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# The Professor and the Fox: Louis Agassiz, Henry David Thoreau and "The Two Cultures"

Patrick H. Vincent

... in him perhaps  
Science had barred the gate that lets in dream,  
And he would rather count the perch and bream.  
James Russell Lowell, *Agassiz* (1874)

This essay examines the relationship between Louis Agassiz and Henry David Thoreau as an example of "two cultures" in contact. It argues that Thoreau used various forms of parody to undermine the authority both of Agassiz's discourse and his natural system. Thoreau distrusted the dominant creationist paradigm because of its emphasis on fixity and contiguity rather than on organic transformation. The fox which Thoreau sent to Agassiz thus serves in *Walden* and in Thoreau's journals as a destabilizing figure to undermine the separation between poetry and science, writing and the world. This awareness of the vital, transformative forces in nature allowed Thoreau, unlike Agassiz, to immediately accept Darwinian evolution.

C.P. Snow coined the famous phrase, "the two cultures," defined by Roger Kimball "as a vague popular shorthand for the rift . . . that has grown up between scientists and literary intellectuals in the modern world." The aim of this essay is not to revisit Snow's controversial argument, F.R. Leavis's mean-spirited but devastating response, nor even John Brockman's more recent crusade to forge a "third culture," meaning a watered-down form of scientific writing addressed to the general public.<sup>1</sup> I am interested rather in the critical work that George Levine, Gillian Beer and others introduced twenty years ago, which examines the rich interchanges between science and literature as separate but re-

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<sup>1</sup> For more background on the debate, see Burnett; and Cornelius and St. Vincent.

lated epistemological and discursive fields. Beer has argued that this relation is less one of translation, in which meaning can be carried over in a more or less stable manner from one field to another, than of transformation. Literature takes up and transforms the materials of science in order to illustrate how, because epistemological systems rely on different varieties of the same language, no single system can be completely autarkic or authoritative (Beer 81, 97-98).

Basing myself on a case study taken from nineteenth-century American cultural history, I wish to develop Beer's argument, looking at parody as a useful device to understand how literature can "transform" science. The Sokal hoax of the mid-nineties, itself a parody, was less disturbing for what it had to say about literary critics aping scientists without the proper tools than for the degree to which it privileged hard science as the current language of authority in our culture. Borrowing terms from Bakhtin, one may argue that science has become the centripetal force in Western society, taking on an importance equal to that of holy scripture in the Middle Ages as a source of the sacred, direct word (69-70). The professionalization and growing specialization of the empirical sciences, which began in the 1840s and 1850s, produced a double voicing of scientific and literary discourses, a polyglossia that, according to Bakhtin, is a necessary condition for parody to occur (50). Defined as "a critique on the one-sided seriousness of the lofty direct word," literary parody can act as a centrifugal force that separates scientific language from the world it claims to represent objectively (55). As I wish to suggest, literature's mimicking or parodying of science does not undermine the importance of the scientific endeavor itself, but it can hint at alternate visions or even outstrip a prevailing scientific paradigm that is overly rigid to allow for its own dynamic and creative re-interpretations.

Looking back to the mid-nineteenth century, the historical moment when the natural historian gave way to the professional scientist, I wish to focus on the interchange between Concord sage Henry David Thoreau and the Swiss-born Harvard professor Louis Agassiz, an early yet edifying tale of "the two cultures" in contact. According to Guy Davenport, Agassiz was the embodiment of science in nineteenth-century America and a major cultural figure, "as much a part of our literary history as our scientific" (6). When he arrived in Boston in late 1846 to give a series of hugely popular lectures on the "Plan of the Creation," the thirty-nine-year-old scientist was already a celebrity. Less than a year

later, after revolution had barred his return to Neuchâtel, he accepted the Chair of Zoology and Geology at Harvard's newly founded Lawrence Scientific School and became the leading figure in nineteenth-century American science during the next two decades. Thoreau, on the

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other hand, was a well read twenty-nine-year-old Harvard graduate with transcendental leanings but without a clear vocation who had only recently declared his independence from home by moving to Walden Pond. Although Thoreau may have attended Agassiz's first lectures, their relationship began in earnest in the spring of 1847, when the Professor's assistant, James Elliot Cabot, solicited Thoreau to collect various specimens of fish, reptiles and mammals from Walden Pond.<sup>2</sup>

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<sup>2</sup> Thoreau's shipments of specimens would later be acknowledged in Agassiz's unfinished magnum opus, *Contributions to the Natural History of the United States* (1857). We may even imagine that the snapping and mud turtles illustrated by Jacques Burckhardt for the second volume of the *Contributions* are the same that Thoreau discusses in one of his letters to James Elliot Cabot, Agassiz's assistant (see figure A, above).



Specialists mark this exchange as the beginning of Thoreau's serious engagement with science (Harding 290; Sattelmeyer 79). While Nina Baym's influential claim that this engagement progressed from an almost religious enthusiasm for science to total opposition is no longer accepted, the terms of the discussion remain the same and have given rise to some of the most interesting Thoreau scholarship in recent years. Above all, critics have wondered how the writer was able to reconcile his poetic assumptions about man's intuitive, transcendent relation to the divine with his growing scientific interest and respect for nature as immanent and empirical. One solution, favored by Emerson and many of his contemporaries, was to toe the line of Agassiz's theory of special creation, a benevolent form of progressionism that relies on cataclysmic change. Agassiz insisted that species are fixed and unvarying, created in successive periods over time, appearing then disappearing without any direct connection to preceding or succeeding species except for typological resemblances (see figure B, overleaf).<sup>3</sup> The appeal of his theory among New England's liberal intelligentsia stemmed from the fact that it allowed for a divine first cause while validating breakthroughs such as Lyell's uniformitarian geology and Cuvier's discoveries in paleontology. Even more enticingly perhaps, it gave nature a transcendental direction and purpose, placing humans at the acme of creation (Lurie 127).

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<sup>3</sup> Agassiz's argument on succession in his *Principles of Zoology* helps clarify this concept. According to Robert Sattelmeyer, Thoreau acquired the book in 1850 or 1851 and used it as his major zoological text (83):

500 There is a manifest progress in the succession of beings on the surface of the earth. This progress consists in an increasing similarity to the living fauna, and among the Vertebrates, especially, in their increasing resemblance to Man.

501 But this connection is not the consequence of a direct lineage between the faunas of different ages. There is nothing like parental descent connecting them. The Fishes of the Paleozoic age are in no respect the ancestors of the Reptiles of the Secondary age, nor does Man descend from the Mammals which preceded him in the Tertiary age. The link by which they are connected is of a higher and immaterial nature; and their connection is to be sought in the view of the Creator himself, whose aim was to introduce Man upon the surface of our globe. Man is the end towards which all the animal creation has tended, from the first appearance of the first Paleozoic Fishes.

503 To study, in this view, the succession of animals in time, and their distribution in space, is therefore to become acquainted with the ideas of God himself. Out of this lies the necessity of comprehending Creation by linking extinct with living species. (*Principles* 206)

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Thoreau initially subscribed to such an anthropocentric form of natural theology, but gradually broke away from it, starting around the same period that he began his relationship with Agassiz. Curiously, their shared enthusiasm for and attentiveness to the natural world, what Davenport has eloquently described as “two minds equally familiar with the shyness of turtles,” (16) led them to support incompatible scientific paradigms.<sup>4</sup> Thanks paradoxically to Agassiz’s own admirably rigorous observation of nature, Thoreau began to search for truth no longer in a transcendent system, but, as François Specq has argued, within experience itself (55). He writes in *Walden*: “We are enabled to apprehend at all what is sublime and noble only by the perpetual instilling and drenching of the reality which surrounds us” (399). This faith in a deeper rather than in a higher reality made Thoreau suspicious of Agassiz’s special creation and more receptive to the emerging developmental or proto-evolutionist paradigm, advanced among others by Lamarck and Robert Chambers. Their novel theories did away altogether with the notion of first cause to assert that nature could only be understood by studying its interconnected parts.<sup>5</sup>

What helped trigger Thoreau’s suspicion of the predominant creationist paradigm and his anticipation of evolution? One answer perhaps lies in Agassiz’s personality. Thoreau no doubt felt uncomfortable with Agassiz’s high moral tone and almost manic need to mobilize large amounts of researchers to carry out his hugely ambitious enterprises. In their only meeting that Thoreau retranscribed, an 1857 dinner at Emerson’s to celebrate Agassiz’s fiftieth birthday, the writer makes the Professor sound both authoritative and over-confident, dramatizing their discussion with a litany of “he says” and “he thinks” that suggests there was little room that evening for actual dialogue (*Journal IX* 298-299). Agassiz’s character and cultural stature, as Davenport notes, made him especially vulnerable to parody (2). A second, in my mind more satisfying answer, may be found in the intersection between linguistics and ontology. The poet and amateur naturalist was unable to reconcile the period’s newly dominant positivist discourse, exemplified by Agassiz

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<sup>4</sup> Agassiz’s precision of description and method of comparison is celebrated by Ezra Pound in his anecdote on Agassiz and the fish on the opening page of *ABC of Reading*, where a student takes three whole weeks to produce a description of a common sunfish that will satisfy the Professor (17).

<sup>5</sup> Laura Dassow Walls usefully labels these two alternative approaches to nature “rational holism” and “empirical holism” (4-5).

and based on denotation and classification, with his own much more personal, dynamic understanding of language and of nature, grounded in an organic conception of metaphor. Thus, in a journal entry from 1854, he writes: "I cannot help suspecting that the life of these learned professors has been almost as inhuman and wooden as a rain-gauge or self-registering magnetic machine. They communicate no fact which rises to the temperature of blood-heat" (Thoreau, *Journal VI* 238).

Viewing the world through the double lens of poetry and science, Thoreau must have very quickly realized that the language underlying Agassiz's natural system also sounded as "wooden as a rain gauge." This system or taxonomy, meant to be the blueprint of creation, was based on exclusive hierarchy, affinity and analogy, three concepts which stress fixity and contiguity rather than what lies at the basis of Darwin's evolutionary classification, common descent and organic transformation, i.e. phylogenesis (Mayr 200-209).<sup>6</sup> Organicity, of course, is central not just to romantic language theory (e.g. Shelley's "vitally metaphorical" language in *A Defence of Poetry*), but also to romantic metaphysics. In *Aids to Reflection* (1829), Coleridge summarizes the Leibnizian position, to which all the followers of Emerson, including Thoreau, subscribed: "All things strive to ascend, and ascend in their striving" (Wilson 288). Although Thoreau warns his reader, in the beginning of his chapter on "Sounds" in *Walden*, not to forget "the language which all things and events speak without metaphor," in other words the language of concrete experience or facts, these facts can only be interpreted through writing, which he knows is richly connotative and metaphorical (411). Thus *Walden* represents nature as a vast, interconnected and multiform text, what David Robinson has called "living poetry" (110-114).

Thoreau's arguably parodic response to Agassiz in his journals and in his published works enables him to disassociate the "dead" language of institutionalized science from the "living poetry" of nature. Parody appears almost immediately in his correspondence with James Elliot Cabot. Thanking Thoreau for sending a first shipment of specimens, Cabot writes,

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<sup>6</sup> In his *Principles of Zoology*, Agassiz defines two of these key terms in his classificatory system: "Analogy refers to similar function despite different anatomy. Affinity refers to similar anatomy but different function" (7).

I carried [the samples] immediately to Mr. Agassiz, who was highly delighted with them, and began immediately to spread them out and arrange them for his draughtsman [. . .] I am sure you would have felt fully repaid for your trouble, if you could have seen the eager satisfaction with which he surveyed each fin and scale. (Thoreau, *Correspondence* 177)

Agassiz was notorious in Boston for collecting and dissecting unusually large numbers of specimens. As his biographer wryly notes, “no object, alive or dead, was turned away” (Lurie 146). Thoreau’s participation in this enterprise thus seems out of character: “What are we to make,” Laura Walls asks, “of a Thoreau who so cheerfully trapped, packed, and shipped so many of his Walden ‘friends’ and neighbors to Harvard’s halls of science?” (115). Yet Thoreau’s cheerfulness is not entirely innocent. In his return letter, he writes with a zest of Yankee humor that he is “very glad that the fishes afforded Mr. Agassiz so much pleasure,” adding that because turtles are “valued for soups, science may be forestalled by the appetite in the market.” The irony here helps Thoreau to diminish Agassiz’s cultural authority, while perhaps also suggesting his growing realization that science was an alien discourse to him.

This distancing enables Thoreau, in his next letter, to impersonate the scientist by parodying his style.<sup>7</sup> After proposing to send Agassiz some new species and seeking the Professor’s opinion on a host of local fish, Thoreau then names and describes these in his own homespun taxonomy, again breaking the authority of scientific language by using imprecise nomenclature and showing sympathy for the objects under study.<sup>8</sup> Unable to correctly identify a fish with the exact Linnaean binomial, for example, he names it “Roach or Chiverin, *Leuciscus pulchellus*, ar-

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<sup>7</sup> If Thoreau arguably impersonates Agassiz in the above letters, Agassiz also impersonates Thoreau on one occasion. In their only direct correspondence, the overworked Agassiz had to decline Thoreau’s request on 30 June 1849 to give several lectures at the Bangor Lyceum. Although the two men had met only once and very briefly, the letter shows that Agassiz knew something of Thoreau’s eccentricities, even impersonating the writer to make his case:

...My only business is my intercourse with nature and could I do without draughtsmen, lithographers &c&c I would live still more retired. This will satisfy you, that whenever you come this way, I shall be delighted to see you, since I have also heard something of your mode of living. (*Correspondence*, 244)

<sup>8</sup> This letter is integrated in the same period to the Saturday chapter of his first book-length essay, *A Week on the Concord and Merrimack Rivers* (1849).

*genteus*, or what not.”<sup>9</sup> Further down, he describes a local fish in the following irreverent manner:

*Pickereel.* Besides the common, fishermen distinguish the Brook, or Grass Pickerel, which bites differently, and has a shorter snout. Those caught in Walden, hard by my house, are easily distinguished from those caught in the river, being much heavier in proportion to their size, stouter, firmer fleshed, and lighter colored. The little pickerel, which I sent last, jumped into the boat in its fright. (Thoreau, *Correspondence* 178)

Agassiz and Thoreau’s peculiar commerce in native critters extended beyond fish to “minks, muskrats, frogs, lizards, tortoise, snakes, caddice-worms, leeches, muscles” and perhaps most curiously, a live fox. In one of the last letters in their month-long commerce, Cabot writes: “Mr. Agassiz was very much surprised and pleased at the extent of the collections you sent during his absence in New York; the little fox he has established in comfortable quarters in his backyard where he is doing well” (*Correspondence* 179-181). Why the fox? Did Thoreau intend it as a companion to the tame bear Agassiz had received from Maine, who broke into the Professor’s wine casks then danced wildly around the house? (Lurie 146). We don’t know why Thoreau sent Agassiz “the little fox” or what happened after it was settled in the Professor’s Cambridge backyard. Nevertheless, I would like to imagine that Thoreau meant the fox, much like the “little pickerel” in the above letter, as a playful warning to the man of science not to objectify nature or view it as a closed system. Sending Agassiz a fox is Thoreau’s final and most eloquent gesture of parody, an anomalous act that, like anomalies in science, violates prevailing paradigms and forces us to look at nature in a fresh manner.

While Thoreau, in his epigraph to *Walden*, impersonates Chanticleer, the rooster, so as to “wake his neighbors up,” one of the most stirring and prophetic passages in the book describes Chanticleer’s nemesis, Renard, on the verge of transforming himself from wild beast into domestic dog. Associated in folk tales with guile, Renard is often considered

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<sup>9</sup> Thoreau had actually come across a new species of *Leuciscus*. In a letter dated June 1, 1847, Cabot writes of Agassiz that “I am in high hopes to bring or send him to Concord, to look after the new *Leucisci*, etc.” (*Correspondence* 183). Davenport has interpreted this, perhaps too speculatively, as meaning that Agassiz did in fact come visit Thoreau at Walden Pond (16). I have found no other reference or proof of such an encounter.



the animal closest to man, able like him to mimic or disguise himself as another animal. Reappearing throughout Thoreau's journals and published work, foxes bridge the gap between wildness and civilization and convey to the reader the beauty of mutability that is ever present not only in wild nature but also in language:

Sometimes I heard the foxes as they ranged over the snow crust, in moonlight nights, in search of a partridge or other game, barking raggedly and demoniacally like forest dogs, as if laboring with some anxiety, or seeking expression, struggling for light and to be dogs outright and run freely in the streets; for if we take the ages into account, may there not be civilization going on among brutes as well as men? They seemed to me to be rudimental, burrowing men, still standing on their defence, awaiting their transformation. Sometimes one came near to my window, attracted by my light, barked a vulpine curse at me, then retreated. (*Walden* 539)

Echoing Coleridge's ideal of *natura naturans* cited above, this richly allusive passage highlights the symbolic molting effort required to create organic correspondences in nature and in writing. While prepositions and conjunctions such as "like" and "as if" foreground the artificiality of yoking two dissimilar entities together (fox and dog, fox and man), they also suggest that true language or "expression" implies such a creative "labor" of transformation or metamorphosis.

It is through his understanding of literature that Thoreau can intuitively imagine a relation between fox and dog. Thoreau lifted the passage, as was often the case in his published works, from a journal entry dated Tuesday, 23 December 1845, written during his first winter at Walden pond.<sup>10</sup> A few days earlier in the same journal, Thoreau had explored the significance of ancient myths and fables as a source of a truth greater than that "confined by historical, even geological periods, which would allow us to doubt of a progress in human events" (*Journal I* 393-394). By allying the truth of fables, of metamorphosis and metaphor, with that of science and history, Thoreau here is able to propose a proto-evolutionary concept of descent quite different from Agassiz's notion of fixed species (288). Metamorphosis is as central to mythology

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<sup>10</sup> The original passage is in *Journal I* 396. In the first version of *Walden*, written at the pond in 1846-47 and established by J. Lindon Shanley, "seeking expression" and "struggling for light" are deleted, whereas "awaiting their transformation" is added. In the final version, however, both anthropomorphic details are reintroduced, along with the significantly phrased question, beginning with "if we take the ages into account" (Shanley, 194).

as it is to the idea of evolution. Agassiz accepted metamorphosis on the level of the individual animal, the growth from embryo into egg, but refused to acknowledge an organic theory of descent. Taking “the ages into account” yet suggesting a “transformation” between fox and dog, two animals today classified in the canine family because they share the same descent, Thoreau reinterprets science to propose his own, more fluid vision of the natural world. By imagining a civilization of *canidae* developing in parallel to human civilization, he also accepts the alterity of other species and refuses to view man, in Agassiz’s words, “as the end towards which all the animal creation has tended” (*Principles* 503).<sup>11</sup>

Throughout Thoreau’s writing, the fox symbolizes the wildness or radical alterity that destabilizes any fixed order.<sup>12</sup> In an undated journal entry written before 1847, for example, he describes chasing a fox over the ice and observing the animal as it stops to observe him: “Plainly the fox belongs to a different order of things from that which reigns in the village [. . .] Our courts [. . .] are in few senses contemporary with his free forest life” (*Journal I* 470). Elsewhere Thoreau jots down that the “dog is to the fox as the white man to the red” (*Journal X* 252) and compares him to the resilient, industrious younger son of a noble family (*Journal XIII* 124). Following fox tracks on snow-covered Fair Haven pond in January 1841, he wonders “what has determined its graceful curvatures” then imagines the pond as a “journal” or “*tabula rasa*” upon

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<sup>11</sup> Basing himself on the false prophets chapter in Ezekiel, 13, 4, Stanley Cavell in *The Senses of Walden* claims that the fox passage is a “crossroads and summary of many conceptions” at work in Thoreau’s book (57-58). Focusing on the related concepts of “seeking expression” and “awaiting their transformation,” Cavell’s book argues that *Walden* is a prophetic text: its project is to transform and emancipate man (and America) through an authentic relationship to language and to the world. This authentic relation is not one of mystical union or absorption in nature but of neighborly “nextness” (100-107). While expression, as Cavell points out, requires the “double condition” of sin and innocence, the discovery of a new language would enable us to transform or humanize the “demoniac” within us.

<sup>12</sup> Other instances of fox descriptions include the following 1857 entry:

Returning, I see a fox run across the road in the twilight from Potter’s into Richardson’s woods. He is on a canter, but I see the whitish tip of his tail. I feel a certain respect for him, because, though so large, he still maintains himself free and wild in our midst, and is so original so far as any resemblance to our race is concerned. Perhaps I like him better than his tame cousin the dog for it. (*Journal X* 206)

Elsewhere, he relates a remarkable incident in which he comes across an old fox defending her young, an excellent example of his close attention to the world in his late writing (*Journal X* 435-437).



which the "divine mind" can express itself. Robinson uses this incident to compare Thoreau's journal to a fox track (26-27). Although Thoreau, like Agassiz, ascribes a divine origin to the fox, he is more concerned in his journal with the way that the divine mind expresses itself in the present moment than in the past. As Sattelmeyer writes, "for Thoreau, the duty of the naturalist was to show not what creation was, but is" (88). Thus, on that same January morning, "yielding to the instinct of the chase," he pursues the fox-hound-like in order to participate in the actual workings of creation. "Notwithstanding his fright," Thoreau remarks, the fox "took no step which was not beautiful" (*Journal I* 185-187).

The beauty of Thoreau's own journal description of this event suggests what he is trying to achieve in his journal, a poetic writing of the world which branches away from Agassiz's own rigid positivist discourse. As Stanley Cavell notes, Thoreau praises the kind of scientific writing that can humanize us (76). Calling this Thoreau's "technology of inscription," Laura Walls has shown how the journal's experiential point-of-view allows Thoreau to create a middle ground between the two cultures of science and literature. Because a journal marks the fact that meanings cannot be fixed, Thoreau offers a new form of "social ecology" which resists both the impressionism of literary writing and science's reification of nature (144-145; 162). This dynamic, open-ended form of inscription better lends itself to an organic form of development written in everyday events of the natural world, than it does to Agassiz's theory of a separate, successive and special act of creation. Hence, when Thoreau got hold of Darwin's *Origin of Species* early in 1860, he was fully prepared for what it had to say, telling Franklin Sanborn he liked it very much (Sattelmeyer 376). In a journal entry dated October 17, 1861, he writes: "The development theory implies a greater vital force in nature, because it is more flexible and accommodating, and equivalent to a sort of constant *new* creation" (*Journal XIII* 147). Robert Richardson has argued that in the *Origin of Species*, "Darwin intended to show that transmutation or metamorphosis, a ruling image in the Western imagination [...] was no longer just a metaphor, but a fact" (377). This blending of fact and fiction must have struck Thoreau as especially auspicious in Chapter One of the *Origin*, "Variation under Domestication." In it, Darwin argues for metamorphosis as the key to the development of domesticated animals such as dogs, and hence as proof of species variation in wild animals as well, namely the fox (79).

The fox, for Thoreau as for Darwin, marks the edge between civilization and wildness, reminding us of the vital, transformative forces at play in nature and in language. The Professor, on the other hand, came to personify everything that Thoreau disliked about the emerging discourse of professional science. Richardson remarks that "much of Thoreau's longstanding ambivalence about science can be understood in the context of his long association with and eventual rejection of the views of Louis Agassiz" (363). By the end of his short life, Thoreau no longer fully identified with modern science, preferring the natural historians of old who combined fact and fable, and engaging in a symbolic activity that gives a human meaning to every fact.<sup>13</sup> This humanized form of science, paradoxically, led Thoreau "toward the Darwinian future," as Richardson (368) writes, and to an envied place in current scholarship. At the same time, Agassiz's overly deterministic science grounded in Calvinist natural theology bound him to the past, and, unfairly perhaps, to his current footnote status in nineteenth-century cultural history.

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<sup>13</sup> By 1851, Thoreau was already complaining of being unable to see nature as a whole, only in detail (Harding 291). In the journal passage of 5 November 1857, noted by Richardson, he writes that it is the point between the observer and the object which interests him, and not the object itself (363). Thoreau's often quoted reaction to the 1853 questionnaire from the American Association of Advancement of Science, an organization that Agassiz helped found in 1848, allows us to better understand his alienation from the function of the scientist:

I felt that it would be to make myself the laughing-stock of the scientific community to describe or attempt to describe to them that branch of science which specially interests me, inasmuch as they do not believe in a science which deals with a higher law. . . The fact is that I am a mystic, a transcendentalist, and a natural philosopher to boot. (*Journal V 4*)

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