

**fair fields and blasted rock**

**american land**

**classification systems**

**and landscape aesthetics**

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What is good land? Seventeenth-century North American colonists disagreed about its character; land that husbandmen cherished as rich and warm, miners condemned as barren while pioneering agriculturists scorned it. Agricultural evaluation dominated colonial thinking, and throughout the eighteenth century Americans frequently classified all land unfit for agriculture—especially treeless mountains—as *bad*. Their contempt endured for another hundred years, probably warping national aesthetics and divorcing American notions of landscape beauty from the standards dear to European romantics. “The poet and the painter will seek in vain for those objects which they have been accustomed to behold under the influence of fascination, and to depict with enthusiasm and rapture,” wrote Timothy Dwight in 1804 of upstate New York. “The phrase *beautiful country*, as used here, means appropriately and almost only lands suited to the purposes of husbandry, and has scarcely a remote reference to beauty of landscape.”<sup>1</sup> Within twenty years, however, American artists had embraced the farmers’ equation of rich agricultural land with beautiful country; only a few investigated the mineralogical land classification system and its insignificant aesthetic. The wilderness portrayed in so many paintings and tales reflects the aesthetic of the agricultural land concerns that shaped American thinking until explorers entered the High Plains and Rocky Mountains and learned again the mineralogical classification system. Until the 1870’s *beautiful country* defined agricultural land—or land fit for agriculture.

The elaborate agricultural and mineralogical land classification systems comprise a significant part of what Peter Burke calls the "little tradition," the wealth of belief and practice transferred orally and by example from one generation to another.<sup>2</sup> Occasionally, as G.E. Fussell notes in *The Classical Tradition in West European Farming*, husbandmen maintained Roman agricultural practices well into the sixteenth century, weaving into the ancient wisdom an increasingly intricate local lore of soil types and plant indicators.<sup>3</sup> It is clear too, from such studies as Paul Sebillot's *Les Travaux publics et les mines dans les traditions et les superstitions*, Otto Hue's *Die Bergarbeiter*, and, more recently, G. Schreiber's *Der Bergbau in Geschichte* and John Ulric Nef's *The Conquest of the Material World*, that early modern European prospectors and miners understood a different traditional but equally complex land classification system that contradicted the one favored by most agriculturists.<sup>4</sup> Much less is known about the North and South American variations of the Old World land classification systems. Archer Butler Hulbert's *Soil: Its Influence on the History of the United States*, though dated, is still valuable, but it has spawned few other studies. Only James T. Lemon's *The Best Poor Man's Country: A Geographical Study of Early Southeastern Pennsylvania* details the usefulness of European soil classification rules in North America.<sup>5</sup> Here I wish only to briefly describe the European systems on the eve of colonization, sketch how they functioned in North America and suggest that they helped shape American scenery values.

i

In *A Philosophical Discourse of the Earth*, John Evelyn discusses the Old World agricultural land classification system imported into North America. His treatise of 1678 emphasizes the usefulness of four-element analysis and the power of astrological influence. In ordering soils according to fertility, he describes "black, fat, yet porous, light," surface soil as "the best, and sweetest, being enriched with all that the air, dews, showers, and celestial influences can contribute to it." While he accepts with reservation the Baconian doctrine that the best soil lies wherever rainbows touch the earth, he firmly believes that vegetation indicates soil fertility. Camomile marks "a mould disposed for corn," burnet grows in soil useful as pasture and mallows indicate soil favorable to root crops. By tasting the soil, a wise husbandman can discover the presence or absence of important salts, and by careful watching he can see "exhalations from minerals and the heat of the sun" as well as true colors. Evelyn insists too on smelling the soil: "Upon the first rain, good and natural mould will emit a most agreeable scent; and in some places (as Alonso Barba, a considerable Spanish author testifies), approaching the most ravishing perfumes. But "if the ground be disposed to any mineral or other ill quality, sending

forth arsenical, and very noxious steams,” the wise husbandman ought to avoid it. His frequent references to the four elements, often couched in terms like “sweetness,” and his faith in celestial influence reveal the power of medieval custom in the early modern era. To be “well read in the alphabet of the earth” required an understanding of traditional wisdom.<sup>6</sup>

Seventeenth-century letters from North American colonists reveal the complexity of soil analysis. “The soil I judge to be lusty and fat in many places, light and hot, in some places sandy-bottomed and in some loamy, reasonably good for all sorts of grain without manuring, but exceeding good with manure, some for wheat, some for rye, etc.,” advised one Bay Colony settler in 1638.<sup>7</sup> Dutch colonists delighted in soil that Englishmen dismissed as too cold and wet, noting that low-lying meadows “could be dyked and cultivated,” and Germans, Swedes and other immigrants learned that their national land classification systems made sense of New World wilderness ground.<sup>8</sup> Early colonists understood that every species of tree indicates one or more peculiarities of soil fertility or sterility; each colony quickly produced catalogs of trees to prove the fertility of its soils.<sup>9</sup> As late as 1759, Israel Acrelius described the trees of New Sweden in old-country terms, explaining that while the white oak indicates good soil, the hickory and sassafrass mark the richest.<sup>10</sup>

By the middle of the eighteenth century, however, Americans had combined the tree lore of several European nations into one distinctively their own, and land surveyors often casually classified the terrain they measured according to well-understood categories like “good land” or “bad land,” as is evident in a 1792 manuscript “Plan of Irasburgh” Vermont and in other surveyors’ plats.<sup>11</sup> James Smith’s 1799 account of his captivity by the Indians of the Northwest Territory exemplifies the new national land classification system based on vegetation cover. Smith described four sorts of land during his wanderings. What he calls “first-rate land” he knew by oak, hickory, walnut, cherry, black ash, elm, beech and several other species. Second-rate land he recognized by the appearance of spicewood trees among the beech, and third-rate territory by the small size of all trees and the preponderance of species like spicewood. Here and there he crossed land he calls “worse than third-rate,” expanses marked by “hurtle berry bushes” or prairie.<sup>12</sup> Americans had forgotten Old World wisdom concerning polder, steppes, and heaths; they perceived all treeless land—even the Illinois country Smith encountered—as barren, even when it produced grasses and shrubs several feet high. They avoided the blueberry barrens of Maine and the pine barrens of New Jersey, North Carolina and Georgia, and searched for land marked by trees like the hickory, where they stopped and tested the soil as carefully as had their seventeenth-century forebears.

Astute European visitors discerned American modifications of Old World classifications. “The honey locust, which signifies fertile soil,

perfumed the crest of the mountain with its flowers,” wrote a Frenchman exploring Pennsylvania in 1791. “Hickories and stalwart oaks luxuriously extended their branches.”<sup>13</sup> Ferdinand Bayard caught a trace of the emerging synthesis of practicality and aesthetics, but most Europeans learned only the practical significance of trees. A husbandman “may know the quality of the land by the trees, with which it is entirely covered,” asserted an English musician traveling through the countryside in the first years of the United States. “The hickory and the walnut are an infallible sign of a rich, and every species of fir, of a barren, sandy, and unprofitable soil.”<sup>14</sup> Throughout the first half of the nineteenth century, Americans prized land covered with hickory and walnut trees, and gradually they equated such species with more than good soil. Such trees represented dignity, strength, and courage, characteristics that won for Andrew Jackson the nickname “Old Hickory,” and they epitomized national standards of arboreal beauty.<sup>15</sup> Always, however, they first indicated fertile land.

Nineteenth-century agricultural periodicals retained early modern European concepts of land classification in the most up-to-date articles, supporting the suggestion made by Herbert Leventhal in *In the Shadow of the Enlightenment: Occultism and Renaissance Science in Eighteenth-Century America* that much orally-transmitted lore endured as common knowledge long after intellectuals had discarded it.<sup>16</sup> An 1836 *Farmer's Cabinet* editorial, “On the Nature of Soils,” for example, echoes Evelyn's theories by asserting that sand, clay, gravel, chalk, loam, and marl have different “degrees of warmth, air, and moisture,” and must be carefully identified. “The best loams, and natural earths are of a bright brown, or hazely color,” the editorial notes before explaining the various scents and textures of soils.<sup>17</sup> Such thinking biased Dwight and Thoreau as they explored the “sterility” of outer Cape Cod. “In such ground no forest tree can grow either with rapidity or vigor,” Dwight remarked of the duneland. “On the driest and most barren of these grounds grows a plant which I have never before seen, known here by the name of beach grass.”<sup>18</sup> Fifty years later, Thoreau slogged through the “barren, heath-like plain,” wondering at the poverty-grass “despised by many on account of its being associated with barrenness,” inquiring, as had Dwight, about the color of the soil, and finding little of beauty anywhere.<sup>19</sup> Both men classified the region according to established but obsolescent standards; farmers in western prairies had learned that grassland might be fertile beyond belief, that a lack of trees might indicate anything but barrenness.

In an 1818 article entitled “On the Prairies and Barrens of the West,” Caleb Atwater of Ohio explained to readers of *The American Journal of Science* that *prairie* denotes discrete patches of natural grassland covering no more than about three by seven miles and producing six- or seven-foot-high grass mixed with “some weeds and plum-bushes.” *Barrens* identifies vast, almost limitless low, moist

areas covered with grass, although capable of producing a few oaks and hickories in spots marked by low water tables. "From their appellation, 'barrens,' the person unacquainted with them is not to suppose them thus called from their sterility, because most of them are quite the reverse," he asserts before explaining the necessity for ditching. But Atwater knew that such land did not appeal to newcomers: "No pleasant variety of hill and dale, no rapidly running brook delights the eye, and no sound of woodland music strikes the ear; but, in their stead, a dull uniformity of prospect 'spread out immense.'"<sup>20</sup> Even innovators willing to abandon traditional agricultural land classification advice found such land ugly or monotonous. Tradition-minded Americans and most newly-arrived immigrants scorned such regions as sterile, and searched for "good land," the tree-covered ground they identified with fertility and beauty, the land prospectors and miners dismissed immediately.

## ii

When the *conquistadores* discovered gold and silver in Mexico and Peru, esoteric sixteenth-century debates concerning quicksilver and mineral gestation, mountains and brimstone, alchemy and infernal heat suddenly involved not only alchemists and theologians, but also merchants, royal counselors, explorers and colonists.<sup>21</sup> Western Europeans looked to the Alps for expert advice about prospecting techniques and slowly learned a land classification system antithetical to the comfortable one of husbandry.

Richard Eden translated part of Vannuccio Biringuccio's *Pyrotechnia* into English in 1555, only fifteen years after the work appeared in Italian. Biringuccio's mineral-finding advice depends on four-element analysis and painstaking observation, but focuses on land husbandmen called barren. Metals are likely to exist in any mountain, he counsels, "by reason of the great barrenness and roughness thereof," but only wise men understand how to locate the veins. They know that spring water tastes metallic near ore deposits, that mountains "rough, sharp, and savage, without earth or trees" make likely prospecting sites and that wherever mountain herbs or grass grow faint in color "and in manner withered and dried," ores lurk just beneath the surface. Gold "is engendered in divers kinds of stones in great and rough mountains, and such as are utterly bare of earth, trees, grass, or herbs," and announces its presence by the most subtle clues.<sup>22</sup> Biringuccio and his translator cared little for theory; they interested themselves in deciphering the surface signs of subterranean wealth.

Seventeenth-century explorers needed works based on New World experience, not Alpine tradition. In response Alvaro Alonso Barba published *The Art of Metals* (1637) while supervising the exceedingly

profitable mines at Potosi in Bolivia, and the book soon appeared in English, German, and French. Barba explains how to follow streams and scrutinize eroded rock, how to use the *cateador* or prospector's pick, and how to identify the lines of plants half-sickened by metallic exhalations from ore veins beneath their roots.<sup>23</sup>

Literate Englishmen slowly acquired such Spanish knowledge through works like Gabriel Plattes' 1639 masterpiece, *A Discovery of Subterraneall Treasure*. After asserting that gold and silver lie almost everywhere in the "burning zone" along the equator, he emphasizes that mountains are the best prospecting sites: "When we come to the rocky and craggy mountains, the first thing we are to observe, is the barrenness of them, for the more barren they are, the greater probability there is that they contain rich mines and minerals." He suggests distilling nearby spring water and noting the residue (a greenish one, for example, indicates copper deposits), and advises his reader "to go to the bare rocks, there to find out the clefts, crooks, and crannies . . . till you find some grass growing right upon the top of said crannies, and then observe diligently the kind of that grass, and how it differs from other grass ordinarily growing in the same mountain." Plattes took much of his information from New World hearsay, but some of it, he insists, derived from experimentation. "About midsummer, in a calm morning," he writes of a successful attempt to discover a vein of lead, "I cut up a rod of hazel, all of the same spring's growth, about a yard long," and wandered about likely sites until the wand bent down. Such divining confused agriculturists who expected that fertility-indicating trees would indicate precious metals; but hazel twigs sought out silver, ash twigs responded to copper deposits, and not even hickory branches twitched over gold. "Now in the new plantations, as New England, Virginia, Bermudas," he concludes at the end of his book, "where it is likely that few or none have ever tried, that had any skill in these affairs, it is very probable that the orifice of divers mines may be discerned with the eye in the clefts of the rocks . . . and yield more gain in one year than their tobacco and such trifles would yield in their whole lives."<sup>24</sup> More than any other seventeenth-century textbook, *A Discovery of Subterraneall Treasure* illustrates the mineralogical land classification system some Englishmen carried to the New World and applied in frenzied attempts to recreate Spain's wonderful finds.

Repeated failures convinced English prospectors that no gold or silver lay beneath the forested hills of Connecticut and Virginia, but the Spanish-derived fascination with otherwise barren ground still fired imaginations. In New Jersey, asserts Jedidiah Morse in his 1789 *American Geography*, "the *barrens* produce little else but shrub oaks and white and yellow pines," but in Mexico, mines of gold and silver "are always found in the most barren mountainous parts of the country, nature making amends in one respect for defects in another."<sup>25</sup> In schoolbooks, reprinted guidebooks—a Philadelphia printer reissued Plattes' *Discovery* as late as 1784—and in oral tradition, the mineral-

ogical classification system survived, predisposing Americans for the 1849 rush to California's savage mountains.

Prejudice deprived the mineralogical land classification system of a fair chance in the colonies, however, and made suspect its educated adherents. Husbandmen afraid of earthquakes, chemical poisoning, and a swarm of mountain furies distrusted anyone searching out those places likely to host calamity. Athanasius Kircher explored the infernal entrails of mother earth in *Mundus Subterraneus*, a massive, profusely-illustrated folio that appeared at Amsterdam in 1664. Kircher understood alchemy, subterranean fire, dwarfs, planetary affinities of metals and cave-dwelling dragons; his book appealed only to the very learned, but it analyzes many popularly-held beliefs, and offers first-hand accounts of such terrifying episodes as the swallowing of Euphemia in Calabria during a 1638 earthquake, an event Kircher witnessed.<sup>26</sup> Folk Christianity had long portrayed such incidents as divine retribution, and had long depicted mountain reptiles as monstrous relatives of the primeval serpent.<sup>27</sup>

Mistrust of caves, earthquakes, and lizards arrived in North America with the first colonists, and German, Austrian, and Cornish miners recruited to work the few English diggings embroidered the tapestry of tales defining the subterranean world as the Devil's domain.<sup>28</sup> Earthquakes scented the air with brimstone, and convinced thoughtful colonists that somewhere beneath the sunlit earth, somewhere far below the graveyard sod, burned a great demonic fire, the fire that repeatedly rocked seventeenth-century New England.<sup>29</sup> The 1727 earthquake that shook Massachusetts, New Hampshire, and Maine confirmed American fears dating to the 1692 destruction of Port Royal in Jamaica, and the celebrated "moodus noises" forever rumbling beneath East Haddam, Connecticut kept alive the belief in underground conflagration.<sup>30</sup> Earthquakes terrified colonists and caused learned men to pore over Kircher's tome; as late as 1833, one geology text cited his remarks concerning Euphemia. They prompted clergymen to preach about punishment and mineral-seeking. "God laid them low," said Samuel Willard of metals in a 1726 sermon directed against "greedy desire" and idolatry, "but man adores them, sets them up in his heart, and worships these, advancing them as high as God, and setting them in His throne."<sup>31</sup> Such sermons emphasize the honesty of agricultural labor and the blessing of fertile soil by condemning the infernal urge to delve into the earth after tainted riches, to chance cave-ins, encounters with supernatural humanoids and serpents and poisoning, all for the sake of quick wealth. Until well into the eighteenth century, *barren land* connoted *blasted land*.

Nineteenth-century periodical writers occasionally described subterranean places, particularly mines like one explored by John Grammer in 1818. "The gloomy blackness, however, of most of the galleries, and the strange dress and appearance of the black miners, would furnish sufficient data to the conception of a poet, for a descrip-

tion of Pluto's kingdom," Grammer remarks before beginning a non-sense account. "A strong sulphurous acid ran down the walls of many of the galleries; and I observed one of the drains was filled with a yellowish gelatinous substance, which I ascertained, on a subsequent examination, was a yellow, or rather a reddish, oxide of iron, mechanically suspended in water." In the Virginia coal mines Grammer discovered the chthonic phenomena and perils described centuries earlier by Plattes and Kircher. Not only was coal in a contiguous seam on fire, but also "a strong sulphurous fume" shot steadily "from an irregular hole in the side of the hill of about two feet in diameter," encrusting the nearby soil with crystals of pure sulphur. Explosions of some sort of "damp," probably "carburetted hydrogen gas," had killed several miners a short while before, and Grammer quit the diggings with relief.<sup>32</sup> A few writers intrigued by non-agricultural spaces and activities visited other mines and prospecting sites before publishing similar articles filled with crypto-chemical jargon and tinged with traditional horror.<sup>33</sup> But disastrous earthquakes like those that destroyed several settlements in the Missouri Territory in 1807 reinforced the dominant belief that beneath the earth's surface lies only terror, and that the more barren the place, the more likely an eruption or other catastrophe.<sup>34</sup> Most Americans condemned eroded, rocky land as bad; they deemed it unfit for agriculture and useless for artistic study.

As Cecilia Tichi has recently shown in *New World, New Earth: Environmental Reform in American Literature from the Puritans through Whitman*, descriptions of wilderness interested chiefly upper-class, well-educated readers able to learn about such places while enjoying urban comforts.<sup>35</sup> Almost always, however, the nineteenth-century wilderness descriptions emphasize wild land with some potential for agriculture, a potential usually announced by forest cover. "There is, perhaps, no part of our mountain regions where so great a variety of trees is presented to the student of landscape art as in the vicinity of the Catskills," remarked one essayist in *The Crayon* in 1857.<sup>36</sup> European-educated painters and critics now and then suggested that rocky places devoid of vegetation deserve scrutiny too, but the educated public preferred the settings beloved by farmers. Viewers coerced artists, especially those employed as periodical illustrators, into repeatedly depicting rural scenes edged by hickory-, walnut- and oak-covered wilderness ripe for the axe and the plow.<sup>37</sup> Barren land proved too suspect for art.

Geological theorizing sharpened traditional dislike of barren mountains. Robert Chambers and other scientists scrutinized rock formations and mountain-top fossils, and raised disconcerting questions about the age of the earth and Biblical accuracy.<sup>38</sup> Long essays like Benjamin Silliman's 1833 "The Consistency of Geology with Sacred History" failed to convince educated Americans that mountains did not objectify serious religious uncertainty. Agriculture remained safe

and noble, transmitted from father to son; geology and mining grew increasingly suspect, and shrouded in technical terminology.<sup>39</sup> Barren mountains and atypical rock formations are conspicuously absent from much early-nineteenth-century painting, and from much writing too, even from Thoreau's sketches like "A Walk to Wachusett," which concerns his hike to the mountain and the view from its summit, but not the mountain top itself: "The summit consists of a few acres, destitute of trees, covered with bare rocks, interspersed with blueberry bushes, raspberries, gooseberries, strawberries, moss, and a fine wiry grass. The common yellow lily, and dwarf-cornel, grow abundantly in the crevices of the rocks."<sup>40</sup> No transcendental spunk shapes his attitude toward the mountain; his essay almost piously remarks on the mountain as God's handiwork, and studiously avoids geological theorizing. In a subsequent essay, Thoreau remarks that "Ktaadn presented a different aspect from any mountain I have seen, there being a greater proportion of naked rock rising abruptly from the forest," and calls the summit-edges of that mountain "the most treacherous and porous country I ever travelled."<sup>41</sup> Above the timber line Thoreau entered a region that mocked his Concord-woodlot, vernacular knowledge and aesthetic and tested his supposed opposition to traditional theology. Along with most other Americans, he preferred fields and forests.

### iii

Did the agricultural and mineralogical land-classification systems help mould American painting and literature? An examination of some paintings and literary works suggests that they did. Nineteenth-century American scenery paintings and prose descriptions, as Barbara Novak notes in *American Painting of the Nineteenth Century* and *Nature and Culture: American Landscape and Painting, 1825-1875*, generally emphasize either the rural landscape of farms, pastures, and arable fields analyzed by Leo Marx in *The Machine in the Garden* or the enticing, wonderfully fertile wilderness examined by Henry Nash Smith in *Virgin Land*.<sup>42</sup> Very often, as in Thomas Cole's "Genesee Scenery" (1847), forest abuts farmland.<sup>43</sup> Except in the work of a few painters like John F. Kensett and Martin Johnson Heade, the depicted wilderness, in my opinion, is typically wilderness with an agricultural potential.<sup>44</sup>

Cole and other painters occasionally depicted bad land. "Expulsion from the Garden of Eden" (ca. 1827-1828) illustrates Cole's understanding of the mineralogical land classification system. On the right of the canvas is Eden, a fertile spot shaded by trees resembling those North American species thought to indicate warm, rich soil; opposite Eden stand jagged, rock-strewn mountains dotted by scraggly vegetation.<sup>45</sup> The mountains derive mostly from Cole's imagination, not from his favorite painting location, the tree-covered, fertile Cats-

kills, and they appealed to adherents of the traditional agricultural land classification system and to the educated elite suspicious of modern geology.<sup>46</sup> Rail as he might against injudicious “newspaper praise,” Cole found it impossible to escape his patrons’ love of farmland and fertile wilderness, and he repeatedly painted scenes that sold, scenes like “Genesee Scenery.”<sup>47</sup> Kensett and Heade managed to combine their atypical love of bare rocks with a flair for painting seacoasts, but even their most popular works treat agricultural land.<sup>48</sup> American writers depicted similar settings. Only a handful, often those with some understanding of European gothicism, devoted attention to the land scorned by agriculturists.<sup>49</sup>

Hawthorne, Poe and especially Melville charged their writing by emphasizing land distrusted by their readers. Hawthorne focuses the action of “Ethan Brand” on a mountain-side lime kiln that “resembled nothing so much as the private entrance to the infernal regions, which the shepherds of the Delectable Mountains were accustomed to show to pilgrims,” and sites “The Ambitious Guest” at a mountain house eventually destroyed by a rock slide.<sup>50</sup> Poe heightens the subterranean horror of “The Cask of Amontillado” by choosing a crypto-chemical vocabulary that repulsed readers familiar with old terms like the “sweetness” or “sourness” of soil; the nitre-encrusted vaults derive from the geological vocabulary that marks “The Narrative of A. Gordon Pym,” “The Gold Bug,” and other tales set in barren places.<sup>51</sup>

But Melville best understood the significance of barren land, and particularly barren mountains; his 1854 “Encantadas, or the Enchanted Isles” juxtaposes the traditional land-classification systems and fuels nineteenth-century fears of geological science. “It is to be doubted whether any spot of earth can, in desolateness, furnish a parallel to this group,” he writes of the archipelago “cracked by an everlasting drought beneath a torrid sky.” He mixes a Poesque chemical terminology with traditional mineralogical land classification system information, describing “tangled thickets of wiry bushes, without fruit and without a name, springing up among deep fissures of calcined rock, and treacherously masking them; or a parched growth of distorted cactus trees.” But his emphasis is essentially traditional, calculated to summon all his readers’ antipathy to barren land. “Little but reptile life is here found: — tortoises, lizards, immense spiders, snakes, and that strangest anomaly of outlandish nature, the *aguano*. No noise, no low, no howl is heard; the chief sound of life here is a hiss.” No wonder that he concludes his first chapter by noting that “I can hardly resist the feeling that in my time I have indeed slept upon evilly enchanted ground.” He had slept on land as barren as any described in folklore, on land covered with crevices, stunted plants, and rocks, on land prone to earthquake and populated by small-scale dragons as ugly as any found by Kircher two centuries before.<sup>52</sup> Melville’s “Encantadas” epitomizes the awesome evocative power of the mineralogical land classification system in a culture wedded to agricultural thinking.

"The weapons with which we have gained our most important victories, which should be handed down as heirlooms from father to son," Thoreau remarked in 1862, "are not the sword and the lance, but the bushwhack, the turf-cutter, the spade, and the bog-hoe, rusted with the blood of many a meadow, and begrimed with the dust of many a hard-fought field."<sup>53</sup> No one mentioned the *cateador* or praised the mining of mountains; Whitman and others heard the song of the broad-axe and rejoiced in fair fields and forests marking fertile soil.<sup>54</sup>

No aesthetic tradition aided Americans gazing at the High Plains and the Rocky Mountains; beyond the tall grass prairie broken by stands of hickories and other beautiful trees lay the land beyond the grasp of agricultural land classification systems and the compass of eastern spatial aesthetics.<sup>55</sup> "In the mind of an American, frequent forests, and frequent as well as fine groves, are almost necessarily associated with all his ideas of fertility, warmth, agricultural prosperity and beauty of landscape," concluded Timothy Dwight in 1821. "Nor can he easily believe that a country destitute of trees is not destitute of fertility."<sup>56</sup> Not until painters, journalists and photographers grew intimate with plains and treeless mountains did barrens and blasted rock receive the tender rendering accorded agricultural landscapes and fertile forest wilderness. And even after the conversion of artists, many Americans continued to regard rocky or treeless land as slightly treacherous and very ugly.<sup>57</sup> Much work remains in the deciphering of American land classification techniques and their relation to the scenery values of the "typical" citizen and of the educated elite. Here I have only traced what appear to me to have been two significant land classification techniques that bear indirectly on American painting and letters.

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## notes

1. Timothy Dwight, *Travels in New England and New York* [1822], ed. Barbara Miller Solomon (Cambridge, Mass., 1969), IV, 20.

2. Burke, *Popular Culture in Early Modern Europe* (London, 1978), esp. 23-64; see also Carl von Sydow, *Selected Papers on Folklore* (Copenhagen, 1948), 11-19, 44-53 and Robert Mandrou, "Cultures Populaire et Savante: Rapports et Contacts," *Popular Culture in France*, ed. Jacques Beauroy (Saratoga, Calif., 1977), 17-38 for additional analysis of the European "little tradition"; see Henry Glassie, *Pattern in the Material Folk Culture of the Eastern United States* (Philadelphia, 1968), 1-17 for an interpretation of that tradition in America.

3. (Rutherford, New Jersey, 1972), 82-137; on soils and location of farms, see W.G. Hoskins, *The Making of the English Landscape* (1955; rpt. Harmondsworth, 1970), 17-44 and Alan Mayhew, *Rural Settlement and Farming in Germany* (New York, 1973), 118-167.

4. (Paris, 1894), esp. 387-589; (Stuttgart, 1913); (Berlin, 1962); (Chicago, 1964); on Latin American mining, see John Robert Fisher, *Minas y mineros en el Peru colonial, 1776-1824* (Lima, 1977).

5. (New Haven, 1930); (New York, 1976); for additional information on the application of German soil classification rules in Pennsylvania, see Stevenson Whitcomb Fletcher, *Pennsylvania Agriculture and Country Life, 1640-1840* (Harrisburg, 1955), 48-55.

6. (London, 1678), 289, 292, 298.

7. Edmund Browne, "Letter" [September 7, 1638], *Letters from New England: The Massachusetts Bay Colony, 1629-1638*, ed. Everett Emerson (Amherst, Mass., 1976), 226-227.

8. Adriaen Van der Donck, "Description of New Netherlands" [1656], trans. Jeremiah Johnson, *New York State Historical Society*, (1841), second series, I, 148.

9. See, for example, Thomas Morton, *The New English Canaan* [1637], ed. Charles Francis Adams (Boston, 1883), 182-187.
10. Israel Acrelius, *A History of New Sweden* [1759], trans. William M. Reynolds (Philadelphia, 1876), 182-187.
11. "Plan of Irasburgh," Bailey-Howe Library, University of Vermont, Burlington; for examples of surveyors' land classification vocabulary, see Hildegard Binder Johnson, *Order Upon the Land: The U.S. Rectangular Land Survey and the Upper Mississippi Country* (New York, 1976), 78-80.
12. James Smith, *Remarkable Occurrences* [1799], ed. William M. Darlington (Cincinnati, 1870), esp. 84-90.
13. Ferdinand Bayard, *Voyage dan l'interieur des Etats-Unis dans la Vallee de Shenandoah . . . 1791* (Paris, 1797), 65 (my translation).
14. William Priest, *Travels in the United States* (London, 1802), 35.
15. John William Ward, *Andrew Jackson, Symbol for an Age* (New York, 1955), 54-57.
16. (New York, 1976), esp. 1-10.
17. I (October 1, 1836), 81-82.
18. Dwight, *Travels*, III, 60.
19. Henry David Thoreau, *Cape Cod* (1864; rpt. Boston, 1887), 122, 124, 80, 180-181; for an extended analysis of American evaluations of seashore topography and soil, see John R. Stilgoe, "A New England Coastal Wilderness," *Geographical Review*, 71 (January, 1981), 33-50.
20. I (1818), 116-125; see also Douglas R. McManis, *The Initial Evaluation and Utilization of the Illinois Prairies, 1815-1840* (Chicago, 1964).
21. For an introduction to the controversies before the discovery of New World precious metal, see Conrad von Megenberg, *Buch der Natur* (Augsberg, 1475).
22. For the *Pyrotechnia* see Richard Eden, *The Decades of the New World* [1555], in *The First Three English Books on America*, ed. Edward Arber (Birmingham, England, 1885), esp. 355, 357, 363-364.
23. Alvaro Alonzo Barba, *El Arte de los Metales* [1640], trans. Ross E. Douglass and E.P. Mathewson (New York, 1923).
24. (London, 1639), 2, 4, 9-10, 12, 13, and *passim*; for other seventeenth-century attitudes toward mineral-rich land, see John Amos Comenius, *Naturall Philosophie Reformed by Divine Light* (London, 1651), esp. 93-146; Thomas Houghton, *Rara Avis in Terris: or The Compleat Miner* (London, 1681); John Woodward, *An Essay toward a Natural History of the Earth* (London, 1695), all of which derive in part from Georg Agricola, *De re metallica* [1556], trans. Herbert Clark Hoover and Lou Henry Hoover (New York, 1950). An excellent introduction to sixteenth- and seventeenth-century mining is Helmut Wilsdorf, *Georg Agricola und seine Zeit* (Berlin, 1956).
25. (Elizabeth Town, 1789), 286-287, 480.
26. (Amsterdam, 1664), II, 90-103, 184-185, 187, 227, 256, 293, 322, and *passim*.
27. Johann Jacob Scheuchzer, *Sive Itinera per Helvetiae alpinas regiones* (Leyden, 1723), II, 353-401; "The Two Brothers," *German Folk Tales* [1857], ed. Jacob and Wilhelm Grimm, trans. Francis P. Magoun and Alexander H. Krappe (Carbondale, Illinois, 1960), 226-243.
28. George Gershon Korson, *Black Rock: Mining Folklore of the Pennsylvania Dutch* (Baltimore, 1960).
29. John R. Stilgoe, "Folklore and Graveyard Design," *Landscape*, 22 (Summer, 1978), 22-28; Cotton Mather, *The Terror of the Lord: Some Account of the Earthquake that Shook New England* (Boston, 1727).
30. Cotton Mather, *A Short Essay* (Boston, 1727), esp. appendix 46-47; on the moodus noises, see Benjamin Trumbull, *A Complete History of Connecticut* (New Haven, 1818), II, 91-93.
31. The geology text is Robert Bakewell's *An Introduction to Geology* (New Haven, 1833), 251; Samuel Willard, *A Compleat Body of Divinity* (Boston, 1726), 117.
32. "Account of the Coal Mines," *The American Journal of Science*, I (1818), 125-130.
33. "A Description of Bald Eagle Valley," *Columbian Magazine* II (September, 1788), 488-492. On jargon, see Maurice P. Crosland, *Historical Studies in the Language of Chemistry* (1962; rpt. New York, 1978), 65-106.
34. The early-nineteenth-century Missouri earthquakes made an extraordinary impression on the popular mind; see, for example, Timothy Flint, *Recollections of the Last Ten Years* [1826], ed. C. Hartley Gratten (New York, 1932), 212-220.
35. (New Haven, 1979), 173-174; see also Roderick Nash, *Wilderness and the American Mind* (New Haven, 1967), 59-61.
36. "Trees and Rocks at the Catskill Mountains," *The Crayon*, IV (September, 1857), 281-282.
37. "The Relation between Geology and Landscape Painting," *The Crayon*, VI (August, 1859), 255-256. On periodicals, see, for example, "View from Bushongo Tavern," *Columbian Magazine*, II (July, 1788), 354, and the Currier and Ives lithographs like "Among the Pines: A First Settlement." See also the forthcoming catalog of "New England's Prospect," Dublin Seminar for New England Folklife, Dublin, New Hampshire and the Currier Gallery of Art, Manchester, New Hampshire. The exhibit emphasizes folk and popular

landscape sketches, maps, paintings, and other graphic forms.

38. Robert Chambers, *Vestiges of the Natural History of Creation* (New York, 1845).
39. Silliman appended his essay to Bakewell's *Introduction to Geology*, 389-466.
40. [1843] (Boston, 1863), 85.
41. "Ktaadn" [1848], *The Maine Woods* (Boston, 1884), 56, 61.
42. (New York, 1969) and (New York, 1980); (New York, 1964); (Cambridge, Mass., 1950).
43. In the Museum of Art, Rhode Island School of Design.
44. Novak, *American Painting*, 97-101, 125-137. I have compared Novak's conclusions against the works in the Karolik Collection, Museum of Fine Arts, Boston.
45. In the Museum of Fine Arts, Boston.
46. Novak, *Nature and Culture*, 31-56.
47. Louis Legrand Noble, *The Life and Works of Thomas Cole* [1853], ed. Elliot S. Vesell (Cambridge, Mass., 1964), 160.
48. Theodore E. Stebbins, Jr., *Martin Johnson Heade* (College Park, Maryland, 1969); see also, Richard B. K. McLanathan, *Fitz Hugh Lane* (Boston, 1956).
49. On the spatial elements of gothicism, see, for example, Maurice Levy, "Edgar Poe et la tradition 'gothique,'" *Caliban: Annales de la Faculte des Lettres de Toulouse*, 4 (1968), 35-51 and Patricia Meyer Spacks, *The Insistence of Horror: Aspects of the Supernatural in Eighteenth-Century Poetry* (Cambridge, Mass., 1962), esp. 67-102.
50. Nathaniel Hawthorne, "Ethan Brand" and "The Ambitious Guest," *Complete Works* (Boston, 1882), III, 477-498 and I, 364-374; for the quotation see III, 478.
51. *Best Known Works*, ed. Hervey Allen (New York, 1927), 205-209, 431-554, 53-77.
52. Salvator R. Tarnmoor [Herman Melville], "The Encantadas, or Enchanted Isles," *Putnam's Monthly Magazine*, III (March, April, May, 1854), 311-319, 345-355, 460-466; for the quotations see 311-313; for an excellent analysis of Melville's land-classification perception of the islands, see Donald Worster, *Nature's Economy: The Roots of Ecology* (Garden City, N.Y., 1979), 115-129.
53. "Walking," *Excursions*, 192-193.
54. Walt Whitman, "Song of the Broad Axe" [1856], *Leaves of Grass and Selected Prose*, ed. John Kouwenhoven (New York, 1950), 147-157.
55. On problems in classifying the "barren" regions, see John Wesley Powell, *Report on the Lands of the Arid Region of the United States, with a More Detailed Account of the Lands of Utah* [1878], ed. Wallace Stegner (Cambridge, Mass., 1962); on aesthetic responses of early travelers, see Robert Taft, *Artists and Illustrators of the Old West, 1850-1900* (New York, 1953) and Ronald Rees, "The Scenery Cult: Changing Landscape Tastes over Three Centuries," *Landscape*, 19 (May, 1975), 39-47.
56. Dwight, *Travels*, II, 139.
57. Yi-Fu Tuan, *Landscapes of Fear* (New York, 1979), 79-80, 109, 127, 140, 207.