the performative aspect of Chladni's demonstrations, which integrated the mysterious appeal of the figures. Chladni carefully manipulated the information revealed to observers, displaying a rhetorical skill

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<sup>38</sup> Beiser 2002, 366.

<sup>39</sup> Grant 2006, 63.

<sup>40</sup> Jackson 2006, 11. To whose research and correspondence this chapter owes a great debt.

beyond what was expected of scholars.<sup>41</sup> Having shown how Chladni's scientific work partakes in the world of art, these studies (and others like them) have been indispensable for this chapter.<sup>42</sup> Yet one aspect of Chladni's research deserves to be more boldly underlined: the extent to which it represented a problem. Specifically, I refer to an apparent dead end regarding equations for multi-dimensional oscillation.<sup>43</sup> This meant Chladni did not grace the world of art with a clear conscience – and complaints of "mountebankery" against him were evidence enough of this (Tkaczyk 2015, 39). That is significant, because the sound figures made their impact on culture *as* a problem. Schelling's sound figure references between 1800 and 1811 inform Schlegel's specifically aesthetic interpretation in his lectures on art history in 1815. And Brentano draws on this background when he consecrates the sound figures in his 1817 poem, "An Schinkel."

The reception of Chladni's sound figures by Schelling, Schlegel, and Brentano represents a contribution to ongoing debates in literature and science. For even if one accepts *that* scientific matters were thematized in literary form, it is still not obvious *why* this was important.<sup>44</sup> If science ultimately represents material for a pleasing illusion – the end result of both empiricist and rationalist aesthetics<sup>45</sup> – then the unavoidable conclusion is that literary contributions are ultimately trivial. Conversely, for all the outstanding treatments of the sound figures,<sup>46</sup> it is striking how little the actual problem – the very thing that originally motivated literary and philosophical authors – has been invoked. So with this chapter, I hope to provide an example of how questions that emerged in science demanded cultural expression, with the

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<sup>41</sup> Tkaczyk 2015, 39.

<sup>42</sup> Hankins and Silverman 2014, 130; Pesic 2014, 184; Hui 2014, 6; Pantolony 2009, 228.

<sup>43</sup> Ullmann 1983, 65.

<sup>44</sup> Stiening 2007, 234.

<sup>45</sup> Consensus was growing that art's function was entertainment rather than instruction, so claims to knowledge were relinquished. This was the case both in empiricist Britain and France (which replace metaphysical truths with pleasant sensations) and rationalist Germany (which describes either confused conceptions of reality or clear perceptions of appearances). Beiser 2009, 6.

<sup>46</sup> Menke 1999, 69; Specht 2010, 211; Welsh 2003, 58; Holland 2017, 340; Levin 1990, 39.

complementary proviso that such questions are by no means reducible to culture. While treating such cases, one should be capable of answering a basic question (rarely asked today, for all the theoretical sophistication literary studies has enjoyed): namely, why literature? That is the task the present chapter has set itself. It aims to show how disciplinary boundaries can defamiliarize theoretical problems and expose forgotten assumptions. If that is correct, it would suggest that science and culture are indeed distinct, and yet nevertheless engaged in dialogue that is necessary for their respective development.

### *1. Chladni's foray into darkness*

Scholarship has illuminated the intersection between Chladni's research and the world of music. But in so doing, these studies edge towards a question that is never directly posed: was Chladni an artist? This thought is avoided, perhaps, because the artist figure represents an absolute on the spectrum of science and culture. The sociology of science has sought over the years to downplay the inherited boundaries between science and culture in order to better expose the "microcultures" on the margins.<sup>47</sup> Chladni, by all accounts an amiable figure, fits this bill and carries little resemblance to inherited archetypes of the Romantic artist. But it is worth inquiring after Chladni's status nevertheless, since he did describe himself as an artist, and also personally encountered the men who established the archetype. So it would be remiss to analyze Chladni's work, I think, without situating it in relation to the category of artist – even just to specify precisely how Chladni deviated.

After an evening's discussion with Chladni in 1803, Johann Wolfgang von Goethe remarks privately to Friedrich Schiller that the acoustician stands among "die Glückseligen, welche auch nicht eine Ahnung haben, daß es eine Naturphilosophie gibt."<sup>48</sup> With

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<sup>47</sup> Steege 2006, 300.

<sup>48</sup> Goethe II.5, 315.

*Naturphilosophie* Goethe means the resurgence of philosophical inquiry concerning nature, associated primarily with Schelling. Goethe had evidently been estranged by Chladni's devotion to mechanism, which would contravene the holistic vision of nature. In *Naturphilosophie*, the principles of *Polarität* and *Steigerung* held that nature generates itself through internal antagonisms as it proceeds towards ever more complex forms.<sup>49</sup> So Goethe felt that Chladni conducts his experiments without adequate theoretical reflection. Yet it is fairer to say Chladni's modus operandi was eminently practical: he tested equations already in the public domain. In the opening sentences of the *Entdeckungen*, for example, Chladni remarks:

Die elastischen Schwingungen der Saiten und Stäbe... sind von verschiedenen so genau und scharfsinnig berechnet, daß sich wohl sehr wenig neues darüber möchte sagen lassen; da hingegen die wahre Beschaffenheit des Klanges solcher Körper, bei denen elastische Krümmungen ganzer Flächen nach mehreren Dimensionen zugleich in Betrachtung kommen, noch in die tiefste Dunkelheit eingehüllt ist; indem weder Berechnungen, die mit der Erfahrung übereinstimmen, noch richtige Beobachtungen darüber vorhanden sind (Chladni 1787, 1).

Chladni says there is "little new to be said" about the study of strings and rods. Yet for multi-dimensional objects, the field remains "noch in die tiefste Dunkelheit eingehüllt." There exist neither "calculations (Berechnungen) verified against experience," nor correct "observations" (Beobachtungen). This provides an example of how Chladni challenged even well-established and respected physicists for their lack of verification. He sought to verify theoretical equations against "experience" (Erfahrung), which required estimable literacy in mathematics. But for the most part, Chladni himself specialized in "testing" (prüfen, Chladni 1787, 77), rather than generating, theorems.

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<sup>49</sup> Lauxtermann 1990, 600.

To explore this "darkness" – i.e. the domain of phenomena beyond conceptual clarity – Chladni found it necessary to invert the prevailing Cartesian model that conceived experiment to confirm prediction (Truesdell 1960, 335): an innovation that produced the unpredictable results for which he became famous. Taking the sound figures as an example, one discerns a heightened permeability to randomness: "in continued experimenting," Chladni says, "often a sound difficult to obtain appears unexpectedly when one is looking for another" (Chladni 1787, 19). Elsewhere Chladni notes that "producing many of the most complicated figures will often depend on chance" (my translation).<sup>50</sup> In this respect Chladni was less artist than medium, combining technique and serendipity. This was facilitated by Chladni's special tolerance for ambiguity, which distinguished him from pure mathematicians. Chladni's sketches and diagrams also exhibit this characteristic. In Fig. 1, there is no obvious logical relationship or series between the figures, bar the corresponding increment of complexity and pitch. This alone is of little help, because the relationship between tone and figure is not direct: one note could produce several shapes. Moreover, certain shapes do not correspond with musical notes (Chladni indicates the pitch between semitones with a + sign). Nevertheless, using the few constants available, Chladni was able to offer an approximate equation. The end result is a catalogue of symmetrical diagrams. Though he could reproduce the shapes with a high degree of precision, an explanation was not forthcoming. So despite his aversion to *Naturphilosophie*, Chladni's practical habitus was philosophically significant. It churned up phenomena for which no theory yet existed – and perhaps never would.

Chladni's contemporaries noticed his idiosyncratic approach. Even though his electro-magnetic figures had inspired the sound figures, Georg Christoph Lichtenberg jots down a

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<sup>50</sup> "La production de beaucoup de figures très compliquées dépendra souvent du hasard." Chladni 1809, 123.

reminder to himself: "Etwas über die ungebahnten Wege in den Wissenschaften zu schreiben, man muß sie notwendig einschlagen, wenn etwas gewonnen werden soll. Chladni bei den Tönen."<sup>51</sup> Lichtenberg explicitly refers to the "ungebahnten Wege" that Chladni had successfully exploited. And later the thought strikes Lichtenberg from another angle: "Noch mehr Sachen so wie Chladni, oder auf ähnlich Weise" (Lichtenberg 1800, J 1327). Coming from an established physicist, Lichtenberg's comments suggest that there was something quite remarkable about Chladni's approach to experiment. But what the comparison with Lichtenberg also brings into focus is Chladni's lack of verbal and theoretical dexterity. Chladni's prose was unadorned, descriptive, and interlocutors perceived an unreflective disposition. That need not indicate a deficiency on Chladni's part, however, but an unwillingness or incapacity to make explicit his conceptual foundations. Indeed, I would go so far as to suggest that these two attributes were actually inseparable: Chladni's philosophical reluctance was what enabled his achievements in practical experiment and performance: language, conceptuality, and theory would only have gotten in the way.

Herein lies the connection between experiment and public performance. For both have a common medium in practice: abstract thinking may even interfere with the action taking place.<sup>52</sup> This means that Chladni's rather prosaic writing style may be forgiven: he lived among the senses. But despite the advantages of practical habitus, Goethe's basic point rings true. Chladni consistently failed to explore the implications of his own research. For all the suggestive, enigmatic discoveries which take place on his watch, Chladni was never once led to question mechanical physics per se, nor to reflect on its limits – and this explains why he was no *Naturphilosoph*. In the parlance of the era, Chladni was a man of *Verstand* rather than of *Vernunft*. The present study will, therefore, forgo substantial close reading of

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<sup>51</sup> Lichtenberg 1800, J 844.

<sup>52</sup> As Schopenhauer is fond of pointing out. Schopenhauer 1818, 67.

Chladni's prose, which is to say, the technical, descriptive writing that makes up his corpus. These unadorned passages belie the striking experimental phenomena being presented, and it is in just this respect – a willingness to let the work speak for itself– that Chladni was most recognizably an artist.

Ich hatte dabei den Gedanken, dass ein Künstler, der einige Aufmerksamkeit zu erregen weiss, weniger an einen bestimmten Ort gebunden ist und mehrere Gelegenheit hat, dass überall Vortheil und eine gute Aufnahme zu finden, als ein Gelehrter, der sich dem akademischen Leben widmet...<sup>53</sup>

Chladni's self-description as "artist" (as opposed to "Gelehrter") is appealing, since it promises to resolve his ambiguous status between the poles of science and culture. It is intriguing that Chladni does not pose "artist" in direct opposition to scientist, but rather against the staid, institutionalized thinking of the "Gelehrter." Chladni's understanding of the artist, therefore, would not seem to exclude scientific labour. But in the final analysis, it is important to recognize that whatever notions Chladni may have entertained about himself, he would never have compromised the robust mechanical principles on which his experimental achievements were founded. Chladni dealt in mystery, but not illusion, and that boundary was critical to maintain given potential accusations of *Taschenspielerei*.<sup>54</sup> This might help to explain Goethe's caution towards Chladni: he suspected that the acoustician could not do justice to the ramifications of his own output. So interpreters had to go beyond Chladni.

## 2. Schelling: sound figures as Signatura rerum

On January 6th 1800, Schelling writes to Goethe with an update on the first book of the *Zeitschrift für speculative Physik* (1800). Schelling says that his passage on "sonority"

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<sup>53</sup> Chladni 1802, xiv, xv.

<sup>54</sup> For example: "Sachte, sachte, damit euch die Engel nicht auslachen. Der Gegenstand ist schlecht, aber ihr kennt ihn noch nicht ganz, und deswegen verfährt behutsam. Wißt ihr wohl daß der Magnet von Anfang bloß den Taschenspielern diene?" Lichtenberg 1800, E132.

might well have been written "wenn nicht [von] einem Musikgelehrten, doch einem Physiker, wie Chladni."<sup>55</sup> The remark confirms that Chladni's research was already familiar to both Schelling and Goethe by this time. While this passage does not specify what part of Chladni's work is of interest, it reveals an elective affinity on Schelling's part towards mechanical physics. On the one hand, Schelling appears to be entering the terrain of physics proper. But on the other hand, his next paragraph speaks of "Ein andres Object... eine wahre und eigentliche Theorie der Erde, die vielleicht eben da aufhören sollte, wo die jezige Geschichte der Erde anfängt" (Schelling *Briefe* II, 216). Evidently, these two motives – the particular of detailed physics and the universal of the "Earth" – have not yet come into alignment. But Schelling is certain that "Der dynamische Weg scheint auch hier, durch den allgemeinen Magnetismus, zum Ziel zu führen" (Schelling *Briefe* II, 216). Dynamic physics will provide the route towards a pre-historical theory of Earth using a "general magnetism." In the years to follow, this dynamic physics will ground Schelling's interpretation of the sound figures.

By 1804, Schelling has begun to close the distance between mechanical physics and a theory of Earth. In his *Nachlass*, Schelling posits light as "infinite ideal substance," from which he derives "sound" (Schall).<sup>56</sup> To summarize Schelling's account of light would bring the present account too far astray – suffice it to say that Schelling maintains that the essence of physical activity is not empirical. This leads him to deny that sound and light are objects i.e. things that are moved, and to represent them instead as "die Bewegung, die Agilität selbst." Schelling cautions against the fatal error of mistaking "das bloße Vehikel der Propagation für das Vermittelnde selbst" (Schelling II.2, 362). To support this view, Schelling introduces Chladni, who has provided empirical evidence that the "vermeinte Zittern oder Beben der kleinsten Theile zum Schalle nicht nothwendig und bei klingenden

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<sup>55</sup> Schelling *Briefe* II, 215.

<sup>56</sup> Schelling II.2, 362. Page numbers refer to original edition, whose pagination is preserved in the newer edition listed in the bibliography.



Körpern gar nicht vorhanden sey" (Schelling II.2, 362). By differentiating between "Schall" and the oscillation itself, Schelling profitably utilizes the negative character of Chladni's experimental practice – his testing of established mathematical formulae – to conceptualize the supersensible.

This contextualizes Schelling's first sound figure reference, which occurs in "Ueber das sogenannte Wetterschießen" of 29th March 1811. In this report, Schelling summarizes a lecture delivered to the Royal Academy of Sciences in Munich the previous day. Mr. Kanonikus and Professor Imhof had sought to provide rational grounding for the tradition of "Wetterschießen." As Schelling explains, this ancient German practice – concentrated in Bayern and the mountainous regions beyond – involves shooting canons into the air in an effort to stem inclement weather. Schelling is understandably skeptical of the practice, but his riposte provides an occasion to reflect on the state of meteorological research. Schelling's principal contention is that Professor Imhof fails to account for the recent work in dynamic physics, specifically regarding electricity. It is at this point that Schelling introduces Chladni's sound figures as an example.

Ich habe mich durch eigne und in meiner Gegenwart vom Erfinder angestellte Versuche aufs gewisseste überzeugt, daß die Klangfiguren nie auf die bloße mechanische Erschütterung, sondern erst wenn der Klang ausgebildet ist, im Moment seiner Aktion, entstehen. Die Analogie dieser durch Klang erzeugten Figuren mit den Lichtenbergischen, durch Elektrizität hervorgebrachten, ist allen denkenden Naturforschern längst aufgefallen. Wenn hier nichts Dynamisches im Spiel ist, woher kommt es, daß der zum Versuch angewendete Staub oder Sand an den Figuren festklebt, auch wenn die Glasplatte umgekehrt wird und man auf sie klopft, da er doch von den außer der Figur liegenden Stellen rein herabfällt? Es ist sehr zu bedauern, daß noch so wenige Versuche über die dynamische Wirkungsweise des Schalls und Tons als solcher angestellt worden sind. Vielleicht wäre es nicht unmöglich, durch verschiedenartige Töne unmittelbar entgegengesetzte Elektrizitäten zu erwecken (Schelling I.8, 433).

These remarks confirm that Schelling actually witnessed a private performance of the sound figures by Chladni himself. Though the details of this event are vague, the performance

evidently left a powerful impression on Schelling, as it gave him "utmost certainty" that the sound figures shall never be explained with mechanical vibrations (contrary to Chladni's own expectations). Schelling instead claims that the "Klang" itself, "im Moment seiner Aktion," causes the figures to "emerge" (entstehen). Reading this passage against the background of the earlier discussion of sound, Schelling appears to suggest that the sound figures reflect no empirical phenomenon, but the infinite ideal substance itself. Schelling finds more evidence of this dynamic character in the sound figures' magnetism. When the plates are inverted, the sand "sticks" (festklebt) to the nodal lines. It is on this basis that Schelling urges further investigations of dynamic effects in acoustics.

Just four months later Schelling will invoke the sound figures again, providing another angle on the dynamic process they manifest. The "Bericht über den pasigraphischen Versuch des Professor Schmid in Dillingen" is dated 8th July 1811. Pasigraphy refers to the study of universal language. Schelling parses Professor Schmid's account using the specifications Leibniz had supplied for a hypothetical *characteristica universalis* – which Schelling here christens a *Signatura rerum*. Schelling finds Schmid's account wanting on several fronts: his pasigraphy is neither "necessary" (as opposed to conventional) as Leibniz required, nor is it algebraic (Schelling I.8, 443). But Schelling's critique need not be recapitulated here, as his positive account is of foremost interest. Schelling begins with comparative philology, for language represents an "organisches Gedankensystem, welche tiefsinnigen Verknüpfungen oft in den einzelnen Wörtern dieser Sprache ausgedrückt sind." Schelling says that an internal law might well govern "Ursprachen" like Hebrew, Greek, Latin, and German (but not French and Italian, which are "ein durch Corruption entstandenes Idiom", Schelling I.8, 443). Beyond conventional language, Schelling goes on to propose the "figure" as a viable prospect, since it is "most closely related to the word."

Dem Wort am nächsten verwandt ist die *Figur* – auch äußerlich oder physisch jetzt durch die bekannten Klangfiguren; aber auch der Figur wurde die Macht des Worts zugeschrieben, und nicht Schwärmerei allein, die älteste wissenschaftliche Ansicht der Geometrie, wie sie noch in den Commentarien des Proklus und zuletzt in den Werken Keplers gefunden wird, schreibt den Figuren eine wesentliche Bedeutung zu. Ich erinnere an die fünf regulären Körper, die von den Pythagoreern als *Figurae mundanae* betrachtet wurden und nach Kepler die Intervalle der Planetenbahnen bedeuten sollten. Jene gaben der Erde den Cubus, dem Feuer die Pyramide, der Luft das Ikosaëder zu; unstreitig eine ganz andere Pasigraphie als die neueste. (Schelling I.8, 443)

Schelling excavates the historical interpretation of the "figure," of which the sound figures are merely the "external or physical" manifestation (they are *bekannt*, but not yet *erkannt*). Despite Schelling's cautious tone, he nevertheless remarks that the "power of the word, and not just enthusiasm" was attributed to the figure. Evidently Schelling wishes to retain the inflection of reason in "word" qua logos, keeping at arm's length the specter of mysticism. For figure is founded in "die älteste wissenschaftliche Ansicht der Geometrie," from which impulse the commentaries of Proclus and the works of Johannes Kepler both stem. Schelling also notes Kepler's interpretation of the Pythagorean *Figurae mundanae* as intervals of planetary paths. So although Pythagoras and Proclus appear mystical by modern standards, Schelling insists on the rational motive of figure, and emphasises its abiding potential for contemporary astronomy. Given that these efforts represent "unstreitig eine ganz andere Pasigraphie als die neueste," Schelling maintains that this rational impulse has been lost in modernity: Professor Schmid sacrifices necessity for convention.

With this Schelling seems to have exhausted his interest in Chladni. But almost twenty years later the acoustician crops up again in *Philosophie der Mythologie* (1834). In the sixteenth lecture, Schelling thematizes meteorites and the formation of planets. He remarks that "Ein Deutscher, Chladni, hat das Verdienst, den Fall von Meteorsteinen zuerst wieder als physikalische Thatsache geltend gemacht zu haben" (Schelling II.5, 358). The reality of meteorites had been in question at this time, and Chladni's achievement was physically to

have verified their existence (Ullmann 1996, 137). So Chladni is no longer "ein anderes Object," as he now partakes in a "Theorie der Erde" (Schelling *Briefe II*, 216). But whereas Schelling previously took empirical discoveries as occasion for extrapolation, now Chladni plays the role of speculator. Schelling dissents from Chladni's efforts to interpret meteorites as "Überbleibsel eines bei der ersten Planetenbildung nicht verwendeten und noch immer im leeren Raum überflüssigen, bestimmungslos herumschweifenden Weltkörperstoffs." This theory cannot be supported, in Schelling's view, because it is derived from "rein zufälligen Umständen und Ursachen" (Schelling II.5, 358). In this anecdote, the roles are reversed. Chladni's mechanical physics are capable of speculation, whereas Schelling's dynamic physics are capable of restraint.

Schelling's various references to the sound figures confirm that although Chladni stood at a remove from *Naturphilosophie*, the acoustician's empirical research played an integral role in Schelling's theory of Earth. Chladni's propensity to test the established theorems of mathematics provided a crucial fulcrum for Schelling, who did not interpret this negative evidence as Chladni intended – namely as prompts to more specific mechanical formulae – but rather as limits of perception itself. Schelling then proceeded to convert these limits into intuitions of nature. Chladni's confirmation that sound is distinct from minute vibrations became, for Schelling, the intangible activity of an infinite ideal substance. This explains why Schelling subsequently interpreted the sound figures as *Signatura rerum*. It is worth noting that Schelling's passage beyond the limit did not license extravagant claims about the universe. Schelling dissented from Chladni's own speculations regarding the meteorites, even as he praised Chladni's empirical verification of these meteorites.

### 3. August W. Schlegel: brain against beauty

Schlegel's lectures on the history of art and aesthetics were delivered around 1800 and published fifteen years later. One finds definite echoes of Schelling's infinite ideal substance in Schlegel's definition of beauty as "*das Unendliche endlich dargestellt*."<sup>57</sup> But though approaching the infinite from different perspectives, both men apply the term negatively, which is to say, as a background against which the finite of partial and incomplete philosophies may be evaluated (Grant 2006, 12). In both cases, the sound figures bring into relief the limits of mechanical explanation. Specifically, Schlegel relies on Schelling's association of the sound figures with dynamic physics. Schlegel applies this point to prevalent theories of the beautiful, such as those proposed by the French encyclopedists Denis Diderot and D'Alembert. These mathematicians had been applying formulae for oscillation to nervous fibers of the brain in an effort to explain beauty as sensible pleasure. Schlegel points to the sound figures in order to show that such theories are deficient, and moreover, to suggest the possibility of an entirely new science – that would not exclude beauty.

The virtue of classical aesthetics, as Schlegel represents it, is the seriousness with which it pursues beauty. Schlegel was committed to understanding beauty as an objectively true experience. Shouldering that burden meant defending the integrity of beauty, or its autonomy, from scientific accounts that would seek to explain it away, which is to say, defer its reality onto mechanical explanation, thereby reducing beauty to a secondary and illusory phenomenon. The sound figures are used by Schlegel to problematize oscillation, which physicists had been using to explain the human mind.

The crux of Schlegel's critique is that, by framing beauty as ordinary knowledge, rationalism erases what it seeks to explain. He elaborates this with reference to the French encyclopedists, who had been attempting to explain beauty via the mechanical operation of

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<sup>57</sup> Schlegel II, 81.

the mind. In Schlegel's view, this effort simply reduces beauty to a secondary phenomenon, which is to say, a mental or psychological effect. And taking an effect as "nature" is "impossible and nonsensical," Schlegel argues, because it relies on a mechanical interpretation of the brain – a kind of proto-neuroscience – that was still in its infancy (Schlegel II, 50). Any such account would require an entirely new "dynamic" physics, which was in development. Absent this renovation, the "experimental physics of the soul" would be nothing more than "ein bloßes blindes Tappen" (Schlegel II, 50). Schlegel thus imbricates rationalist philosophy and mechanical physics in a shared incapacity for the beautiful, as both reduce beauty to subjective illusion. Yet the phenomenon persists, and by attempting to explain it, they indulge the most fanciful digressions. Schlegel continues that

Da sie nun so aus den speziellsten Erscheinungen das allgemeinste ableiteten, jene doch aber auch nicht unerklärt lassen wollten, so nahmen sie natürlich ihre Zuflucht zu grundlosen Hypothesen, und so endigte die ganze Philosophie in gewissen Fibern des Gehirns, die zwar kein Mensch gesehen hatte, die aber eben deswegen um so bequemer zu regieren waren, und mit deren Vibrationen sie alles mögliche beliebig zustande brachten (Schlegel II, 50).

Schlegel contests the extrapolation of aesthetic experience into universal laws. Such experience cannot be generalized, because it is a matter for the "individual" (Schlegel II, 94). The attempt not only fails to describe art; it also produces "groundless hypotheses." So in accounting for beauty, the mechanists reveal their crude metaphysical presupposition: that human consciousness is reducible to "vibrations" in "certain fibers of the brain."

Schlegel's appeal to "vibrations" was not entirely unjustified since oscillation had been safe mathematical territory since Euler. Yet this security was guaranteed only for a single dimension, as the sound figures had proven. So it is understandable why Schlegel resists the term "vibration." Naturalistic psychology explains the obscure on the basis of the unknown, and beauty has long since departed. For Schlegel, the absence of beauty is enough to reject mechanism outright. That may seem rather an extreme conclusion, were it not for the

hopeful alternative that appears on the horizon. In his later lectures, which thematize music, Schlegel refers to Euler, whom he credits with founding the original equations for oscillation. And directly thereafter, Schlegel praises Chladni and his sound figures, which "carry oscillation, in certain respects, into the realm of geometry." This elicits the following declaration on Schlegel's part:

Auf dem mathematischen Wege möchte man bei noch so großer Vervollkommnung dieser Beobachtungen für die Erklärung des Verhältnisses der Töne zu unserem Gehör und dadurch zu unserer ganzen Organisation schwerlich etwas weiter gewinnen: denn dies Verhältnis ist ein lebendiges, und die Mathematik kann nur Konstruktionen der Phänomene nach Abzug des Lebendigen in ihnen liefern. Hier sind also höhere Aufschlüsse erst von der dynamischen Physik zu erwarten (Schlegel II, 219).

The sound figures extend oscillation beyond the security of proof. But for Schlegel, this is no temporary impasse: it represents the very limit of mathematical explanation itself. Thus further analyses will "schwerlich etwas weiter gewinnen." For the relationship between tone and hearing is "living," and mathematics must subtract the living for its "constructions." Much loftier achievements can be expected from the dynamic physics, which were currently in gestation. With this, Schlegel rejects mechanical physics for a possible new science, establishing the sound figures as a fulcrum for a new conception of beauty.

#### *4. Brentano's God in the sand*

Shortly after Schlegel's lectures were published in 1815, Brentano refers to the sound figures into "An Schinkel" (1817). In this ode to his friends, the architect Karl Friedrich Schinkel, and the poet Guido Görres, Brentano mobilizes the sound figures to represent the creation of artworks. Despite their novelty, Brentano embeds the sound figures within myth, and interprets them as language of God and/or nature. Compared to earlier cases of the sound figures, Brentano's poem is simultaneously less literal and more perceptive. For while the

poem emerges from the same wave of optimism as previous iterations, it also registers the delicacy of these aspirations. Brentano's analogy between the sound figures and consciousness evokes the infinite potential within the subject, but also an irredeemable temporality. And with similarly ambivalent effect, Brentano emphasizes the sand from which the figures emerge. This lends to "An Schinkel" a wistful sentiment that, in historical retrospect, signals the impending decline of speculative optimism.

I limit my interpretation to the third and fourth stanzas of Brentano's poem, in order to establish the meaning of his sound figure reference. The previous two stanzas elaborate Schinkel's creative process in vibrant terms, and summary would hardly do them justice. Let it suffice to say that, by the third stanza, Brentano introduces a source of antagonism for Schinkel.

Indessen ein Philister stolz verblüfft  
Durch aufgesteiften Leichnam des *Vitruv*,  
Von seines ausgestopften Schulpferds Huf  
Sich *Hippokrene* leckt, *Karnieschen* kniff,  
Bist Du mit *Orpheus* glaubend eingeschiff,  
Und wie in Klangfiguren Schöpferruf,  
Wie im Kristall der Ton Gestalt sich schuf,  
So Saitenklang in Deine Seele trifft.<sup>58</sup>

A philistine is "proudly amazed" by Vitruvius, whose architectural theory is based on geometrical beauty. That is insufficient, however, because the "aufgesteiften Leichnam" signals an impoverished creativity. So much is confirmed when the sceptic "licks" the horse's hoof. In Greek mythology, Hippocrene is a sacred poetic spring, formed by Pegasus's trail. Licking is an explicitly corporeal gesture, the brute satisfaction of need. So while the philistines are not named, the parallels with mechanism and rationalist aesthetics are hardly opaque. Whereas the sceptics reject inspiration, Schinkel follows the lyre, "glaubend." In

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<sup>58</sup> Brentano 3.1, 81.



antique mythology, Orpheus plays music to guide lost souls to the underworld. The sound figures intercept this divine music, rendering manifest an unknown script. Indecipherable as it is, there is no mistaking its provenance in "Schöpferruf." But who is Brentano's God? Intimations must suffice. In crystal, tone forges its own "Gestalt." The reflexive form of "sich schuf" depicts not an external force that acts upon nature, but a self-generating force *within* nature. Tone is the most ephemeral being, and crystal the most solid, yet these polarities are continuous in God. Brentano extends the identification using simile: "So Saitenklang in Deine Seele trifft." Tone and crystal are captured in a wider polarity between mind and nature. Does Brentano imply that mind obeys natural law? That is already his critical broadside, earlier in the poem, but the alternative is far more radical. Instead of reducing mind to mechanism, Brentano elevates nature to the level of mind. It thereby attains a capacity for self-determination, which was formerly the privilege of rationality alone. In the "Schöpferruf," nature achieves language.

Brentano's third stanza recalls Schelling's interpretation of the sound figures as *Signatura rerum*, and the pantheist conviction that grounds it. And Schlegel's heritage is evident in the specifically aesthetic mode through which language becomes visible. But what Brentano's poetry is better able to register than either of these discursive elaborations is the note of trepidation which accompanies speculation. The antagonism in stanza three resonates into stanza four, which acknowledges the ephemerality of imaginative forms: the consistently faithful, if unwelcome, companion of possibility.

Gehst Du jetzt wohl an meines *Görres* Hand,  
 Dem Liebe hier im Liede Dich gefügt,  
 Wo ernst der Rhein berauschte Ufer pflügt  
 Längs alter Tempel schicksalvollem Rand,  
 Und malst ihm meisterlich in feuchten Sand  
 Mit leichtem Stabe, dessen Zug nicht trügt,  
 Ein Dombild hin, dem nicht die Zeit genügt,  
 Noch Dir, der es erfand, ihm, der's verstand (Brentano 3.1, 82).

Schlegel invokes the guidance of Görres, another mutual friend. His "song" directs Schinkel, with temperate "love," towards the banks of the Rhine. Here a contrast between stasis and motion asserts itself: water constantly changes its form, whereas earth is solid. At the limit of stasis and motion, Schinkel envisages more lasting achievements. Harnessing the dynamic ebb of current, he draws in "feuchte[r] Sand" with a stick. The humble instrument does not impede his "masterful" design, yet one barrier remains – "die Zeit genügt [nicht]." The finite realm cannot grant Schinkel's vision reality. Neither may his advocates remedy this by force of will: "Noch Dir, der es erfand, ihm, der's verstand." These images might be realized, but just as easily, they can be washed away with the sand. So precisely in this draft space wherein finite and infinite intersect, a note of trepidation lingers. The sound figures are celebrated for their capacity to unite sensation and Idea. Yet shortly thereafter, a parallel image of reality puts this achievement into question. The creations of artistic imagination may appeal to infinity yet are still drawn in "sand."

In Brentano, the sound figures reach their speculative apogee. They register the "Schöpfungerruf" of creation, purging the idolatrous aesthetics of rationalism and empiricism for a purer "Gestalt" of ideal forms. Much like Schelling and Schlegel, Brentano's reference occurs within a critique of prevailing thought: it reveals itself negatively through terrestrial appearances. Herein the mythological density of Brentano's third stanza. Reason's prehistory runs more deeply than *Verstand* would allow, its trace discernible even within ancient mythology. Schinkel's dome in sand, in Brentano's fourth stanza, echoes the fleeting symmetry of the sound figures, a temporal symbol through which eternal geometry appears. This delicacy is integral to the poem itself, as it simultaneously registers the self-doubt that troubled Brentano. The speculative apogee of the sound figures, therefore, also marks the beginning of their decline. Jean Paul Richter and Arthur Schopenhauer would soon convert this elegy of sand into blunt evidence of finitude.

## *Conclusion*

As the sound figures grounded literary works in empirical reality, so too did literary works legitimize an experiment that flirted with *Taschenspielerei*. Could Chladni have achieved this independently? He was resourceful enough to transform a theoretical dead end into an object of aesthetic fascination, to be sure, and even recognized his own artistic proclivity – but this never led him to abandon his vocation as physicist: the determining factor in his discovery. It took a literary and philosophical reception to fully unfurl the significance of the sound figures, which highlights the differentiated reciprocity between science and culture in this era. And if it appear strange that literature could legitimize the products of science, perhaps our implicit conception of literature is at fault. The sound figures show that, for Schelling, Schlegel, and Brentano, culture was not merely a diversion from the serious business of science, but rather an essential resource for detecting and indeed "constructing" nature itself (Schelling III, 332.). The pioneering effort to think beyond the limit of mechanical physics, in lieu of an alternative science, is the lasting achievement of these contributions. The sound figures testify that these authors do not merely take refuge from uncomfortable facts in philology, but adopt the burden of establishing a new science.

## Chapter Two

## **Beyond words: Goethe's interpretation of Chladni's sound figures via the entoptic colors**

In the previous chapter Friedrich Wilhelm Joseph von Schelling, August Wilhelm Schlegel, Clemens Brentano expressed through the sound figures a *Signatura rerum*. Early in that same chapter Johann Wolfgang von Goethe was quoted to illuminate the pragmatic disposition of the sound figures' inventor Ernst Chladni, thereby supplying a bridge between science and culture. In a letter to Friedrich Schiller that was written shortly after the initial meeting between Goethe and Chladni, Goethe counted the acoustician among "die Glückseligen, welche auch nicht eine Ahnung haben, daß es eine Naturphilosophie gibt."<sup>59</sup> This chapter returns to that comment in order to contextualize it and expound the judgement it contains. While their personal relationship was not especially remarkable, Chladni made a disproportionate impression on Goethe, tempered as it was by suspicion and even a note of jealousy. For Chladni represented a branch of physics – namely the prevalent mechanical physics of the era – that Goethe distrusted. At the same time Chladni's ability to popularize his research was unprecedented, which Goethe admired even as it exacerbated his own struggle to promulgate *Zur Farbenlehre* (1810). It is no surprise therefore that Goethe's attitude towards Chladni was ambivalent. In this chapter I suggest that this was not just a peccadillo on Goethe's part, but actually reflects his most fundamental thinking about nature.

The *Farbenlehre* was an empirical investigation into vision and colors that spanned several decades. Goethe's principal innovation was to investigate perception without recourse to abstraction, or in other words, to analyze visual phenomena as they emerged and developed within time. Given Goethe's personal criteria for success – to overcome the dominant Newtonian theory of color – it is no surprise that the project fell short of his

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<sup>59</sup> Goethe, II.5, 315.

expectations.<sup>60</sup> Thus did a vein of bitterness develop in Goethe's otherwise magnanimous character.<sup>61</sup> Given the success of Chladni's popularization efforts, and the *Farbenlehre's* relative failure, it is hardly an exaggeration to say the sound figures represented an open wound for Goethe. He recognised the experiment's influence even as his own color theory languished, by the standards of his literary success, at least. This contextualizes Goethe's interpretation of the sound figures in the second edition of *Zur Farbenlehre* (1820), where the experiment supports his entoptic colors or inverted color impressions that linger on the retina. Though it is confined to just a few pages, the discussion reveals a vacillation between excitement and disappointment on Goethe's part. And when this drama is interpreted alongside the previous sound figure reception in the previous chapter, it gains a deeper meaning. To develop this hypothesis, I introduce a 1799 diary entry that harbinges Goethe's scientific difficulties and explains his caution when Chladni visits in 1803. Over the next fifteen years Goethe refers to Chladni in a letter to Karl Ludwig von Knebel in 1815; a recommendation letter to C. G. v. Voigt in 1816; and an essay entitled "Schicksal der Handschrift" (1817). These incidents build up into the expanded edition of the *Farbenlehre*, which contains Goethe's own interpretation of the sound figures. I conclude with an 1829 letter to Christoph Friedrich Ludwig Schultz, in which Goethe reflects on his career with a final reference to Chladni.

### *Introduction*

The goal of this chapter is to situate Goethe's sound figure interpretation in a larger trajectory of reception. But doing so means navigating Goethe's enormous influence on German culture. Even bracketing off Goethe's purely literary endeavours, recent scholarship

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<sup>60</sup> Sepper 1988, 1.

<sup>61</sup> Eckermann, 84, gives an account of Goethe's frustration. This passage is curiously excised from Goethe's *Sämtliche Werke*.

has uncovered the influence of the morphology on neo-Kantianism;<sup>62</sup> proto-phenomenological readings of the *Farbenlehre*;<sup>63</sup> the influence of "zarte Empirie" on idealism.<sup>64</sup> Yet these incursions into Goethe's heritage have also brought into relief a parallel need to explain how his work could withstand subsumption into any single tradition – for that is the source of its generative potential. I suggest an unlikely source for this potential resides in one of Goethe's less popular projects (relatively speaking), namely the *Farbenlehre*. Though neglected in its time, this isolation might in retrospect have secured the project's longevity. The *Farbenlehre* is a good example of *zarte Empirie* insofar as it does not advance a methodological program, but strives to remain open to the richness of experience. That would account for both the difficulty of replicating Goethe's approach to sensation, and the fecundity of its reception before and after the decline of speculation in 1840.<sup>65</sup>

Goethe's *zarte Empirie* establishes sensation as inexhaustibly rich and thus sovereign over the concept: a principle that leant itself to both literary and scientific endeavours. Commentators have repeatedly attributed to Goethe's scientific output an aesthetic quality. Most recently Joel B. Lande underlined the "literary" aspect of the *Farbenlehre*.<sup>66</sup> But if aesthetic intuition helped to cultivate the book's descriptive power, it was also a considerable impediment for Goethe, since the increasing polarization of science and culture was suboptimal terrain for the reception of his research. This made Goethe an outlier in the scientific community. Nevertheless, some interpreted this as an advantage. In the earliest major reception of the *Farbenlehre*, Schelling's *Philosophie der Kunst* (1802) claimed Goethe's project exhibited "die innigste Harmonie zwischen Natur und Kunst" and a means (Mittel) "die Theorie mit der Praxis des Künstlers zu verbinden."<sup>67</sup> Schelling situates Goethe

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<sup>62</sup> Geulen 2008, 55.

<sup>63</sup> Boyle 2017, 478.

<sup>64</sup> Förster *The Twenty Five Years*, 250.

<sup>65</sup> Beiser 2016, 19.

<sup>66</sup> Lande 2016, 143.

<sup>67</sup> Schelling I.5, 510.

amidst the growing chasm between culture and science but also discerns in the project a potential resolution. Herein Schelling's characterization of the *Farbenlehre* as a "Mittel" between polarities. This astute observation corroborates Goethe's reticence towards fixed positions of any kind, and might explain why his work exhibits a seemingly inexhaustible potential. For all this, it is also critical to recognize the Faustian nature of this bargain, since it made Goethe's expulsion from the scientific community almost inevitable.

To this day Goethe's *Farbenlehre* strikes commentators as "turgid" when compared with the elegant mathematics of conventional optics.<sup>68</sup> This echoes criticism Goethe received in his own time.<sup>69</sup> But having read Baruch Spinoza seriously<sup>70</sup> and drawing inspiration from Immanuel Kant,<sup>71</sup> Goethe felt licensed to extrapolate sensation beyond mathematical formulae – a tendency he shared with the idealists, who he may even have influenced. David Wellbery describes how Goethe's "Gebilde" impacted Georg Friedrich Wilhelm Hegel.<sup>72</sup> But Wellbery is also careful to preserve a distinction between the two men. That is appropriate since Goethe and Hegel both fundamentally disagreed about the dialectic, which is not a trivial component of Hegel's philosophy. Here I wish to linger on this moment of difference. For it seems that Goethe's hesitation before the Hegelian concept is what kept his work indeterminate, and by indeterminate I do not mean vague, unphilosophical, or obscure. I simply mean that his work retained the potential to develop in multiple and even opposing directions. Wellbery convincingly argues that the "Gebilde" influenced Hegel – but how then should one interpret Goethe's corresponding influence on Hegel's arch-enemy Arthur Schopenhauer? To explain this apparent contradiction, the crude mechanism of biography is best avoided. I suggest instead that Schopenhauer's "unintelligent fury"<sup>73</sup> towards Hegel

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<sup>68</sup> Darrigol 2012, 118.

<sup>69</sup> See Goethe 1.23/2, 613 for contemporary reviews.

<sup>70</sup> Förster *Spinoza and German Idealism*, 85.

<sup>71</sup> Amrine 2011, 35.

<sup>72</sup> Wellbery, 217.

<sup>73</sup> Nietzsche 5, 130.



indicates something much more fundamental: that their respective works express an antinomy between totality and nothingness.

In parallel with the Hegelian reading of Goethe, there exists in the scholarship a covertly Schopenhauerian counterpoint. Jonathan Crary interprets Goethe's conflation of subject and object in the entoptic colors as a new paradigm of "physiology."<sup>74</sup> He establishes a trajectory which incorporates Schopenhauer and Hermann von Helmholtz among others. That thesis is plausible since the young Schopenhauer was Goethe's protégé for the *Farbenlehre* during the winter of 1813. But it does not account for the rupture between the two men, which took place immediately after Schopenhauer published *Über das Sehen und die Farben* in 1816. It is understandable why this might have been overlooked since the scholarship prevailingly treats the encounter as biographical ephemera.<sup>75</sup> But this encounter has several layers, as not only does it signal Goethe's distance from the determinate concept, it lays bare the deep and irreconcilable differences between the two men concerning nature (differences which are no less drastic than those which separated Goethe from Hegel). But in Schopenhauer's case, this rift is arguably more profound; for with *Die Welt als Wille und Vorstellung* (1818) the heavy curtain of dualism descends upon speculation, and it would remain in place throughout the neo-Kantianism of the late nineteenth century.<sup>76</sup> Goethe's disagreement with Schopenhauer should, therefore, complicate any historical narrative. But for now, I simply wish to indicate the often solitary nature of Goethe's *Farbenlehre*, a quality that he rued, and yet one that might actually have secured the longevity of his project.

*Early resistance*

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<sup>74</sup> Crary, 4.

<sup>75</sup> Lauxtermann, 599 is a notable exception.

<sup>76</sup> Beiser 2014, 5.

From the beginning Goethe's *Farbenlehre* faced hostility from the scientific community, which must have colored his interaction with Chladni. The following anecdote shows how Goethe initially met such resistance with a good cheer he could not permanently maintain. On a visit to Heidelberg in 1799 Goethe met his old childhood friend Schlosser, who dabbled in physics. As they discussed the *Farbenlehre*, a point of contention develops around Euler, the physicist famous for establishing the contours of acoustics and for his popular introductory textbooks like *Briefen an einer deutschen Prinzessin* (1768).<sup>77</sup> Goethe treats Schlosser to a lecture on the *Farbenlehre*. Afterwards, Schlosser inquires about Euler's bearing on the project. Goethe admits that Euler's work has little relevance. The *Farbenlehre* seeks "unzählige Erfahrungen ins Enge zu bringen, sie zu ordnen, ihre Verwandtschaft, Stellung gegeneinander und nebeneinander aufzufinden." Schlosser, however, is unconvinced: "Diese Art mochte ihm [Schlosser] jedoch, da ich nur wenig Experimente vorzeigen konnte, nicht ganz deutlich werden" (Goethe, I.16, 610).

Why did Schlosser remain sceptical? When narrating this encounter Goethe's tone is laconic. But reading between the lines, he seems unsettled. In a last effort to convince Schlosser Goethe reads aloud from an essay he has prepared. The piece explains how physicists could interact with the color theory. After listening patiently for a time, Schlosser responds:

Ich sei, meinte er, in meinen alten Tagen noch immer ein Kind und Neuling, dass ich mir einbilde, es werde jemand an demjenigen teilnehmen, wofür ich Interesse zeige, es werde jemand ein fremdes Verfahren billigen und es zu dem seinigen machen, es könne in Deutschland irgendeine gemeinsame Wirkung und Mitwirkung stattfinden! (Goethe, I.16, 610).

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<sup>77</sup> Records show Goethe loaned this text from the library on at least two separate occasions. Goethe, I.23/1, 1224.

Goethe is self-effacing, and the humor of the passage derives from his punctured vanity. But one also senses that this humor is a little forced, and is perhaps intended to conceal the true seriousness of the matter. For within science vanity has more profound function: it unmask as subjective that which strives to become objective. One surmises that, in fact, Schlosser's remark cut Goethe to the bone. Fool was he to believe that "es könne in Deutschland irgendeine gemeinsame Wirkung und Mitwirkung stattfinden!" This moment of self-doubt lingers throughout Goethe's scientific career. Goethe brushed it aside in the early years, but he could never suppress it entirely. Was the color theory really just the work of an eccentric poet? That question was not merely the product of insecurity (Goethe could hardly be accused of this), but was prompted instead by the reality of a hostile reception, and diminishing scientific proponents.

### *The Chladni encounter*

Several years later in 1803 Goethe's casual letter to Schiller records Chladni's January visit in Weimar.

Doctor Chladni ist angekommen und hat seine ausgearbeitete Akustik in einem Quartbande mitgebracht. Ich habe sie schon zur Hälfte gelesen und werde Ihnen darüber mündlich über Inhalt, Gehalt, Methode und Form manches Erfreuliche sagen können. Er gehört, wie Eckhel, unter die Glückseligen, welche auch nicht eine Ahnung haben, daß es eine Naturphilosophie giebt und die nur mit Aufmerksamkeit suchen die Phänomene gewahr zu werden, um sie nachher so gut zu ordnen und zu nutzen als es nur gehen will, und als ihr angebornes, in der Sache und zur Sache geübtes Talent vermag.

Sie können denken, daß ich sowohl beim Lesen des Buchs, als bei einer mehrstündigen Unterhaltung, immer nach meiner alten Direction fortgeforscht habe, und ich bilde mir ein einige recht gute Merkpuncte, zu weiteren Richtungen, bezeichnet zu haben.

...

Auch hatte ich eben die Farbenlehre einmal wieder durchgedacht und finde mich, durch die in so vielem Sinn kreuzenden Bezüge, sehr gefördert.

Möchten Sie wohl Chladni eine Viertelstunde gönnen? damit Sie doch auch das Individuum kennen lernen, das, auf eine sehr entschiedene Weise, sich und seinen Wirkungskreis ausspricht. Vielleicht geben Sie ihm, da er von Jena aus gern Rudolstadt besuchen möchte, eine empfehlende Zeile mit (Goethe, II.5, 315).

It is worth noting that Goethe does not mention the sound figures. Given their fame, that suggests a rounded engagement with Chladni's work. Indeed, Goethe has already read "half" of *Die Akustik* (1802), which Chladni gifted him. Goethe expects to provide to Schiller an oral summary, not merely the results but its "Inhalt, Gehalt, Methode und Form." The tone of the letter indicates that Chladni's visit was not previously announced to Schiller, but its length suggests the encounter exceeded expectations. Thus one wonders why Goethe draws a line between Chladni and the *Naturphilosophie*. Specifically, Chladni is accused of attending to the phenomena only insofar as it suits his purposes, namely, by retrospective construction: "nur mit Aufmerksamkeit suchen die Phänomene gewahr zu werden, um sie nachher so gut zu ordnen und zu nutzen als es nur gehen will." Goethe hints at the formalism of this enterprise: "und als ihr angebournes, in der Sache und zur Sache geübtes Talent vermag." But for all this, interacting with Chladni has stimulated Goethe "in his old direction." It prompts him to reflect on the color theory, in which he now feels "sehr gefördert." Goethe asks whether Schiller might like to meet Chladni: an individual "das, auf eine sehr entschiedene Weise, sich und seinen Wirkungskreis ausspricht." That phrase carries a mixture of admiration and caution: Chladni is "decisive" and "speaks with confidence in his *own sphere of influence*" (my italics) – but not necessarily Goethe's sphere of influence.

Goethe's letter represents the first hint of an enduring ambivalence towards Chladni and his experiments. On the one hand, there is an obvious distance between the two men, which seems to be motivated by the tenets of *Naturphilosophie*. On the other hand, Goethe admires Chladni's experiments, which apparently support his color theory. It must remain an open question why this ambivalence was never fully articulated. Perhaps Goethe wished not to hinder such promising research. After all, Goethe's words could devastate a struggling artist like Chladni, to whom he must have felt at least some sense of kinship. Another

possibility is that *zarte Empirie* could tolerate a plurality of approaches. Whatever the truth of the matter, it demonstrates the agnostic element of Chladni's thinking. The acoustician forebears to offer interpretation, being content to furnish data for posterity. Yet Chladni's native caution belies an immense suggestive potential. Combined with a lack of explanation, therefore, it is obvious why they were such a compelling riddle.

On the same day, Schiller responds to Goethe from his Weimar residence. His letter is predominantly concerned with the tragic play he is composing. Though it concludes: "Den Chladni werde ich Nachmittags mit Vergnügen sehen" (Goethe, II.5, 316). For his part, Schiller does not remark further on the encounter. But it is safe to assume the visit took place, since in his next letter to Schiller (05/02/1803), Goethe writes:

Ferner ergeheth Anfrage und Bitte freundlichst dahin: daß Sie mit Ihrem Herrn Schwager und beiden Damen, entweder Montags statt der Komödie, oder Dienstags nach dem Chladnischen Concert, bei mir einsprächen, auf alle Fälle aber ein freundschaftliches Abendessen bei mir einnehmen (Goethe, II.5, 316).

Evidently, Chladni has pleased Goethe and Schiller enough to merit their attendance at one of his concerts. There are no records to indicate what Chladni played, or how his audience responded. But Chladni's other demonstrations at this time suggest that he displayed the sound figures, and various self-manufactured instruments like the "euphone:" a keyboard that used tuning forks to generate sound.<sup>78</sup> Goethe would not mention Chladni again in writing until several years later, but when he does, it is evident that the acoustician left a considerable impression upon him.

*Letter to Knebel*

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<sup>78</sup> Jackson, 19.

Seven years later Goethe published the first edition of his *Farbenlehre* (1810). He makes no reference to Chladni in this edition. But over the next ten years he expands and reflects on his initial results, making tentative connections to the sound figures. Midway through this process Goethe writes to Karl Ludwig von Knebel on 23/02/1815 with an account of "[d]ie neuen Seebeckischen Versuche und Entdeckungen." These efforts involve quickly heating and cooling glass sheets before examining them with the help of reflective mirrors. This produces "farbige Bilder... die sich nach der Gestalt der Körper richten, in vollkommener Ähnlichkeit mit der Chladnischen Klangfiguren" (Goethe, II.7, 409). Evidently Goethe has been reflecting on Chladni's work. He proceeds to associate the sound figures, and Thomas Johann Seebeck's plates, with his own "entoptic colors" (foreshadowing a full comparison in the second edition of the *Farbenlehre*). Goethe concludes with an exclamatory statement that "[m]an muß das Phänomen mit Augen sehen, weil das Wunderbare und Anmuthige davon nicht zu beschreiben ist" (Goethe, II.7, 409).

Goethe's letter is remarkable. The first noteworthy aspect is Goethe's insistence on colorful "images," which underlines the visuality of the phenomenon. It is through image alone that natural law shall become manifest. The concluding statements leaves no room for ambiguity: one must "see the phenomenon with one's eyes," because its wonder simply "cannot be described." Not only does Goethe specifically refer to vision, he insists that words and concepts fall short of the phenomenon. That should not be interpreted as the complete denial of conceptuality, since the visual experience must still be "ausgelegt" (Goethe, II.7, 409), which means there is still some room for technical analysis. The letter exhibits Goethe's thinking on sensation, and suggests how images might be understood qua sensation rather than abstract mathematics.

*Letter to C. G. v. Voigt*

Just over one year later Goethe recommends Chladni for a position in Jena University, suppressing his initial doubts (which is not trivial since, Goethe was not incapable of writing a lukewarm introduction).<sup>79</sup> On the 26th of August, 1816, Goethe writes to Voigt that

Wenn Chladni für ein maßiges in Jena zu fixieren ist; so wird er immer wohlthätig wirken. Er hat die Klanglehre und die Meteorsteine festgehalten und emsig durchgearbeitet, das ist immer ein gros Verdienst. Die Klangfiguren hat er jetzt auf einfachere Elemente zurückgeführt und dadurch der Naturlehre einen wahrhaften Dienst geleistet, indem dadurch analoge Erscheinungen anderer Regionen herangebraucht und verglichen werden können (Goethe, II.8, 40).

Goethe prognosticates the longevity of Chladni's career. His "great achievements" include acoustical work ("die Klanglehre") and research on meteorites (discussed in the final pages of the *Akustik*). But most remarkable is Goethe's first explicit comment on the sound figures. In his gloss Chladni has "derived [the sound figures] from simpler elements" and thereby done a service to the "Naturlehre." Goethe once doubted whether Chladni could facilitate the *Naturphilosophie*. Now Chladni appears to "solicit and compare analogous appearances from different regions." That indicates the extent to which Goethe has separated Chladni the man from his output. The terms Goethe utilizes (namely "Naturlehre," "Regionen," "analoge Erscheinungen") derive from his personal scientific vocabulary – they are absent from Chladni's work. This short letter therefore shows how Goethe's view on Chladni and his experiments is evolving.

#### *Chladni and the disparate regions of thought*

Written one year later, after Goethe's return from Italy, "Schicksal der Handschrift" expresses a "peinliche[r] Zustand" of "Verzweiflung" (Goethe, I.24, 414). Goethe puts this

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<sup>79</sup> Goethe declined to provide Schopenhauer with a letter of recommendation to the university at Göttingen, and offered him only a tepid letter of introduction to the classicist Friedrich August Wolf in Berlin.

down to intellectual isolation: "niemand verstand meine Sprache." Goethe is doubtless experiencing the ennui of homecoming, but there is something more at work. Goethe laments having to relinquish the Italian appreciation of the senses: "die Entbehrung war zu groß, an welche sich der äußere Sinn gewöhnen sollte, der Geist erwachte sonach, und suchte sich schadlos zu halten" (Goethe, I.24, 414). In a circumstance of deprivation, Goethe must reacquaint himself with the cooler pleasures of the intellect.

Goethe had long thematised the impoverishment of sensation in his *Farbenlehre*. That might explain why "Schicksal" develops thoughts derived from the Chladni recommendation letter. Goethe invokes the phrase "regions," for example – which he had earlier praised Chladni for unifying. This repetition gestures towards internal coherence, since Goethe also divides his own recent work into "regions." First this includes Goethe's aesthetics; second an investigation into nature; and third an examination of what Goethe calls the "wills and morals of nations," the locus of necessity and contingency, which is neither art nor nature, and yet both at once (Goethe, I.24, 415). Thus does Goethe summarize and categorize his studies of "menschliche Gesellschaft." Goethe revivifies these "regions" with an anecdote concerning his publisher Herr Göschen. On sending a manuscript of scientific investigations, Goethe is surprised to have the publisher decline, balking at "solchen Übersprung in ein anderes Feld". Even at this late stage in his career Goethe is still surprised that such boundaries exist between scientific and literary work. But for his part, Goethe insists that only those who can balance themselves between polarities achieve true happiness. They harmonize oppositions "um das Ganze zu haben" (Goethe, I.24, 415).

The "whole" is the highest aspiration of thought and "regional thinkers" have the best chance of attaining it. It is in this context that Goethe makes his most notable reference to Chladni.



Wer darf mit unserm Chladni rechten, dieser Zierde der Nation? Dank ist ihm die Welt schuldig, daß er den Klang allen Körpern auf jede Weise zu entlocken, zuletzt sichtbar zu machen verstanden (Goethe, I.24, 416).

Chladni is no less than the "treasure of the nation". He is the paradigm of unfettered enthusiasm, disregarding the disciplinary boundaries that have unjustly constrained men of genius. So Goethe's attitude to Chladni appears to have changed. If the lack of *Naturphilosophie* was once to be lamented, now it is a virtue. Thanks to Chladni, Goethe says, the world can elicit sound from various bodies. Equally laudable are his observations of cosmic objects. But he goes on to pose an unexpected question: what could unify these distinct endeavours? Nothing less than "ein geistreicher, aufmerkender Mann zwei der entferntesten Naturvorkommenheiten seiner Betrachtung aufgedrungen fühlt, und nun eines wie das andere stetig und unablässig verfolgt." This is surely an unusual comment for Goethe to make, given that internal consistency was never Chladni's aim. The acoustician had bound speculation to experiment, and displayed a proclivity for incremental progress. In this regard, he embodies a nominalist strand of the emerging natural sciences. Wherefore, then, this unsolicited defense? The only explanation is that Goethe is responding to his own critique of Chladni that was first articulated several years earlier. The moment registers an unmistakable tension between holistic *Naturphilosophie* and its proto-positivist correlate.

#### *Goethe's sound figures interpretation*

In a prelude to the second edition of his *Farbenlehre*, dated July 20th, 1820, Goethe introduces his investigation of entoptic colors. "Bei diesem Geschäft," he notes cryptically, "erfuhr ich... günstiges und ungünstiges Geschick" (Goethe I.25, 682). This clearly gestures towards the difficulties of Goethe's scientific reception. Goethe informs the reader that this series of investigations repeat the trials from two years ago. He thanks a range of authors including Hegel, Christoph Friedrich Ludwig Schultz, and Seebeck. But most importantly,

Goethe adds a disclaimer that qualifies his text: "Freilich müßte sie mündlich geschehen bei Vorzeigung aller Versuche wovon die Rede ist: denn Wort und Zeichen sind nichts gegen sicheres lebendiges Anschauen" (Goethe I.25, 683). This forthright statement must unsettle the scientist and literary scholar alike. Goethe insists the phenomenon occurs within vision. It is the unsealable gap between vision and its linguistic or mathematical representation that necessitates Goethe's idiosyncratic approach.

The entoptic colors are after-images on the retina. To create them Goethe places two mirrors at an angle, which he observes them through an eyepiece. If the source of color is blocked directly after observation, the color of its after-image is inverted in the retina. Goethe then adds four different lens stages, and introduces a special glass cube (produced by Seebeck especially for this purpose). These "stages" constitute an explanation of the "ganzen Felde" of the phenomenon, which allows the reader "mit den Augen des Leibes und Geistes ungehindert methodisch vor und rückwärts [zu] blicken" (Goethe I.25, 707). That is the advantage of Goethe's approach, as opposed to what he polemically designates the "mechanisch[e] Vorrichtung" that "obscures" [verfinstert] the phenomenon by "representing" [vorstellen] it "theilweise oder außer Zusammenhang" (Goethe I.25, 707). One discerns here the practical implementation of the prerogative of the whole. The conventional mechanical physics are partial and inadequate.

After having exhausted the phenomenon of the entoptic colors with the full series of transitions, Goethe proceeds to consequences. The entoptic colors are

ein herrliches Beispiel, daß alles im Universum zusammenhängt, sich auf einander bezieht, einander antwortet. Was in der Atmosphäre hervorgeht, begiebt sich gleichfalls in des Menschen Auge, und der entoptischen Gegensatz ist auch der physiologie (Goethe I.25, 709).

The contemporary reader is liable to read the term "universe" with some discomfort. Since Kant, the whole could not be anything more than a regulative ideal or aspiration. "Universe"

confronts the reader with a manifest totality that includes the physical.<sup>80</sup> The implication here is not that Goethe has achieved a divine perspective. The suggestion that whatever transpires in the "atmosphere" simultaneously transpires in the "human eye" reflects Goethe's certainty that the perceiver is part of a totality – even if this certainty is manifest as "feeling of truth" [Wahrheitsgefühl] rather than conventional knowledge. Herein Goethe's claim that everything "zusammenhängt, sich auf einander bezieht, einander antwortet" (Goethe I.25, 709). The universal speaks through the particular. Goethe describes a universe connected by speech that is not our own.

### *The comparison with entoptic colors*

After concluding his account of the entoptic colors, Goethe introduces a series of comparisons. Proceeding in accordance with analogy, which brings a measure of caprice, Goethe says "Die beschriebenen Figuren im Innern des Auges werden in mir unwiderstehlich die Erinnerung an die Chladnischen Klangfiguren." This "awakening" of "memory" is not arbitrarily decorative. Later in the passage the sentiment recurs: "Alle... Personen, sobald sie unsern entoptischen Cubus... erblicken, riefen jedesmal die Ähnlichkeit mit den Chladnischen Figuren, *ohne sich zu besinnen, lebhaft aus*" (my italics, Goethe I.25, 711). It seems important to Goethe that the association between the entoptic colors and the sound figures occur spontaneously in the imagination, before the understanding [Verstand] has oriented itself. For this would precipitously terminate the comparison before any evaluation could begin. The imagination therefore plays an important role in the organisation of Goethe's comparison here.

Goethe suggests the sound figures may be interpreted as an "analogy" of the entoptic colors. The association derives from the principle that "alles was den Raum füllt, nimmt, in

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<sup>80</sup> Grant, 26.

so fern es solidescirt, sogleich eine Gestalt an" (Goethe I.25, 822). Both the entoptic cube and the sound figures display "gleiche Empfindlichkeit gegen die Wirkung des Lichts und atmosphärische Wirkung" (Goethe I.25, 822). Despite the variety of materials in play ("light" and "atmosphere" respectively), Goethe suggests a homogeneity between the physical relations they embody. These relations are themselves imperceptible and must therefore manifest themselves through a variety of physical objects. The basis of the comparison thus established, Goethe introduce an idiosyncratic interpretation of the sound figures. He derives from the entoptic cube two stages or "Gestaltungen." The first "Gestalt" is produced by the oscillating points of the sounding body, whereas the second is produced by their cessation. According to Goethe, Chladni concerned himself exclusively with the latter (which is by implication a "partial" analysis). But there is no mention of Chladni's association with mechanical physics, which Goethe has disparaged just pages earlier. Instead Goethe limits himself to a technical intervention, namely the "gewisses inneres Verhältniß" of these "similar" phenomena, and specifically their "Entstehungsart" (Goethe I.25, 711). Goethe proceeds to expound this "Entstehung" in schematic comparison.

Chladnis	Figuren	Seebecks
	entstehen	
1) durch Schwingungen		1) durch Schwingungen
	diese werden bewirkt	
2) durch Erschüttern der Glastafeln;		2) durch Erschüttern der Glastafeln, durch Druck x.;
	verharren	
3) in Ruhe;		3) durch schnelle Verkühlung;

4) durch neues Erschüttern;	verschwinden	4) durch neues Glühen und langsame Erkaltung;
5) nach der Gestalt der Tafel;	sie richten sich	5) nach der Gestalt der Tafel;
6) von außen nach innen;	sie bewegen sich	6) von außen nach innen;
7) parabolische Linien, welche mit ihren Gipfeln gegen einander streben, beim Quadrat von der Seite, um ein Kreuz zu bilden;	ihre Anfänge sind	7) parabolische Linien, welche mit ihren Gipfeln gegen einander streben, beim Quadrat aus den Ecken, um ein Kreuz zu bilden;
9) als oberflächlich	sie beweisen sich	9) als innerlichst.

(Goethe I.25, 711-2)

To this schema Goethe adds the following proviso. The "eigentlich Vergleichung" must transpire in vision, since it "mit Worten nie vollkommen dargestellt werden kann, weil das innere Naturverhältniß... nur geahnet werden kann" (Goethe, I.25, 712). Goethe's use of "ahn[en]" recalls the "Ähnlichkeit" of analogy, the largely unconscious process of association elaborated a few pages earlier. It is critical to recognize that, for Goethe, the visual experience of the phenomenon is paramount and cannot adequately be represented in words and concepts. This might explain why "feeling" and "imagination" are so consistently implicated in the experience. It is this experience in sensation that Goethe proposes to unfold, rather than "explain," since an explanation is not the same thing as the visual sensation of the phenomenon (as we shall see, "Wirkung" occupies merely one "Gestalt" in Goethe's analysis). Herein lies the interest of his sound figure comparison, which implements the

developmental schema from the entopic colors analysis. What does this reveal about the sound figures?

Goethe characterises his interpretative innovation as the "Entstehung" of the sound figures, as opposed to Chladni, who had interpreted them as product and thereby overlooked the process. Goethe intends to analyze the phenomenon qua becoming rather than being. That would explain why his analysis is divided into stages. It is worth noting that Goethe divides the earliest stages into "entstehen" (associated with "Schwingungen" in both cases) and "bewirk[en]" (durch "Erschüttern" in both cases) respectively. Why might he distinguish between what appears to be the same thing? On closer examination, the distinction between "Schwingung" and "Erschüttern der Glastafeln" is the presence of an object of sense. Thus "bewirken," whose root stems from "Wirklichkeit," belongs in the domain of sensation. But "Schwingung" is an imperceptible phenomenon that merely manifests itself in "Erschüttern." So in what relation does "Schwingung" stand to "Erschüttern"? Both are modulations of the same cause: one viewed empirically, and the other universally, as the imperceptible process of nature's self-generation.

Thus does Goethe utilize the sound figures to evoke generation beyond the empirical, even as the universal cannot be inferred beyond vision. Through analogy Goethe suggests the "mysterious," internal processes of self-generation in nature itself, or "das eigentliche Gesamtleben der Natur" (Goethe I.25, 710). But throughout Goethe's account there also remains the trace of his personal struggle for recognition, and Chladni's unwitting role in exacerbating this. Goethe explicitly refrains from "polemic," and gestures towards his struggles in the preface. But the only hint of ill will towards Chladni himself expresses itself systematically. In the concluding stage of the comparison, Goethe notes that the sound figures "beweisen... sich also oberflächlich," whereas the entoptic cubes "beweisen... sich als innterlichst" (Goethe I.25, 712). To be sure, this accurately describes the fleeting nature of

Chladni's figures. But in the coded language of the *Farbenlehre*, it is hard not to discern here a veiled claim to superiority qua proximity to nature – signaling intellectual victory even as Chladni wins out in the "superficial" court of public opinion.

*Letter to Christoph Friedrich Ludwig Schultz*

As the years went by, Goethe could not help but view Chladni's success with grudging admiration. Almost ten years after completing the comparison between entoptic colors and the sound figures, Goethe reflects on his color theory in a letter to Schultz (29/05/1829). He laments the enduring unpopularity of the *Farbenlehre*. What could explain this? Perhaps the theory lacked an adept; someone who could utilize the power of demonstration.

Was meiner Farbenlehre eigentlich ermangelte, war, daß nicht ein Mann wie Chladni sie ersonnen oder sich ihrer bemächtigt hat; es mußte einer mit einem kompendiosen Apparat Deutschland bereisen, durch das Hokus Pokus der Versuche die Aufmerksamkeit erregen, einen methodischen Zusammenhang merken lassen und das Praktische unmittelbar mitteilen, das Theoretische einschwärzen, den Professoren der Physik überlassen, ihrer verworrenen Borniertheit gemäß sich zu betragen, nach ihrer Weise (Goethe, I.23/2, 577).

"Hokus Pokus" carries an unmistakably pejorative tone, and reveals Goethe's hesitation regarding the *Taschenspielerei* of public performance. Yet Goethe simultaneously acknowledges the need for this gesture. Demonstration must rouse "Aufmerksamkeit" in the audience not for the sake of awe, but to facilitate comprehension. Goethe's comments are rather bitter. After all, he devoted many years to the *Farbenlehre*. But his rancor is not directed towards the general populace. It was rather the "professors of physics" who did not give his work a fair hearing. These scholars were sealed in a hermetic discourse and refused to countenance alternative viewpoints.

Goethe could overlook Chladni's proximity to mechanical physics on account of the sound figures' appeal. Harder to ignore was Chladni's theatrical disposition. For Goethe knowledge was manifest in observation. Demonstration was not simply a matter of presentation but the thing itself, since it could produce the universal evidence of the senses. Its results were unencumbered by the dogma of the present. For Goethe demonstration revealed how the phenomenon and its truth are inseparable. It conveyed such truths without recourse to jargon: there was no explanation, only description. But that was a most delicate task. For everything depended on capturing the pure phenomenon, which ruled out compromise or simplification. Goethe's goal was therefore not merely to popularize. Rather, he hoped to achieve a lasting unity between theory and practice: a perfect message, albeit one he failed to send. This helps to explain why Goethe's attitude to Chladni was so ambiguous. On one hand, Goethe was enamored of Chladni's theatrical presentations. On the other hand, Goethe mistrusted the showmanship it required. As the previous chapter elaborated, Chladni excelled in demonstration because his survival depended on it. But if effective performance relied on mystification – as Goethe saw it – could performance also aspire to education? Goethe was doubtful, and yet the *Farbenlehre* languished as Chladni successfully disseminated his research.

### *Conclusion*

After first meeting Chladni in 1803, it took Goethe almost twenty years to publish his thoughts on the sound figures, despite extensive conversations with his colleagues in the interim: Goethe had been discussing Chladni with Schelling since 1800 at least. What this hesitation reveals, I suggest, was an uncertain relationship with the sound figures, born out of an ambivalent attitude towards Chladni. Why? On the one hand, Goethe clearly admires Chladni's ingenuity, not without a touch of jealousy given the difficult reception of the



*Farbenlehre*. On the other hand, Goethe was suspicious towards the mechanical physics that governed Chladni's approach, and distrusted his public performances and popularization efforts. This hints, perhaps, at Goethe's distance from popular culture. If the *Farbenlehre* was indeed "die innigste Harmonie zwischen Natur und Kunst" and a means (Mittel) "die Theorie mit der Praxis des Künstlers zu verbinden" (Schelling I.5, 510), as Schelling maintained, then perhaps Goethe reflects the *higher* cultural effort to bridge the emerging divide between *Geistes-* and *Naturwissenschaft*, whereas Chladni represents the "artisanal" (Jackson, 11) or popular counterpoint. But what Goethe's hesitation also suggests, I think, is an extended digestion and meditation on the sound figures, which results in a recognizably idiosyncratic perspective. Goethe engages the sound figures on his own terms by way of comparison with the entoptic colors. So while this effort shares with Schelling the ambition to dissolve the boundary between subject and object, and evoke the "universe" within the "human eye" (Goethe I.25, 709), it also clearly exhibits Goethe's idiosyncratic perspective. Namely, Goethe insists on the priority of vision and experience, which he prioritizes over language and conceptuality. This lingering within sensation, as opposed to sublation and abstraction, separates Goethe from the idealist tradition, and would prove influential for his sceptical inheritors – even as they disavowed the tenets of *Naturphilosophie* proper. Having worked as potential protégé to the *Farbenlehre* in 1813, Schopenhauer was especially sensitive to these aspects of Goethe's work, as his own sound figure interpretation will reveal.

## Chapter Three

## Words without meaning: Schopenhauer decoding Chladni's sound figures via Goethe and Jean Paul

The sound figures had become famous among the general public, and in the limits of mathematical explanation, authors like Friedrich Wilhelm Joseph Schelling, August Wilhelm Schlegel, and Clemens Brentano saw nature itself. Arthur Schopenhauer became aware of these developments through his work with Johann Wolfgang von Goethe on the *Farbenlehre* (1810) in the winter of 1813.<sup>81</sup> This relationship ended once Schopenhauer published his own contribution *Über das Sehen und die Farben* (1816),<sup>82</sup> which contains its own reference to the sound figures. This reference alone reveals the distance between the two men, even at this formative stage of Schopenhauer's career. Whereas Goethe had envisaged great possibility in the sound figures, Schopenhauer reduces the experiment to analogy. Specifically, Schopenhauer uses the sound figures to describe the mechanical operation of the eye, which would have been blasphemy for a protégé of the *Farbenlehre*. Goethe had sought to investigate the sheer visual experience of color, not to explain it away. And yet despite these differences, Goethe evidently made an indelible impression on Schopenhauer. Just two years later, Goethe's words adorn the first page of Schopenhauer's magnum opus *Die Welt als Wille und Vorstellung* (1818): "Ob nicht Natur zuletzt sich doch ergründe?"<sup>83</sup> This line epitomizes Goethe's cautious approach to nature, and Schopenhauer's axiomatic first sentence – "Die Welt ist meine Vorstellung" (W1, 3) – is posed as an answer. Schopenhauer purges all remaining ambiguity from the Goethean epigram, separating himself from the previous generation with the hard-nosed empiricism of a new scientific era.

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<sup>81</sup> For the details of their personal interactions see Wolffheim, 267 and Ostwald, 1. On their technical dispute regarding colours, see Sepper 1988, 91 and Lauxtermann 1987, 271 and 1990, 599.

<sup>82</sup> Hereafter SF.

<sup>83</sup> "Zur Feier des 27. Septembers 1816." Goethe, I.1, 269.

This helps to explain why Schopenhauer eschews Goethe's personal ambivalence towards Ernst Chladni. Having never viewed the acoustician as competitor, Schopenhauer presumably saw no reason not to utilize Chladni's experimental results for his own purposes. That Schopenhauer could attain this integration should already be recognised as an achievement. Schopenhauer inherited from Immanuel Kant the ambition to reconcile metaphysics and empirical science, and arguably did so more seamlessly than the previous generation of idealists. The Chladni reference provides a good example of how this works in practice. In book three of W1, Schopenhauer introduces Chladni's *Die Akustik* (1800) in a chapter questioning the internal coherency of the system of musical notation. Internal coherency was not just a matter of aesthetics, since in this time musical notation purported to describe both music and the physical activity of sound. By disputing this internal coherency, and claiming that musical notation is purely a matter of convention, Schopenhauer is attacking the Leibnizian view that being is inherently quantitative. Already it is evident how Schopenhauer shares Goethe's suspicion of mathematics, and yet broaches the matter quite differently.<sup>84</sup> Whereas Goethe saw mind as contiguous with nature, the discrepancy between mind and nature is Schopenhauer's very medium. In moments where representation (*Vorstellung*) breaks down, Schopenhauer intuits being itself.

This contextualizes Schopenhauer's second reference to the sound figures in the expanded edition of *Die Welt als Wille und Vorstellung* (1844).<sup>85</sup> In chapter ten Schopenhauer proposes to describe the relationship between conscious and unconscious knowledge, which he also frames as words and thought respectively. Schopenhauer applies the sound figures as analogy by dividing them into their constituent elements: the figures represent words, whereas the sound or tone represents thought. Schopenhauer wishes to

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<sup>84</sup> Cassirer, 40.

<sup>85</sup> Hereafter W2.

demonstrate that conscious thought is fleeting and contingent in comparison with unconscious knowledge, which ostensibly grounds the bulk of our actions. Moreover, Schopenhauer asserts it is impossible to trace conscious thought back to unconscious knowledge, even though the latter grounds the former. So the relationship between words and thought is both unknowable *and* necessary. The sound figures are an effective analogy for this situation because their mathematical insolubility preserves just this arrangement: Chladni has shown the repeatability of the figures (their necessity) without offering a mathematical explanation (their unknowability).<sup>86</sup> So for Schopenhauer, the sound figures become the "Spur" (trace) or remnant of the real activity of thinking, evoking the cognitive limits of the subject (W2, 120). Preceding this account, I introduce Jean Paul Richter's sound figure references in *Museum* (1810), an early encyclopedia, and the unfinished novel *Selina* (1823). These texts contain opposing interpretations of the sound figures. The first exhibits the early optimism of Schelling, Schlegel, and Brentano, whereas the second announces Jean Paul's subsequent disavowal and embrace of scepticism. It is essential to account for Jean Paul in the context of this chapter, because Schopenhauer refers directly to *Selina* in *Parerga und Paralipomena* (1851), which suggests a possible source.<sup>87</sup> This also allows one to specify how Schopenhauer deviates from Jean Paul.<sup>88</sup>

### *1. Introduction: contextualizing Schopenhauer*

One might worry that focusing on two isolated references to the sound figures overstates what is merely a decorative analogy in Schopenhauer's work. But analogy has a clearly demarcated function. As David Wellbery points out, "Gleichnisse... [holen] die

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<sup>86</sup> Ullmann 1983, 65.

<sup>87</sup> Hereafter PP.

<sup>88</sup> If Fleming, 12 recently emphasised Jean Paul's humour, this account emphasises a darker undercurrent.

begriffliche Konfigurationen von Schopenhauers Philosophie ins Plastisch-Anschauliche [ein]."<sup>89</sup> Analogy manifests the intuition on which Schopenhauer's conceptual edifice is founded. For only intuition "enthält den lebendigen Keim, aus welchem ächte und originelle Leistungen erwachsen können: nicht nur in den bildenden Künsten, sondern auch in der Poesie, ja, in der Philosophie" (W2, 422). Philosophy and poetry both originate from "ganz objektive Anschauung," which they merely differentiate formally. This may explain why Goethe too prioritized intuition over the concept (as Wellbery, 9 also notes). So it is all the more fitting that a comparison between Schopenhauer and Goethe proceed via a shared object of intuition. In the *Farbenlehre*, Goethe had insisted that the intuition of the sound figures could not be replicated in language.<sup>90</sup> By repurposing the sound figures as analogy, therefore, Schopenhauer already indicates the modulated tenor of his enterprise. In what follows, I will suggest that this reformulation of the sound figures amounts to a deliberate negation of Goethean objectivity on Schopenhauer's part, especially given the personal rupture that occurred between the two men once Schopenhauer published his own account of vision and colors.

If that is correct, then it is plausible to suggest that analogy forms part of Schopenhauer's general interpretative strategy. Understanding this strategy can help to situate Schopenhauer's work in relation to Johann Gottlieb Fichte, Schelling, and Georg Wilhelm Friedrich Hegel. One might expect this constellation to have been mapped out long ago, but in fact the scholarship has only begun to take the matter seriously (with some notable exceptions).<sup>91</sup> Doubtless this at least partially owes to Schopenhauer's own efforts at misdirection, since he felt the need to differentiate himself from the main strand of idealism. The reasons for this are beyond the concerns of this chapter – let it suffice to say that, today,

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<sup>89</sup> Wellbery 1998, 9.

<sup>90</sup> Goethe, I.25, 821.

<sup>91</sup> Parmeggiani Rueda 2012, 53; Schmidt 1988, 1; Koßler 1990, 246; Hübscher 1979, 181.

context is vital for bringing into relief the basic mobilizing impulses of Schopenhauer's philosophy. A series of conference papers edited by Lore Hühn<sup>92</sup> has demonstrated that Schopenhauer's engagement with Fichte and Schelling was substantive, albeit largely confined to his private notes. This belies Schopenhauer's supposed lack of interpretative generosity (not to speak of graciousness). While I cannot summarize these articles here, their cumulative effect has been to suggest that Schopenhauer's real achievement was not theoretical innovation, but rather to superimpose the landmarks of idealism onto the new terrain of empirical science. Arnold Gehlen recognised this long ago in "Die Resultate Schopenhauers," and his point deserves wider recognition.<sup>93</sup> So in this vein, I offer the sound figures as an example of Schopenhauer's interpretative strategy, through which he navigates and reinterprets idealism. To understand this, context – absent from Schopenhauer's ahistorical frame – becomes paramount. Whereas the Romantics fought against currents of public opinion that characterized the sound figures as *Taschenspielerei*, Schopenhauer reduces them to analogy.

Everything depends on what this reduction of the sound figures to analogy entails. For it is indeed a reduction, insofar as Goethe's objectivity is converted into "appearance" (W1, 9). Yet analogously to Kant, whose retreat into the subject produces objectivity,<sup>94</sup> the withdrawal into the subject unveils for Schopenhauer the plain of being. It sets into motion what Frederick Beiser calls an "immanent metaphysics."<sup>95</sup> Kant had understood metaphysics as certainty beyond experience. Schopenhauer reimagines metaphysics as certainty *through* ("immanent" to) experience. This involves a subtle but decisive change in the status of appearances. For Kant, the laws of appearances were knowable exclusively through quantity.

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<sup>92</sup> Hühn 2006, 1.

<sup>93</sup> Gehlen 1998, 26.

<sup>94</sup> Adorno 1959, 9.

<sup>95</sup> Beiser 2016, 30.

Schopenhauer agrees with this (which explains why he can retain mechanical physics despite the objections of predecessors like Schelling and Goethe), and yet insists that the "quality" (W1, 59) of these appearances exceeds their mathematical explanation. Appearances therefore lend themselves to "Deutung" (W1, 185) and "Auslegung" (W1, 447), a process through which essence may exclusively be inferred. This represents on Schopenhauer's part a fundamental reconceptualization of metaphysics, which no longer seeks the "Grund, die Entstehung und Erklärung der Welt," as Matthias Koßler puts it,<sup>96</sup> but rather its "Bedeutung" (W1, 113). So while Schopenhauer never formalizes a hermeneutics,<sup>97</sup> it is fair to say that the practice of interpretation is integral to his philosophy in general, and that this practice is characterized precisely by a reduction to appearance. Schopenhauer's sound figure analogies will therefore demonstrate his effort to reinterpret an established landmark of speculative philosophy.

## 2. *The anatomy and metaphysics of sight*

While Goethe was corresponding with his interlocutors on the sound figures, Schopenhauer published SF. The persistent strand of reference to the *Farbenlehre* is unsurprising since the project emerged from Schopenhauer's personal collaboration with Goethe. In a subsection entitled "Ein Gleichniß," Schopenhauer introduces the sound figures. He is exceedingly cautious, explicitly labelling the analogy "beiläufig" and "zufällig," lest the reader over-estimate its importance (SF, 30). Schopenhauer was doubtless aware of the controversy surrounding the sound figures, and their uncertain mathematical status. But a more likely reason for Schopenhauer's caution is his perspective on vision. Goethe had analyzed external objects as inseparable from vision, since he denied any distinction between

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<sup>96</sup> Koßler 2008, 76.

<sup>97</sup> Beiser 2011, 253.



subject and object. For Schopenhauer, vision is explicitly demarcated as an activity of the subject, and moreover, of the eye as an organ. So Schopenhauer's caution surrounding analogy signifies his effort to create distance between eye and sound figure, and thereby to reinstate the boundary between subject and object. Schopenhauer withdraws into the transcendental subject, which imparts a scientific (*wissenschaftlich*) sentiment that analogy would risk compromising. But for all this, Schopenhauer grants the sound figure analogy its own section, which speaks to its perceived importance.

The "Gleichniß" section that includes the sound figures culminates an extended technical account of the eye's operation. Schopenhauer had sought to give an empirical explanation of how sensible intuition becomes a mental representation. He begins by dividing the eye into two fundamental activities. One is the production of quantitative intensity, which supplies the range of shade from white to black. This range differs by degree not kind. The second activity is the qualitative division of the retina into color pairs. Because colors exist in a "polarity" they must be expressed through ratio (SF, 29). Taken together these activities produce an image in the mind. This explains why, in the following section, Schopenhauer introduces the sound figure analogy to evoke the dual function of the retina. For there are two ways to move the sand on the plate, he says: one is with a violin bow and the other a blunt strike. Both cases produce "Schwingung," yet the former creates simultaneous interaction of motion and stasis, whereas the latter impacts the sheet as a whole (SF, 30). Schopenhauer suggests that this corresponds to the production of color and darkness/light respectively. For color results from the interaction of elements, whereas light is their common movement.

Schopenhauer introduces the sound figure analogy to provide an intuitive example of the eye's operation. But despite his warning not to mistake these two very distinct objects, Schopenhauer proceeds to offer the prospect of association beyond the senses. The previous section culminates with the suggestion that the qualitative activity of the eye amounts to

polarity. In the *Farbenlehre*, Goethe had similarly invoked polarity as the centerpiece of his sound figure analysis, but fell short of applying the concept to the sound figures. Into this absence Schopenhauer posits the following radical hypothesis. The concept of polarity (and specifically the version Schopenhauer has expounded),

möchte sogar der Grundbegriff aller Polarität seyn und unter ihn sich Magnetismus, Elektrizität und Galvanismus bringen lassen, deren jedes nur die Erscheinung einer in zwei sich bedingende, sich suchende und zur Wiedervereinigung strebende Hälften zerfallnen Thätigkeit ist (SF, 30).

Schopenhauer is suggesting that a range of physical phenomena – "magnetism, electricity, and galvanism" – derive from the eye, which furnishes the "Grundbegriff aller Polarität." The dual poles that constitute polarities are "appearances" that simply "fall into halves" in vision. Schopenhauer therefore embraces Kant (with an empiricist twist) by explaining physical phenomena via an appeal to the eye as an organ. But Schopenhauer simultaneously goes beyond Kant when he suggests that this very process is itself beyond sensation. Herein Schopenhauer's citation of Plato: "επειδη ουν ή φυσικς διχα επιμηθη, ποθουν έκαστον το ήμισυ το αύτου, ξυνηει."<sup>98</sup> This citation is not merely decorative, as Plato had argued that physical processes can occur beyond sensation.<sup>99</sup> Granted Schopenhauer does not expand on this modernized Platonic physics (a contribution that was attributable to Schelling, even though Schopenhauer does not mention his name). But it is nevertheless striking that, in this early text, one discerns the basic outline of Schopenhauer's two-fold hermeneutic process. First Schopenhauer withdraws cognition into the transcendental subject (and specifically the eye via an empiricist reading of Kant), and then proceeds to plumb these "appearances" for being itself (via Plato).

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<sup>98</sup> "Now when our first form had been cut in two, each half in longing for its fellow would come to it again." *Symposium* 191A, cited in SF, 30.

<sup>99</sup> I paraphrase Grant 2006, 20.

Schopenhauer's sound figure analogy in *SF* reinstates the subject/object opposition that Goethe had rejected, and goes on to posit metaphysical claims of its own. Schopenhauer's sound figure reference may therefore be understood as the deliberate negation of Goethean objectivity. Having confined the sound figures to analogy, Schopenhauer does not thematize the scientific viability of the experiment. Yet important conclusions may still be inferred from his comments. If "magnetism, electricity, and galvanism" (*SF*, 30) are indeed reflections of the eye's activity, then so too are the sound figures (the mere fact that Schopenhauer mentions the sound figures in this context means he is aware of speculative attempts to interpret the experiment through dynamic physics). But as analogy, the sound figures are now subsidiary to vision – for dynamic activity merely reflects the internal activity of the eye. So the sound figures amount to projections of consciousness onto the world. In an apparently trivial analogy, therefore, Schopenhauer invests considerable meaning. That does not represent a Herculean intellectual feat on his part. It merely suggests the exercise of a consistent hermeneutic, whether it be applied to a literary author like Goethe, or an empirical experiment like the sound figures. At this early stage, the hermeneutic is in gestation. But just two years later, Schopenhauer will apply it more expansively.

### *3. Chladni and the rationality of music*

In book three of *W1*, Schopenhauer quotes Gottfried Wilhelm Leibniz thus: music is "exercitium arithmeticae occultum nescientis se numerare animi."<sup>100</sup> Leibniz states his conviction that being was founded in quantity. Though music may appear detached from nature, it can be analyzed like any other phenomenon. Schopenhauer agrees, yet considers

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<sup>100</sup> Leibniz, An Christian Goldbach, April 17, 1712. "Musik ist die versteckte arithmetische Tätigkeit der Seele, die sich nicht dessen bewußt ist, daß sie rechnet" / "Music is the hidden arithmetic activity of the soul, which is not itself aware that it is counting." Cited in *W1*, 314.

harmony to be the result of subjective conceptuality. He therefore introduces Chladni's empirical research to embalm Leibniz's naturalistic explanation of music, or to recast it as appearance. Directly following his account of Leibniz, Schopenhauer turns to Chladni's *Die Akustik*, which tests whether the system of musical notation is internally coherent, or whether it is merely a practical construction. The investigation is prompted by a quirk of musical instrument production: perfect intonation is a physical impossibility. If one were simultaneously to play the highest and lowest possible notes on a perfectly-tuned guitar, they would harmonize imperfectly.<sup>101</sup> Moreover, if this guitar were to produce higher notes, the dissonance would increase proportionately. This phenomenon was generally attributed to failures in the manufacturing process. After all, a master luthier could better approximate perfection than his apprentice. But even if the instrument makers agreed that perfect intonation was physically impossible, or that it represented an ideal at best, they had no explanation as to why.

Thus in §30 Chladni analyses the system of notation itself.<sup>102</sup> Harmony can remain agreeable, and hence mathematically coherent, only in relation to a given note. The further one moves from this note, the more imperfect its harmony. This cannot be detected by the ear until significant deformations occur, but mathematically, the phenomenon is visible even in the earliest stages. To demonstrate this, Chladni analyses a simple progression. The Pythagorean monochord had established that intervals can be expressed as fractions. These fractions represent the point at which a string is divided and plucked, producing a note of lesser or higher pitch. An octave represents a ratio of 2:1, whereas 3:2 stands for a perfect fifth, and so on. The open monochord is called the "Grundton," and can represent any point on the harmonic spectrum. This being given, the relations stay mathematically consistent.

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<sup>101</sup> Today's digital instruments only resolve the problem by artificially shifting the ground note.

<sup>102</sup> I thank Alexander Rehding, who is currently writing about the relationship between music and mathematics, for conversations on this topic.

However, applying the ratios at any other point on the monochord will result in deviations. If the keynote shifts due to a key change, for example, the ratios will generate increasingly dissonant intervals. Chladni portrays the deviation as follows:

$$\begin{array}{cccccc}
 g, & c, & f, & d, & g, & c, \\
 243: & 162: & 216: & 180: & 240: & 160 \\
 3:2, & 3:4, & 6:5, & 3:4, & 3:2, & 
 \end{array}$$

The intervals are represented in the lowest line, which correspond to the notes above. The non-fractional figures in the middle are used to compare the ratios more easily. Expressing the ratios in a single figure also supplies greater mathematical precision. The graph demonstrates that repetition occurs in the first and last two elements (g:c); it is here that the correlation would be expected to occur. However, a corruption has already emerged in the first repetition. This is enough to prove that the intervals are mathematically imperfect. The deviation grows with every successive octave, to increasingly obvious effect. Chladni concludes that the ratio will remain consistent for a given keynote within a certain range, producing intervals which are harmonically pleasing to the ear. But this is an arbitrary starting point in physical terms. That is to say: the laws of musical notation are correct, but only within a closed, artificial system. One could decide that C or D was the root note for musical purposes – but what validity does this hold, beyond mere convention? Chladni's result supports the argument that musical intonation is not essentially rational, so mathematics can furnish only a practical description of sound. Schopenhauer finds proof that nature's semblance of order is an exigency of cognition. It confirms that “ein vollkommen reines harmonisches System der Töne ist nicht nur *physisch*, sondern sogar schon *arithmetisch* unmöglich” (W1, 314, my italics). For Schopenhauer it is no coincidence that master luthiers never crafted the perfect instrument: the ideal is unobtainable because being is not quantitative.

Chladni's results suggest that music no longer refers to matter, but rather to the nervous configuration of the perceiver. Musical ratios have come a long way since the era of Pythagoras, when they represented the fundamental structures of the universe. Having relinquished all association with the concept, the *raison d'être* of music is now to affect the senses. In Schopenhauer's hands, Chladni's negative evidence becomes a potent corrective to rationalist ontology. For Leibniz, music is perceptible by virtue of unconscious mathematical operations in the mind. Schopenhauer wishes to preserve this insight, albeit by restricting its validity to appearance. However, this changes entirely the character of the numerical designations. For numerals are no longer the essence of tone, but rather ciphers for something else: they are viewed not as "das Bezeichnete, sondern erst selbst als Zeichen" (W1, 313). By distinguishing between "what is designated" [das Bezeichnete] and the "sign" [Zeichen], Schopenhauer rejects the claim that essence is quantity, since quantity is merely a concept applied to the world. The resulting dissonance supplies evidence of a non-correlation between mind and being. But while this undoubtedly represents a withdrawal into Kantian subjectivity on Schopenhauer's part, it is accompanied by a parallel maneuver. Leibniz's ontological claims are reduced to appearance, and simultaneously heightened by the interpretative potential of appearance as "Zeichen." So even while Schopenhauer expands the interpretability of the world, which now bears ubiquitous evidence of the Will's activity, he insists that meaning abides exclusively for the subject. The sound figures could never be *Signatura rerum* for Schopenhauer, because in themselves, "Zeichen" are essentially meaningless.

#### 4. Jean Paul's vision in sand

By the time Schopenhauer discusses Chladni, the sound figures had already generated considerable debate. Schelling, A. Schlegel and Brentano had posited in the sound figures

*Signatura rerum*, and on the basis of his early work, Jean Paul may be counted among them. But several years later, Jean Paul's pantheistic conviction gives way to the sheer experience of finitude: a personal encounter with being, whose permanence is no longer guaranteed. And because this encounter is irreducibly particular, the literary form is well situated to reflect it. In the unfinished novel *Selina*, the theoretical approach of Jean Paul's predecessors has become practical, even ethical.<sup>103</sup> That is to say, the permanence of nature is no longer an abstract question, but an acute dilemma. And it is significant that this disenchantment occurs in prose – the conventional medium of the understated. The pathos of this moment is all the more effective because, in Jean Paul's work, the process of disappointment can be traced minutely. In its encyclopedic pretensions, *Museum* represents an enlightened strand of Romanticism.

Chladni bauet mit Tönen Gestalten aus Steinchen, Amphion aus Steinen,  
Orpheus aus Felsen, der Tongenius aus Menschenherzen; und so bauet die  
Harmonie die Welt.<sup>104</sup>

This entry on "Tonkunst" supplies permutations of the relationship between finitude and infinity. "Steinchen" are analogous to finite objects, which contain "Gestalten" of universal order. The same pattern is repeated in the next two entries, namely "Amphion aus Steinen" and "Orpheus aus Felsen." But "Tongenius aus Menschenherzen" deserves special comment, since it relates directly to artistic creation. Artistic products gesture towards the infinite, and it is Chladni's manipulation of "tone" which facilitates this process. The key tribute to Pythagoras occurs in the line "und so bauet die Harmonie die Welt." The products of imagination in reality derive from the music of spheres. Indeed, Jean Paul describes Chladni as the channel, but not the source, of this divine energy: "und so bauet Harmonie die Welt"

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<sup>103</sup> Beiser 2016, 16.

<sup>104</sup> Jean Paul II.2, 924.

(my italics). Harmony is the mobilizing impulse of reality, of which Chladni is but a living simile. And harmony refers not only to music, but more specifically, to the logical relationship between notes, or their rational core.

Jean Paul's first reference to the sound figures has a familiar optimistic trajectory. But the frankness of *Selina* marks a tonal departure, not only from contemporaries, but the author's earlier output. Personal circumstance likely motivated this shift, seeing as Jean Paul was already approaching death while the book was being written. Yet this also reveals an underlying historical transition. The darkness of Jean Paul's later work reflects a kernel of doubt that is present within speculation itself. This doubt was detected in Brentano's poetry as vacillation. It would not, until now, be articulated as an outright crisis of belief. In a section entitled "Der Vernichtglaube," chapter four evokes an unsettling vision of nature that not only denies, but inverts, the Romantic heritage.

Manche Irrtümer erscheinen, wie der Mond, aus der Ferne in milder Gestalt und Dämmerung; tritt man aber nahe vor sie, so zeigen sie wie der Mond vor dem Sternseher, ihre Abgründe und Feuerberge. Tretet näher zum Glauben der Seelensterblichkeit und sehet in seine Grüfte und Krater.

Nehmet einmal recht lebhaft an, daß wir alle nur Klangfiguren aus Streusand sind, die ein Ton auf dem zitternden Glase zusammenbauet und die nachher ein Lüftchen ohne Ton vom Glase wegbläset in den leeren Raum hinein: so lohnt es der Mühe und des Aufwandes von Leben nicht, daß es Völker und Jahrhunderte gibt und gab. Sie werden gebildet und begraben, höher gebildet und wieder verschüttet; aber was nützt es, daß mühsam gepflegt Kraut nach Unkraut, Blume nach Blatt erwächst? Über den untergepflügten Völkern liegt der Gottesacker; der Vergangenheit hilft die Gegenwart nichts; und der Gegenwart die Zukunft nicht. Ewig steigen die Wissenschaften, ewig fallen die Köpfe ab worin sie gewesen und höhlen sich unten von allem aus. Verleiht endlich irgendeinem Volke alles Höchste von Wissenschaft, Kunst und Tugendbildung, womit große späte Völker alle frühern überbieten und lasset Jahrtausende ihre geistige Ernten und ihren Reichtum in die Menschenmenge von Klangfiguren niederlegen: in fünfzig Jahren verfliegen die Figuren und die Schätze und nichts ist mehr da als das Dagewesensein. – Der Glanz der Schöpfung und der Geister ist erloschen; denn es gibt keinen Fortschritt mehr; nur Schritte; es bleiben nichts als zerstreute lose Wesen übrig – höchstens die vergangnen mischt die Asche zueinander –; und alles Höhere muß sich von neuem zusammenbauen. Gott sieht seit Ewigkeiten nur unaufhörliche Anfänge hinter unaufhörlichen Enden; und seine Sonne wirft ein ewiges falbes welches Abendrot, das nie untergeht, auf den



unabsehblichen Gottesacker, den Leichen nach Leichen ausdehnen. Gott ist einsam; er lebt nur unter Sterbenden.<sup>105</sup>

Viewed in isolation, this passage could easily be mistaken for the pessimism of another era. One thing sets it apart: the pain of fresh disappointment. The moon appears beautiful. But the knower – the "Sternseher" – is disabused of this myth. Its pleasant glow hides "Grüfte und Krater," which are not merely aesthetic imperfections, but mysteries whose truth might well prove intolerable. The metaphor evokes nature on a cosmic scale, yet its strategy is deflationary. Its object is the "Glauben der Seelensterblichkeit." Now, in a drastic departure from what has come before, Jean Paul associates the sound figures with the annihilation of the soul. "Wir alle [sind] nur Klangfiguren aus Streusand." Absent universal harmony, the sound figures reflect the individual. And we "are all" individuals, united only by shared isolation. The attempt to express purpose is futile. Tone "zusammenbauet" the figures on a "zitternd[e] Glase," only for a "Lüftchen ohne Ton" to blow them into "leer[er] Raum."

If the sound figures once evoked the indwelling logic of nature, now their inherent temporality comes into view. The sand, which makes the shapes visible, is blown away by a "Lüftchen ohne Ton." Lacking any common ground with human perception, the origin and purpose of this gust remains obscure. The image seems to imply that nature acts without deference to humanity: it is violent, capricious, uncaring. The traces of sand fall into "leer[er] Raum," indicating the possibility of nothingness. As nature comes from nothing, so shall it return – that is the most which can be stated with any certainty. For Jean Paul the purely hypothetical question of nature's finitude has been displaced by the more pressing crisis of value. Given that nature is temporary, he asks: is existence worthwhile? And his answer leaves no room for ambiguity: "so lohnet es der Mühe und des Aufwandes von Leben nicht, daß es Völker und Jahrhunderte gibt und gab." The achievements of civilization are

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<sup>105</sup> Jean Paul VI, 1115-1116.

insufficient to justify its existence. Science, art, progress – *Bildung* – had been utilized by Hegel in the *Phänomenologie des Geistes* (1807) to illustrate the gradual self-realization of history and reason. Yet now "es gibt keinen Fortschritt mehr; nur Schritte; es bleiben nichts als zerstreute lose Wesen übrig." Nature unfolds haphazardly, its telos is an empty projection. By projecting a template of order upon nature, the sound figures become a metaphor for finitude – indeed, absent the possibility of experiencing nature itself, they can be nothing *but* a metaphor (or an analogy in Schopenhauer's case). In *Selina* the sound figures evoke an irreducibly personal encounter with nothingness, wherein the abyss intrudes upon experience, evacuating the refuge of conceptuality. This must expose the contingency of being, and dispel the illusion of rational mastery over nature.

Schopenhauer read *Selina*, and commented favorably upon it in his later years. But this does not mean Jean Paul is spared critical riposte (in this case, a mark of Schopenhauer's respect).<sup>106</sup> Schopenhauer discerns in *Selina* the "aufdringenden Absurditäten eines falschen Begriffs, den [Jean Paul] nicht aufgeben will, weil er sein Herz daran gehängt hat." The "false concept" in question is the "Erhebung der gesamten Persönlichkeit zu einem Dinge an sich selbst," which refers to the "Seele" (PP, 292). Yet the "Gegensatz von Seele und Leib" is "falsch," in Schopenhauer's view, because they are merely two perspectives (internal and external respectively) on being (W1, 302). But more perniciously, separating the body and soul "makes impossible the knowledge of our actual essence" (unser eigentliches Wesen), which is "untouched by time, causality, or change" (PP, 292). So Schopenhauer perceives Jean Paul's stance as an impediment, despite agreeing that our essence is "timeless." The issue for Schopenhauer is that "true knowledge" of our essence "involves the opposition between appearance (Erscheinung) and thing in itself" (PP, 292). Schopenhauer relies here

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<sup>106</sup> On Kant: "Es ist viel leichter in dem Werke eines großen Geistes die Fehler und Irrthümer nachzuweisen, als von dem Werthe desselben eine deutliche und vollständige Entwicklung zu geben" (W1, 491).

on Kant's claim that the origin of self-consciousness is noumenal, which means the subject can never exhaustively know himself through self-reflection.<sup>107</sup> This preserves the parallelism between body and soul, while maintaining its unknowability – we know for certain *that* we cannot know. Schopenhauer will go on drastically to reinterpret this noumenal principle, since it implies that consciousness is epiphenomenal or caused by an underlying process (W1, 535). But for now, it explains why Schopenhauer can say that figures are to words as tone is to thought. The sound figures appear to our senses as logical, while pointing to an unknowable essence.

##### *5. Sound figures and the origin of consciousness*

Schopenhauer's second reference to the sound figures occurs in chapter ten of W2, which recounts the difference between conscious and unconscious knowledge. This requires an account of judgement (syllogism by another name) or the basic unit of knowledge. Syllogism places two concepts into a logical relationship via the pure categories of understanding (such as quantity, kind, etc.). Language is the external manifestation of these apriori concepts. But judgements themselves occur internally in thinking. This means that the "words and sentences" are only the "trace" of an unconscious process, which we attempt to apprehend only in retrospect (W2, 120). In a judgement, knowledge can be ordered from the most general to the most particular. The general is then said to contain the particular. Schopenhauer gives the following example: if "all diamonds are stones", and "all stones are combustible," then one may conclude that "some stones are combustible." With these statements one can infer that the conclusion was already contained in the premise, albeit unconsciously. Schopenhauer calls this "implicit" or knowledge not yet formulated in judgements (W2, 120).

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<sup>107</sup> Kant, B155.

Implicit knowledge may be buried in the unconscious, but it is hardly useless. Schopenhauer describes the utility of implicit knowledge in habitual activities that no longer require reflection. It becomes a vital shortcut for abstract thinking. So the greater part of our knowledge is implicit, according to Schopenhauer. In most cases, the source of this knowledge is forgotten, so great effort is needed to recover and reformulate it as judgement. Schopenhauer characterises this as an unnatural endeavour. His basic point is that we can know something without being conscious of it. The mind contains a mass of sensible data, which is only partially organized into concepts. These concepts are equivalent to "words," the basic unity of judgement, from which conclusions are then formulated. Thinking therefore occurs for the most part without concepts. But words are the only way for us consciously to apprehend or know objects, which means that the process of our own thought is invisible to us.

At this point Schopenhauer introduces the analogy: “[Wörter und Sätze] verhalten sich zu [Denken], wie die Klangfiguren aus Sand zu den Tönen, deren Vibrationen sie darstellen” (W2, 120). Words are the tangible expression of thought. But like the sound figures, words are only "die nachgebliebene Spur" of thought. The sound figures represent Schopenhauer's conviction that most thinking occurs unconsciously, and that conscious thought is contingent and secondary. As figures to tone, "words" recall thought after it has ceased. Though figures and words might depend upon this bedrock of thought for their existence, their relationship to it is by definition unknowable (since "knowledge" is made up of conscious judgements). So the sound figures exhibit an unknowable necessity between word and thought, which reflects Schopenhauer's conviction that self-consciousness can never adequately reflect on its own foundation (W1, 535).

The fleeting character of Schopenhauer's analogy harmonizes with his attitude towards the chapter itself, which he almost represents as superfluous.

Wiewohl es sehr schwer hält, über einen seit mehr als zwei Tausend Jahren von Unzähligen behandelten Gegenstand, der überdies nicht durch Erfahrungen Zuwachs erhält, eine neue und richtige Grundansicht aufzustellen; so darf dies mich doch nicht abhalten, den hier folgenden Versuch einer solchen dem Denker zur Prüfung vorzulegen (W2, 117-8).

This hardly makes for a compelling introduction, but it reveals the force of Schopenhauer's systematic impulse. Despite how unusual this impulse may seem today, it is to be thanked for pushing Schopenhauer's thought into unexpected alcoves. On the most general level, W2 may be understood as the repetition of W1, albeit enriched by wealth of empirical reference and analogy. Earlier I suggested these analogies are not merely decorative, as they allow Schopenhauer to reinterpret the tradition through an idiosyncratic hermeneutic. Schopenhauer knew Jean Paul's *Selina* had utilised the sound figures to represent the death of the mortal body. This closely approximates Schopenhauer's own sense of finitude, even as Schopenhauer objected to the pathos of Jean Paul's analogy – not for literary or aesthetic reasons, but because pathos signals an unwillingness to relinquish the eternal soul. Schopenhauer is determined to escape this fate, which explains why his sound figure reference is bereft of pathos, to the point where the echo of Jean Paul is practically inaudible. Only the term "Spur" remains to signal the fragility of consciousness, and its unknowable relationship to forces that govern it. The sound figure analogy can therefore be understood in terms of Schopenhauer's effort to evoke the fleeting nature of consciousness, and the judgements that constitute it.

### *Conclusion*

Many years pass between Schopenhauer's two sound figure references, and each refers to quite different things. But contextualizing them in terms of Schopenhauer's general system (which he did not ever fundamentally modify) reveals an underlying logic. In the first

case, Schopenhauer has repurposed Goethe's sound figure reference to describe the eye's physiological operation. This may be interpreted as a return to Kantian subjectivity (in accordance with Schopenhauer's broadly empiricist reading of Kant).<sup>108</sup> In the second case, Schopenhauer has insisted that Jean Paul's subjectivity has not gone far enough: the realm of experience has become finite, yet the soul is preserved. In Schopenhauer, therefore, finitude seeps more deeply into "our authentic essence" (PP, 292), washing away the distinction between soul and body. This means the core of our essence is indeed timeless, and yet thoroughly impersonal. So Schopenhauer's sound figure references can be interpreted via his broader, two-pronged effort to reframe dogmatic (in the Kantian sense) objectivity and subjectivity respectively, for each represents a partial and incomplete perspective on being. This might explain Schopenhauer's intriguing claim that "Zum Jean Paul aber verhält sich Göthe, wie der positive Pol zum negativen" (PP, 485). Jean Paul manifests the subjective, whereas Goethe manifests the objective. This illuminates the extent to which Schopenhauer has gone beyond the merely theoretical polarities of rationalism and empiricism in Kant – now the opposition of subject and object plays out in the domain of culture. The philosopher must "decode" (entziffern, W1, 291) the artefacts of religion, myth, and fine art, in order to unveil their eternal significance. From this perspective, Schopenhauer's sound figure references can be interpreted as deliberate attempts to graft and reframe an established touchstone of speculation.

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<sup>108</sup> Wicks 1993, 181.

## Chapter Four

## Nietzsche's deaf man: the sound figures in "Über Wahrheit und Lüge im außermoralischen Sinne"

Whereas Friedrich Wilhelm Joseph Schelling interpreted the sound figures as *Signatura rerum*, Arthur Schopenhauer viewed them as "words" without meaning.<sup>109</sup> What formerly manifested nature itself was reduced to appearance, in the Kantian sense. Thirty years later, Friedrich Nietzsche utilizes the same analogy. Though writing almost eighty years after the sound figures were discovered, Nietzsche refers to the experiment with greater frequency than Ernst Chladni's own contemporaries: namely on five different occasions between the years of 1872 and 1875. By this time, the sound figures were hardly cutting edge science. Indeed, they still lacked a mathematical explanation,<sup>110</sup> so the accusation of *Taschenspielerei* had not yet been dispelled.<sup>111</sup> But that does not diminish the urgency of explaining these references in Nietzsche's "Wahrheit und Lüge im außermoralischen Sinne" (1873), whose most controversial lines use the sound figures to posit that "truth" originates in "metaphor."<sup>112</sup> While scholars have not ignored Nietzsche's references,<sup>113</sup> the sound figures have received only fleeting attention. No account of the experiment's prehistory has been supplied, even though Nietzsche's references engage directly with Schopenhauer, Jean Paul Richter, and, more peripherally, the tradition of *Naturphilosophie*.<sup>114</sup> Moreover, no reference has been made to Nietzsche's *Nachlass* before and after WL, which manipulate the sound figure

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<sup>109</sup> Schopenhauer, *Die Welt als Wille und Vorstellung*, Volume 2, 120. Hereafter W1 refers to first volume, W2 refers to second volume.

<sup>110</sup> Ullmann 1983, 65.

<sup>111</sup> Tkaczyk 2015, 39.

<sup>112</sup> Nietzsche, *Werke: Kritische Gesamtausgabe* III.2, 373. Most citations hereafter refer to this edition, as KGW. I refer specifically to "Wahrheit und Lüge im außermoralischen Sinne" as WL.

<sup>113</sup> Kofman 1993, 40; Babich 2007, 61; Otis 2001, 46-7; Clark 1990, 78.

<sup>114</sup> Nietzsche read and commented on several of August W. Schlegel's works (Brobjer 2010, 190, 196); made numerous references to Georg Lichtenberg (Brobjer 2010, 206, 211); read several of Jean Paul Richter's works, but it is not certain which (Brobjer 2010, 167); planned, at the very least, to read Schelling (Brobjer 2008, 232); and of course, Nietzsche's reading of Goethe and Schopenhauer was extensive.



analogy in different ways. Once this context is supplied, WL's scepticism becomes more complicated than it seems.

Much commentary has focused on the fraught question of Nietzsche's positivism.<sup>115</sup> But, as the scholarship is increasingly recognizing,<sup>116</sup> there is reason to exercise caution regarding this term. In notes written two years before the publication of *Menschliches, Allzumenschliches* (1879)<sup>117</sup> – the book that ostensibly marks the beginning of the positivist phase (Brobjer 2010, 90) – Nietzsche remarks it is "Nöthig, den ganzen Positivismus in mich aufzunehmen, und doch noch Träger des Idealismus zu sein" (KGW V.2, 482). This statement must surely qualify Nietzsche's so-called positivist turn, since it directly recalls Immanuel Kant's goal of unifying science and metaphysics.<sup>118</sup> After all, it was Schopenhauer's last, desperate effort to hold these categories together<sup>119</sup> that splintered being into separate "worlds" (W2, 4). Schopenhauer's world of *Vorstellung* was the preserve of causation, quantity, and science, yet he also maintained that appearances could be interpreted ("Deutung," W1, 185; "Auslegung," W1, 447) qualitatively to reveal being.<sup>120</sup> So if it is correct to interpret Nietzsche through this lens, then the effort to "absorb" positivism would recognize the priority of science, while "carrying" idealism would mean interpreting the world. Of course, everything depends on precisely what "interpreting" means here, since Nietzsche disavows Schopenhauer's metaphysics – as least in its unreformed state – from whence "meaning" derives (W1, 113).

Nietzsche's published work is notoriously evasive about ontology. The more forthright *Nachlass* traditionally provided better prospects for speculation (the early notes

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<sup>115</sup> For: Hollingdale 1997, vii; Cohen 1999, 101. This list is not extensive, as my principle topic is the sound figures.

<sup>116</sup> Small 2005, 163. Löwith 1997, 27; Young 2015, 95. This list is not extensive.

<sup>117</sup> Hereafter MA.

<sup>118</sup> Adorno 1959, 39.

<sup>119</sup> As I suggested in the previous chapter.

<sup>120</sup> Koßler 2008, 76; Beiser 2016, 30.

even make use of a conventional philosophical vocabulary). But these are still just notes, so it is unsurprising that Martin Heidegger's extrapolation – his claim that Nietzsche's true metaphysics was buried in the *Nachlass*<sup>121</sup> – prompted an equally radical backlash. Responding to postmodern inheritors of Heidegger,<sup>122</sup> Maudmarie Clarke dismissed WL as "juvenalia" (Clarke 1990, 65). I am not concerned to enter a debate regarding the legitimacy of the notes, or lack thereof. I simply wish to interpret the question – namely the status of Nietzsche's ontology – not as a problem, but as a medium for Nietzsche's thought. That stance might seem evasive, but it is a better platform from which to apprehend the negative character of Nietzsche's philosophy, by which I mean a philosophy whose internal coherence is never fully explicated, but emerges indirectly from its interpretation of external material. So instead of trying to resolve the paradox of representation, as Nietzsche inherited it from Schopenhauer (namely, to represent what is beyond representation),<sup>123</sup> the question becomes: how does Nietzsche inhabit this paradox? That goes some way to transforming a technical disagreement between Nietzsche and Schopenhauer (the form under which this relationship has conventionally been studied)<sup>124</sup> into an investigation of Nietzsche's testing of *Vorstellung* itself, via the sound figure analogy.

Nietzsche's sound figure references occur exclusively in the unpublished works between 1872 and 1875. One can only speculate why these analogies never made it to print. But if Nietzsche was indeed testing the limits of representation, as I suggest, then perhaps the sound figures captured the relationship between appearance and essence too crudely; perhaps they seemed overwrought; or perhaps they could not be purged of their association with Schopenhauer. Whatever Nietzsche's reasoning might have been, the sound figures provide a

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<sup>121</sup> Heidegger 1936, 10.

<sup>122</sup> Kofman 1993, 33; Rorty 1986, 11; Danto 1965, 38.

<sup>123</sup> I developed this thesis in chapter three.

<sup>124</sup> Berman 1998, 178; Clark 2012, 87. This list is not extensive.

useful scholarly point of entry, since they find Nietzsche at his least evasive, at a moment when his engagement with the tradition is less guarded by ironic distance. Nietzsche retrospectively describes this early period in the second book of MA.

[Ich] war... für meine eigne Person mitten in der moralistischen Skepsis und Auflösung drin, *das heisst ebenso sehr in der Kritik als der Vertiefung alles bisherigen Pessimismus* —, und glaubte bereits "an gar nichts mehr," wie das Volk sagt, auch an Schopenhauer nicht: eben in jener Zeit entstand ein geheim gehaltenes Schriftstück "über Wahrheit und Lüge im aussermoralischen Sinne" (KGW IV.3, 4).

It is remarkable that Nietzsche describes himself "*ebenso sehr in der Kritik als der Vertiefung alles bisherigen Pessimismus*." This captures the ambivalence of his position. Nietzsche's early engagement with Schopenhauer was characterized by an effort to hold his mentor to his own standards, specifically with regard to representing the noumenal.<sup>125</sup> From this perspective, Nietzsche is not just attempting to overcome Schopenhauer, as the conventional narrative goes. Instead Nietzsche is purifying and sharpening the motivating paradox of Schopenhauer's philosophy: to represent what cannot be represented. So if WL was written during a moment of productive exhaustion, it is unlikely that Nietzsche is merely restating Schopenhauer's position. To discover what Nietzsche is aiming at, a comparison with Schopenhauer is necessary.

### *1. The aesthetic drive*

Nietzsche's first reference is indebted to Schopenhauer, who thirty years earlier had extracted the sound figures from nature (as Schelling conceived it) and reinterpreted them as a projection of consciousness onto the recalcitrant world. If Schelling discerned in the sound figures the prospect of nature itself, then Schopenhauer renounced this goal by reducing the experiment to analogy. And in Schopenhauer's reformulation, it is evident that the

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<sup>125</sup> Nietzsche, *Gesammelte Werke* 1, 392. Hereafter GW.

relationship between philosophy and science has been recalibrated. For it is now empirical science that governs the domain of "Wirklichkeit" (W2, 52), and being that emerges through the subjective or qualitative engagement with this reality. So, much like Kant, Schopenhauer accommodates science within philosophy by chastening the power of speculation. Yet by Nietzsche's time, even this conservative rapprochement was under strain. Philosophy and science had long since begun the slide into different "worlds," prompting a mutual crisis of value.<sup>126</sup> This is what seems to trouble Nietzsche in notes from the summer of 1872, when he writes

Daß ein *unbeweisbares* Philosophiren noch einen Werth hat, mehr als meistens ein wissenschaftlicher Satz, hat seinen Grund in dem aesthetischen *Werthe* eines solchen Philosophirens, d. h. durch Schönheit und Erhabenheit. Es ist als *Kunstwerk* noch vorhanden, wenn es sich als wissenschaftlicher Bau nicht erweisen kann. Ist das aber bei wissenschaftlichen Dingen nicht ebenso? – (KGW III.4, 32).

Nietzsche's effort to highlight the crisis of value in philosophy reveals the positivist strand in his thinking. And this is quite different to saying Nietzsche is a positivist, which would render his next statement rather incomprehensible: if "unprovable" philosophy has any "value" today, Nietzsche says, it is as "artwork." This would be anathema to some contemporary positivists; but lest one fear that Nietzsche is sacrificing logic for the nebulous domain of aesthetics, Nietzsche specifies "nicht der reine *Erkenntnißtrieb*, sondern der *aesthetische*" (KGW III.4, 32) as his object of attention. With this, Nietzsche thematizes the "generation" (erzeugen, KGW III.4, 33) of the philosophy-cum-artwork, as opposed to its reception. Nietzsche goes on to describe this aesthetic drive as follows: "Phantasieerzeugung kann man im Auge betrachten... Hier *sieht* man die außerordentliche Produktivität des Intellekts. Es ist ein Bilderleben" (KGW III.4, 33). Nietzsche's remark opens a network of references. Firstly, the physiological aspect parallels Schopenhauer's mechanical treatment of

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<sup>126</sup> Beiser 2014, 6.

the eye in *Über das Sehen und die Farben* (1816),<sup>127</sup> where the first sound figure reference occurs. But remarkably, there are also evident here traces of Schopenhauer's second sound figure reference in W2, which visualises (the German term "versinnlichen" would be preferable) the unification of conscious and unconscious knowledge (W2, 120). This underlying concern with unity of consciousness is confirmed when Nietzsche asks "Was ist eigentlich 'logisch' beim Bilderdenken?" He then offers a description of this internal structure via two modalities of "Kraft:"

Sieht man jene Kraft näher an, so ist hier auch kein künstlerisches ganz freies Erfinden: das wäre etwas Willkürliches, also Unmögliches. Sondern die feinsten Ausstrahlungen von Nerventhätigkeit auf einer Fläche gesehn: sie verhalten sich wie die Chladni'schen Klangfiguren zu dem Klang selbst: so diese Bilder zu der darunter sich bewegenden Nerventhätigkeit. Das allerzarteste sich Schwingen und Zittern! Der künstlerische Prozeß ist physiologisch absolut bestimmt und nothwendig. Alles Denken erscheint uns auf der Oberfläche als willkürlich, als in unserem Belieben: wir bemerken die unendliche Thätigkeit nicht (KGW III.4, 34).

This passage lays bare Nietzsche's effort to retain the sovereignty of the aesthetic drive while insisting on naturalistic explanation. The contingency typically associated with artworks no longer mars them as secondary and conditioned, but is now valorized as the source of necessity. To call fantasy "künstlerisches ganz freies Erfinden: das wäre etwas Willkürliches, also Unmögliches," according to Nietzsche. So creation is completely rule bound, even if these rules are unknowable. Nietzsche seems to imply the artist is less important for his conscious thought than for what he unconsciously channels. "Klang" is untraceable to the "Figuren" despite a relationship of necessity: Nietzsche reiterates that "künstlerische Prozeß ist physiologisch absolut bestimmt und nothwendig." Thinking merely "appears" arbitrary – we fail to notice its "infinite activity." With this Nietzsche hits upon Kant's old problem:

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<sup>127</sup> Schopenhauer, *Über das Sehen und die Farben*, 30.

consciousness cannot exhaustively reflect on its own foundations.<sup>128</sup> But Nietzsche is not just repeating Kant; his innovation is to summarize Kant's most baroquely technical passages into a striking analogy. The sound figures visualize the unthinkable relationship of consciousness to itself. And in that sense, Nietzsche has introduced the sound figures precisely as the limit comes into view.

## *2. History and value*

This very same year, Nietzsche refers to the sound figures in "Das Verhältnis der Schopenhauereschen Philosophie zu einer deutschen Kultur" (1872). In this draft preface Nietzsche applies the technical conclusions discussed above to the domains of culture and history. He suggests that a declining philosophy might find new purpose supplying values for the interpretation of history. Nietzsche's points of reference are few, but he does introduce Goethe's recognition of "enthusiasm" as the motivating force of history – something that has since become anathema to the objectivity of "philistine academics" (KGW III.2, 274). What this "objectivity" actually reflects, in Nietzsche's view, is nihilism or "nil admirari" (KGW III.2, 274). Nietzsche makes the performative riposte that "Die Geschichte wird euch nur die Bekenntnisse machen, die eurer würdig sind!" (KGW III.2, 274). With this, Nietzsche situates value within the hermeneutic process. For it implies that history is "knowable" (Bekenntnisse) only to the degree the interpreter's values resonate with it, and that the objective scholar cannot recognise the meaning of historical events.

When Nietzsche says "Die Geschichte wird euch nur die Bekenntnisse machen, die eurer würdig sind!" it is no coincidence that the subject of the sentence is "history," not its readers, interpreters, or actors. With this Nietzsche implies that intellect does not condition

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<sup>128</sup> I refer here to Kant's synthetic unity of apperception, which Nietzsche probably did not study directly, but was certainly familiar with either via Schopenhauer or his other neo-Kantian sources such as Friedrich Lange. Stack 1983, 16.

history, but that history conditions intellect. By framing the intellect as secondary, Nietzsche relies on Schopenhauer, but also recognisably deviates, because Schopenhauer had little interest in the products of time. For Schopenhauer, philosophy transpires in a timeless and ahistorical realm. This suggests that Nietzsche is reformulating Schopenhauer's Will *qua* history, so Will now manifests itself through the suspended timelessness of "value," or that which persists through historical change. Without value, Nietzsche argues, the spectres of history are meaningless. Amidst this meaninglessness, the "thinker" must create order using value. At this precise moment, Nietzsche introduces an extended analogy. The thinker retreats from the noise of conceptuality into the "wildernis," where he "sees and hears" what others do not:

Hier beredet [der Denker] sich mit den an ihn heranschwebenden großen Problemen, deren Stimmen freilich ebenso ungemütlich-furchtbar als unhistorisch-ewig erklingen. Der Weichliche flieht vor ihrem kalten Atem zurück, und der Rechnende läuft durch sie hindurch, ohne sie zu spüren. Am schlimmsten aber ergeht es mit ihnen dem "Gebildeten" der sich mitunter in seiner Art ernstliche Mühe um sie gibt. Für ihn verwandeln sich diese Gespenster in Begriffsgespinnste und hohle Klangfiguren. Nach ihnen greifend, wähnt er die Philosophie zu haben, nach ihnen zu suchen, klettert er an der sogenannten Geschichte der Philosophie herum – und wenn er sich endlich eine ganze Wolke von solchen Abstraktionen und Schablonen zusammengesucht und aufgetürmt hat, so mag es ihm begegnen, daß ein wahrer Denker ihm in den Weg tritt und sie – wegbläst (KGW III.2, 275).

Nietzsche describes the problems facing the thinker as "uncomfortably terrible and unhistorically eternal." This awkward phrasing stems from Nietzsche's effort to invert the terms he associated with academic history. This inversion speaks to the prevailingly negative character of Nietzsche's description i.e. the "uncomfortable" and the "unhistorical."

Nietzsche's hesitation to represent (vorstellen) explains his utilization of "voice" (Stimme) and "sounding" (erklingen) as cognitive metaphors, which pivot away from the determinate, spatial, and visual. The sense of hearing is less clear (in the Cartesian sense), but also more immediate. Nietzsche seems to be demanding the interpreter apply virtues beyond the

intellect: the "weak" recoil from the "cold breath," while the "calculating" simply "pass through" the problem without ever "feeling" (spüren) it. Nietzsche asks of the historian not only heightened perceptiveness, but a different kind of perceptiveness altogether, which deeply involves the perceiver himself, insofar as it requires the confrontation of unpleasant emotion.

At this point Nietzsche describes how the "spectres" of history "verwandeln sich... in Begriffsgespinnste und hohle Klangfiguren." The sound figures represent the projection of superficial meaning, since the motivating forces of history occur beneath the detection of the concept. "Grasping" at the spectres, the academic develops a "so-called history of philosophy," which Nietzsche describes as a "whole cloud of... abstractions and patterns." The only refuge from such abstraction is sensation, yet Nietzsche does not invoke the sacrosanct priority of intuition (as Schopenhauer would have). Nietzsche's description lingers in the negative and forgoes any indulgence of the positive. And yet despite Nietzsche's caution regarding Schopenhauer's willingness to represent (vorstellen), it is nevertheless Schopenhauer who must "step in the way and – blow [these sand figures] away." By this point in time, Nietzsche is aware of Schopenhauer's shortcomings (GW 1, 392). So how then does Schopenhauer "blow away" the philosophy of history? Nietzsche would seem to imply that Schopenhauer's historical importance does not stem from technical virtuosity. Rather, Schopenhauer is important for the values he imprints on the plain of history. The sound figures evoke the conceptualizing approach to history, the superficial arrangement of temporary facts. And they emerge precisely when Nietzsche is pushing against the limits of representation.

### *3. Truth and Lies*



One year later, in "Wahrheit und Lüge im Außermoralischen Sinne" (1873), Nietzsche makes the notorious claim that truth is reducible to language. By language is meant here the agreement or convention of naming objects. Some have used this argument to interpret Nietzsche as pragmatist, and there are certainly elements that support this reading. The problem is that pragmatism overstates the centrality of truth in WL, which Nietzsche actually represents as a *secondary* effect of unknowable forces. For it seems to me that Nietzsche is more interested in truth-desiring urges than truth itself. And if that is correct, it means that WL is motivated by the same concern as Nietzsche's earlier notes: whether or not force (of desire) can be represented. Given that the sound figure analogies occur in the critical lines of WL, their contextualization provides an excellent way to examine the question of representation. Previously the sound figures visualised force as the appearance of an indecipherable but necessary essence. But in WL, Nietzsche is more circumspect. Though unpublished, the essay must be differentiated from other preparatory notes or sketches, as it is evidently intended for public consumption. And one salient indication of this is Nietzsche's caution regarding representation.

Once the earlier notes are taken into account, the echoes of an "aesthetic drive" (KGW III.4, 32) are more easily heard in Nietzsche's claim that "perception" is grounded in "ein *ästhetisches* Verhalten" (KGW III.2, 378). This unknowable but necessary drive reappears when Nietzsche says "Diese [Vorstellungen] aber produzieren wir in uns und aus uns mit jener *Notwendigkeit*, mit der die Spinne spinnt" (my italics, KGW III.2, 379). All of Nietzsche's utterances to the contrary in WL – his various declarations of provisionality and contingency – simply refer to the sphere of representation in general. On the basis of these appearances, it is impossible either to affirm or deny the supersensible. So there is every reason to think the concept of force persists in Nietzsche's sound figure references, which

have previously been interpreted to evoke the contingency of perception, and the "conventions" of language (KGW III.2, 372).

Man kann sich einen Menschen denken, der ganz taub ist und nie eine Empfindung des Tones und der Musik gehabt hat: wie dieser etwa die chladnischen Klangfiguren im Sande anstaunt, ihre Ursachen im Erzittern der Saite findet und nun darauf schwören wird, jetzt müsse er wissen, was die Menschen den "Ton" nennen, so geht es uns allen mit der Sprache...

Wie der Ton als Sandfigur, so nimmt sich das rätselhafte X des Dings an sich einmal als Nervenreiz, dann als Bild, endlich als Laut aus (KGW III.2, 373).

This analogy comes after Nietzsche's description of the thing in itself. The noumenon signifies nothing more than the "relations of things to men," in Nietzsche's view, which are themselves only "metaphorical." Specifically, metaphor refers to the "leap" (Überspringen) from nerve stimulus to image, from image to sound (KGW III.2, 373). Modern commentators have traditionally used this line to highlight the centrality of language. But to claim that metaphor governs the domains of hearing and vision would *collapse them both into representation*. Nietzsche describes these spheres as "ganz andre und neue" (KGW III.2, 373) echoing his earlier association of vision and hearing with utterly distinct modes of cognition. Vision is associated with representation, whereas hearing is associated with intangible force. So Nietzsche might deny the possibility of escaping representation, yet his sound figure references demonstrate that he is unable or unwilling to renounce the non-representational sphere of force, which he characterized just one year previously as the sole province of necessity.

Both of Nietzsche's analogies draw on the "sand" of the figures, which suggest his familiarity with both Jean Paul's and Schopenhauer's iterations. For this tradition, the inherently rational or geometrical quality of the figures is nothing but a bitter memory – a "dream" (KGW VI.2, 19) as Nietzsche puts it elsewhere. Such geometrical truths had supplied the touchstone of certainty, the "Canon der Gewißheit," for philosophers until Kant

and beyond – as Oliver Simons has shown.<sup>129</sup> But what "metaphor" overlooks is that, for Nietzsche, this quest for certainty now reflects an unexplained "need" (KGW III.2, 372). This must reframe the deaf man, who is searching desperately for the "cause" of tone. If the sound figures are the representation of music, precisely what motivates him? Surely it is impossible for the deaf man to desire what he never has never experienced, and therefore cannot imagine. It is more likely that, by seeking to "know" what "men call tone," the deaf man is pursuing communion with his fellow man. After all, tone and music are involved in the disintegration of the *principium individuationis*, as Nietzsche argued just one year earlier (KGW III.2, 46-7). It is ironic that by seeking the "cause," and thus projecting empty conceptuality onto the world, the deaf man only consolidates the prison of his subjectivity. It would be misleading, therefore, to interpret metaphor as Nietzsche valorizing representation. On the contrary, Nietzsche is arguing that an undue faith in language, intellect, and representation deafens us to positive historical values that emerge through other modes of cognition. Precisely what constitutes these modes is quite another matter, but one thing is certain: to renege upon this undisclosed possibility would erase tone, and make of the reader a deaf man.

#### 4. *Wagner in Bayreuth*

Having read WL in light of previous notes, it is plausible to suggest that Nietzsche's concern with ontology lives on. It might still be possible to argue that, by WL, Nietzsche has unloaded his ontological baggage. But this claim rings hollow once his final sound figure reference is taken into account. The reference occurs two years later, in the draft for "Richard Wagner in Bayreuth" (1875). Admittedly, this reference was eventually excised by Nietzsche, and left unpublished. One may only speculate as to why. But viewed through the sound

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<sup>129</sup> Simons 2007, 9.

figures' prehistory, I propose that the sound figures crystallised for Nietzsche the question of representation in an uncomfortably linear fashion. Nietzsche eventually discarded the analogy to show that will is irrecoverably shot through with representation. Will and representation are not like oil and water, as per Schopenhauer's argument: for Nietzsche, the will cannot provide a refuge of immediacy. This does not mean Nietzsche relinquishes ontology, however. By discarding the sound figures, Nietzsche signals the beginning of an ontological cryptography – which is another topic.

In this final sound figure reference, Nietzsche returns to the question of culture and value. If the earlier notes demanded a "culture" be found to express the "values" in Schopenhauer's philosophy, Wagner now represents the archetypal creator, who is "free" from the "*religiösen* Bedeutung" of myth.<sup>130</sup> Nietzsche refers to the juxtaposition of Buddhist, heathen, Christian, sea-faring legends in the *Der Ring des Nibelungen* (1848–1874). Wagner "nimmt die *Historie* als sein Denkbereich" (F, 177), Nietzsche says. By manipulating myth, Wagner has liberated himself from the determinism of history. But since Nietzsche earlier stated that "künstlerisches ganz freies Erfinden" is "impossible" (KGW III.4, 34) Wagner's artistry must in fact be unconscious. This helps to explain Nietzsche's following statement:

Wie sich Musik ausnimmt für einen Tauben, der nur die Chladnischen Sandfiguren sieht, so ist der Mythos für den *Nichtdenker*, das Volk; und für dies dichtet der Dichter, der darin selbst zum Volk, ich meine zu den Nichtdenkern, gehört (F, 176).

For Nietzsche, "the poet" belongs to the sphere of the "Nichtdenker," whereas the philosophers are "thinkers." And just as Nietzsche earlier divided vision and hearing, too are these domains utterly separate: "[a]us der einen könnte man in die andre nicht hinein" (F, 176). Nietzsche here repeats the sound figure analogy from WL, down to the verb

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<sup>130</sup> Nietzsche, *Fragmente 1875-1879*, Volume 2, 176. Hereafter F.

"ausnehmen." The "deaf man" again fails to perceive music (and here it is explicitly "music," as opposed to "tone and music" in WL). This analogy is now extended to include the "non-thinkers" or the "Volk." They understand only the surface of myth, but are nevertheless impacted by this surface, without understanding its origin or significance. What then is the true meaning of myth? According to Nietzsche's earlier claims: the perpetuation of value. While the "thinker" can manipulate value, he cannot communicate it. Earlier, Nietzsche sought a "culture" for Schopenhauer's philosophy (KGW III.2, 276), and in Wagner – who was himself deeply influenced by Schopenhauer, and even sent him a dedicated copy of *The Ring* – Nietzsche finds a resolution.

In three short years, Nietzsche uses the sound figure analogy on five separate occasions. Though each case is different, they share a common foundation. The facade of order reflects the subject rather than nature. And this facade can no more affirm than deny the essence it supposedly evokes. This explains why, like Jean Paul and Schopenhauer, Nietzsche underlines the sand that constitutes the sound figures, which signals transience and temporality. The symmetry of the figures now speaks to nothing more than the philosopher's "vanity" (KGW III.2, 370), and this vanity itself stems from the flawed conviction that consciousness determines being. For Nietzsche, consciousness is thoroughly determined by history – not a history of concepts, but of values that are preserved and transmitted in myth and music.

### *Conclusion*

With his four sound figure references, Nietzsche acknowledges that positivism must set the terms of debate. But he simultaneously insists that science cannot provide values. This explains why the sound figures are apparently meaningless. On one hand, Nietzsche caricatures advanced science as an archaism to highlight the "dream" of nature (KGW VI.2,

19). But on the other hand, Nietzsche utilizes the aesthetic quality of the sound figures to refract "culture" *through* science (KGW III.2, 276), allowing him to "absorb positivism" but also "carry idealism"(KGW V.2, 482). This leads to the question: why did Nietzsche excise the final analogy, which represents a culmination of the previous four iterations? To explain this excision, one need not appeal to any break. Nietzsche's first analogy already qualifies the scepticism of Jean Paul and Schopenhauer. Nietzsche is concerned with articulating values to redeem culture. If Schopenhauer demythologizes the sound figures, therefore, Nietzsche aims to remythologize them. But this positive program would rarely be stated so directly in Nietzsche's later work, which might also explain why the sound figures disappear. For the analogy makes an uncomfortably clear distinction between appearance and essence, foregrounding the mechanics of an ontology that Nietzsche would later prefer to keep secret. Today, however – at a moment when metaphor is repeatedly underlined in Nietzsche's philosophy – it is useful to remember the sound figures. For in this analogy, the distinction between vision and hearing underlines the ontological resonance of Nietzsche's audial metaphors, which persist well into his late writing.

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