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The Uses of Butterflies

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# the uses of butterflies

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*In this article, I examine the life and career of Henry Walter Bates, both for its intrinsic interest and in an effort to understand some of the scale-making activities through which Amazonia became a region. Bates, a distinguished entomologist who spent the years 1848–59 in the Amazon basin, returned to Britain to write the most famous of the 19th-century accounts of regional life. Examining Bates’s intellectual and philosophical formations, his fieldwork experience in the context of a turbulent Amazonian politics, and his relationships with metropolitan and colonial natural scientific institutions, I offer a thick history of practice as a strategy for analyzing the complex productivities of Victorian traveling science. [Amazonia, collecting, colonialism, fieldwork, natural science, region, space]*

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History begins at ground level, with footsteps.

—Michel de Certeau (1985:129)

In 1863, when Henry Walter Bates published the now-famous account of his 11 years in northern South America, there was still no obvious way of naming the territories from which he had recently returned. Bates opted to call his book *The Naturalist on the River Amazons* (1892), revealing just how much the great river had captured contemporary imaginations. By tying himself so firmly to the river, Bates laid claim to its most alluring quality: the capacity to transgress and remake not only space, but also the boundaries of geography, biology, culture, and politics.

Reading back into the writings of Bates and other 19th-century European explorers, it is important to remember that the regions in which scholars now so confidently locate their travels were by no means self-evident at the time. Regions have to be made, brought into being in ongoing and continuous process, and in the face of alternative possibilities for conceiving of space and territory.<sup>1</sup> But how does this happen in specific times and places? And how is it that particular regions inherit particular characters and assume particular cultural identities? In this article, I consider the contribution of 19th-century British natural science to the making of an Amazonia that persists today as the focus of intense ecological yearnings in popular and scientific imaginations, a region that continues to be understood as a preeminent site of natural scientific value.

In midcentury, when Henry Bates crossed the Atlantic on the barque *Mischief*, the Rio Amazonas remained largely unmapped beyond the estuary, and only spottily occupied by non-Indians (Cleary 1998:114). For the second time, European explorers found themselves—in Humboldt’s wide-eyed phrase—on “the New Continent,” a world reborn by the collapse of Iberian influence in the Americas and the coincident revisioning of matter through the optic of the natural sciences (Humboldt and Bonpland 1895). Clearly though, this was by no means unimagined territory. Northern South America was emerging as a semiautarkic economy with particularly close ties

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to Europe and had long been present in metropolitan consciousness as the ambiguous location of a superabundant nature (see Cleary 2000; Gondim 1994; Raffles in press). It had also, since Brazilian independence in 1822, fostered an intensifying political regionalism that in 1835 spilled over into revolt, rapidly setting fires raging throughout the countryside as a chaotic and fluctuating alliance of Indians and slaves plunged the huge province of Grão-Pará into the vortex of the Cabanagem rebellion.<sup>2</sup> This, however, was not the region making in which Henry Bates participated, nor that on which I focus in this article. More than many contemporary travelers, Bates acknowledged the continuing shock of the Cabanagem, and its after-tremors regularly agitate his narrative. Yet, the region in which he saw himself traveling was only tangentially formed from these histories. Instead, Bates's Amazons took shape in a matrix composed of his own moral and philosophical formation, the institutional and epistemological tensions of Victorian natural science, and the everyday practices of natural historical fieldwork.

How is it that the Amazon becomes so closely associated with a certain idea of nature? I offer a partial answer to this complex question by looking at a moment of stabilization, neither originary nor final, and by examining a series of reiterative practices through which spatial categories were given form and filled with definitive content. The obvious answer is that Amazonian nature fit an emergent scientific agenda in which novelty and diversity were privileged foci. But this is no more than a starting point. Biological diversity makes conceptual sense only in the context of those specific epistemological frameworks that turn a particular nature into an object of inquiry, and Victorian naturalists (among others) were actively engaged in ensuring that plants and animals came to be understood in such terms. As today, European natural scientists traveled through a world of immanent taxonomies where nature's superficial disorders only masked its emergent logic. This was a logic that swept up race as well as the nonhuman biologies of botany and zoology, and that simultaneously plotted global geographies through the hierarchical taxa of spatial scale. Despite being a process that relied on and, in fact, created particularity and difference, the region making that I describe here emerged from the contradictions of a self-consciously universalizing metropolitan science.<sup>3</sup>

It is through the repeated classificatory elaboration of difference—in race and nature, political practice, locality, and space—that the region emerges as a capsular, contrastive category, rising from a map of largely homogeneous space and rapidly gaining substance and definition, above all from the sheer piling up of natural history materiality. Yet the difference produced in these Amazonian travels is enmeshed in what, for Bates, were often confusing and deeply affective identifications and by no means forms an uncomplicated landscape of disdain.

My tactic for getting inside this conjunctural tangle of science, space, and affect is to recuperate the life and practice of this one distinguished scientist and to follow his congenitally sickly body as he drags it for the first time from Leicester to London, and then consigns it to the great rivers—the Thames and the Rio Negro, the Amazonas and the Tocantins, the Tapajós and the Solimões—before finding harbor in Whitehall, the very heart of imperial administration, and 28 years without ever again leaving England. Because it refuses to reduce the scientist to the status of exemplar, such an approach has the immediate merit of drawing attention to the fractures, dissonances, arbitrariness, and sheer contingencies so constitutive of European expansion and forms of governance in the colonial period, and encourages prudence in the generalization of colonial discourse (see Cooper and Stoler 1989). Reading the texts of Victorian natural history with an eye to both biography and practice reveals the activities of

its traveling functionaries to be a specific form of fieldwork—with all the complications and translations entailed—and shows the encounters in which they participated to have taken place through a more or less considered protoethnographic methodology, which itself mediated imperial science's now more familiar discursive, political-economic, and governmental aspects.<sup>4</sup>

This then, is an argument for attention to the agonisms of encounter and to the ways these are enacted in practice.<sup>5</sup> As such, it is also a partial account—as suggestive of continuities as of ruptures—of the ethnological tradition in anthropology in an age prior to the self-conscious ethnoscientific privileging of native categories. As a corollary, this article should also be understood as a refusal to read politics from location, to imagine, for example, that the term *colonial* indicates a transparent or predictable politics, and the historical detail that follows should be taken as an indication of the contradictory materialities constitutive of Bates's own conflicted practice. Clearly, I am sympathetic to Nicholas Thomas when he writes that an "interest in located subjectivities informs an analytic strategy which situates colonial representations and narratives in terms of agents, locations and periods . . . of colonialisms rather than colonialism" (1994:8–9). Such an approach, with its insistence on the rigor of specificity, on the centrality of unevenness, and on the decisive, yet contingent and unstable moment of encounter can and should be read in contrastive relation to the influential metadiscursive analytic of much postcolonial theory.

My emphasis on encounter here is also a way of questioning the authorship of a spatio-scientific discourse expressed as a product of Western intellectual innovation, and thus it offers an opportunity to think concretely about the politics and practices of hybridity. There is, though, an explicit irony: in emphasizing the impact of encounter on European histories of region making, my account of Amazonian transculturation runs the risk of reinscribing Eurocentric hierarchies of intellectual value through the very move that seeks to undermine their purity. Although closely concerned here with the textual strategies of the explorer-scientists, I therefore want to describe region making as one outcome of a set of practices that overflows the bounds of textuality. Bates's Amazons circulated not only in his letters, taxonomic papers, and travel writings, but also with the butterflies and beetles he sent sailing out across the ocean, and through the gathering networks of locality that his travels helped ramify. And, it was not only in the clubs and libraries of Victorian London and in the botanical gardens and exemplary exhibitions staged throughout the empire that the Amazon materialized. It also happened right there, in place, in the urban and rural landscapes of the American tropics, in the agonistic and often claustrophobic spaces of intersubjective encounter.

### mimesis and alterities

It was Amazonian butterflies and beetles that turned Henry Walter Bates into the leading entomologist of his day, creating a figure who, along with his friend and temporary traveling companion Alfred Russel Wallace, still dominates the story of European entanglement in the region. Bates spent the 11 years from 1848 to 1859 in the forests, towns, and savannas of northern South America, frequently working in places no European scientist had previously set foot, assembling and cataloging a vast natural history collection that was dominated by insect and bird specimens but that also promised other treasures—human hair, for one thing—with a more ethnological appeal. On his return to England, he wrote *The Naturalist on the River Amazons* (1892), an account widely considered the preeminent Victorian narrative of Amazonian natural history, and secured the coveted position of Assistant Secretary at the recently formed Royal Geographical Society (RGS), a post he held for the remainder of his life.

This final, metropolitan phase of Bates's career placed him squarely at the institutional center of British imperial science (as well as of nascent academic geography) and makes explicit some of the connections between imperial policy and biological fieldwork that are frequently submerged in the celebratory narratives of Amazon exploration.<sup>6</sup>

Bates is well known to modern biologists as the discoverer of what is still called "Batesian mimicry." He was collecting at Óbidos, not far from Santarém on the middle Amazon, when he noticed that unusual and vulnerable butterflies were often effectively identical to common, unpalatable species and varieties that predators avoided. In Bates's view, expressed in a paper given at the Linnaean Society in November 1861, the protective mechanism leading to mimetic resemblance provided "a most beautiful proof of the truth of the theory of natural selection" (Bates 1862:513) and Darwin enthusiastically seized on this solution to a delicate puzzle for the final, sixth edition of the *Origin of Species* (1872).<sup>7</sup>

Darwin, Bates, Wallace, Joseph Dalton Hooker, and T. H. Huxley were prominent members of an assertive alliance that was to succeed in establishing the unsettling hegemony of evolutionism in the natural sciences, and there is much to be learned about the workings of British science at this formative moment from tracing the letters and specimens passing between these and other scholars as they falteringly assembled the elements of a convincing theory of natural selection and strategized on the most effective means for its deployment.

Bates was an unlikely figure to be keeping such elevated company.<sup>8</sup> Rising from unglamorous beginnings as a provincial amateur naturalist, he trained himself in the rudiments of scientific methodology by stealing time from his demanding apprenticeship in a hosiery warehouse. He worked the long but standard hours of artisans and the lower middle class—arriving to sweep out at seven in the morning and finishing at eight in the evening, six days a week—and he read and studied voraciously, closely following ideas current in the social theory, politics, and natural history of the day (Frederick Bates in Grant Duff 1892:245–256). With Wallace, he debated Malthus's *Essay on the Principle of Population* (1803); Lyell's *Principles of Geology* (1830–33) and its appended summary of Lamarck's theory of the transmutation of species, Robert Chambers's *Vestiges of the Natural History of Creation* (1844); Humboldt's *Personal Narrative* (1895); Darwin's *Journal of Researches* (1839); and, eventually—and decisively—William H. Edwards's *A Voyage Up the River Amazon, Including a Residence at Pará* (1847).<sup>9</sup> By the time he left Liverpool in April 1848, ambitious and energized and bound for Pará, Bates had definite ideas about the possibilities of tropical adventure: this journey would solve the mystery of the origin of species.

Science was a recognized avenue of social mobility at a moment of unprecedented upheaval in industrializing British society (Thackray 1974). Nonetheless, for a man in his early twenties with little formal education, few connections, and no money to speak of, this was a presumptuous agenda. The established scientific hierarchies sanctioned a clear and subordinate role for the self-educated enthusiast, the amateur who lacked the cultural capital to penetrate the elite institutions that were then proliferating professional disciplinary procedure. Needless to say, there was little encouragement to theory making. Field-naturalists like Bates were infantrymen in the taxonomic war on natural disorder, their spoils supplying armchair savants with the exotic specimens that crowded the natural history cabinet. And, as might be expected, the achievement in crossing class lines was to be recurrently complicated by compromise. Once Bates took up his post at the RGS, his original writing was largely restricted to narrowly focused (though massive) exercises in insect classification. The

remainder of his scholarly work was editing. He compiled a richly illustrated six-volume compendium of travel and natural history vignettes, managed the Society's two journals, made newly available a number of classics of Victorian geography, and oversaw the publication of other people's exploration narratives.<sup>10</sup> Writing Bates's obituary in *Nature*, Wallace (1892:399) complained that onerous administrative duties had impeded his friend's ability to contribute to natural history and had destroyed an already frail constitution.<sup>11</sup>

Despite lacking formal qualifications, Bates was a graduate of the rich tradition of popular education flourishing in early 19th-century Britain. Even though he left school at 13 to enter apprenticeship, he assembled the basis of a natural historian's education by attending night classes at the Leicester branch of the Mechanics' Institutes. Bodies such as these formed the most visible expression of a vigorous culture of radical self-improvement among English artisans during the first half of the 19th century, a time when, in E. P. Thompson's words, "the towns, and even the villages, hummed with the energy of the autodidact" (1968:781–782).

Part of this energy was invested in the spread of provincial popular science and, in particular, in the growth of local natural historical field societies emphasizing informality and low subscription rates.<sup>12</sup> Open to men and women, these clubs rapidly became both popular and fashionable, and their outings as much social as scientific events. Botanical collecting and the pleasurable field excursion, previously rather eccentric occupations, became increasingly acceptable ways of spending free time as field equipment was produced in more affordable forms and the democratic possibilities of Linnaean binomialism materialized in the portable field guide (Allen 1994:145–147; Secord 1994). Bates explored Charnwood Forest with a homemade butterfly net, foraging with his brother Frederick on the property of the Earl of Stamford, "who did not strictly preserve for game," and steadily building his private natural history cabinet (Grant Duff 1892:247).

Bates's parents were staunch Unitarians, and their four sons grew up in the midst of the Dissenting tradition that thrived with particular vitality in the northern and Midlands textile trades. Strongly ethical, solidaristic, and experimentally communitarian, rational in its theology, progressivist in its enthusiasm for science, and activist in its commitment to civil and religious liberties, Unitarianism was also wracked by internal division and subject to political appropriation by more orthodox reformist tendencies in the rising middle class (see Seed 1986; Thackray 1974; Thompson 1968:25–58, 781–915; Woodcock 1968:16). If Thompson has justly celebrated the tumult of the industrializing period from 1780 up to the reforms of 1832 as revelatory of the cross-cutting cultural richness of class-in-the-making, it should not be forgotten that the succeeding decades of the thirties and forties were when the hatches were battened down, grueling depression set in, and there followed the destruction of "pre-industrial traditions [that] could not keep their heads above the inevitably rising level of industrial society" (Hobsbawm 1969:91). As local clubs and societies lost their economic base, popular scientific education became increasingly sporadic and dependent on middle-class patronage (Inkster 1983:31–33). By the 1830s, the locally set curricula of the Mechanics' Institutes tended to reflect the aspirations of Nonconformist manufacturers, and orthodox political economy was displacing artisan Radicalism. The Leicester Institute seems to have hung on longer than most—at least judging by its ability to generate opprobrium. In the early 1830s, offended local clergy could still be roused to castigate it as a school "for the diffusion of infidel, republican, and levelling principles" (Thompson 1968:819).

Wallace, whom Bates befriended in Leicester public library in 1844, was a follower of Robert Owen, the charismatic and paternal socialist. Owen's utilitarian and rigorously rational social engineering materialized in the cooperative movement that transformed itself into the organized trades union confederation, and it also inspired and directed the influential utopian "communities of equality" at Orbiston in northern Britain and New Harmony, Indiana. Wallace remained consistently vocal about his Owenism, speaking and publishing on socialist themes throughout his life. Bates's political convictions were more circumspect, but marginality was similarly a part of his self-fashioning: "A scientific man," he wrote in his journal, "is not expected to be otherwise than heterodox" (Clodd 1892:lxiv).<sup>13</sup> And, when it came to sponsoring Peter Kropotkin, whom he met after the charismatic anarchist-geographer's release from prison in Clairvaux in 1886, Bates could be direct. In his active encouragement of the project that led to *Mutual Aid* (Kropotkin 1988), there is the explicit reassertion of an early cooperative politics in the face of the rising influence of Huxley and Spencer's individualist interpretations of natural selection.<sup>14</sup>

As might be expected then, idealistic political consciousness suffuses the Amazonian accounts of both young naturalists. One way in which it manifests is through the appearance of programmatic and utopian communitarianism in repeated visions of ordered, cooperative European settlement. Wallace, for example, imagines forest plots converted into prosperous mixed-cropping and livestock farms in a tropical version of European smallholder agrarianism. This is no mere reverie, but rather a small-scale blueprint for colonial settlement on the lines of the experimental Owenite communities: "two or three families, containing half-a-dozen working and industrious men and boys, and being able to bring a capital in goods of fifty pounds" (Wallace 1853b:231). The Radical tenor of the plan is barely concealed:

The idea of the glorious life which might be led here, free from all the money-matter cares and annoyances of civilization, makes me sometimes doubt, if it would not be wiser to bid [England] adieu forever, and come and live a life of ease and plenty on the Rio Negro. [Wallace 1853a:232]

The rationalist utilitarianism of their early ideological formation also feeds a recurring antinostalgia that pervades the travel writings of both men. Something approaching poignancy appears in narratives grappling with the need to understate conventionally yet somehow communicate emotional excess. Bates, at the climactic moment of departure from Amazonia, has a sudden moment of brutal clarity:

During this last night on the Pará river, a crowd of unusual thoughts occupied my mind. Recollections of English climate, scenery, and modes of life came to me with a vividness I had never before experienced, during the eleven years of my absence. Pictures of startling clearness rose up of the gloomy winters, the long grey twilights, murky atmosphere, elongated shadows, chilly springs, and sloppy summers; of factory chimneys and crowds of grimy operatives, rung to work in early morning by factory bells; of union workhouses, confined rooms, artificial cares and slavish conventionalities. To live again amongst these dull scenes I was quitting a country of perpetual summer, where my life had been spent like that of three-fourths of the people in gipsy fashion, on the endless streams or in the boundless forests. [Bates 1892:406]

This is an untenable contrast, and it is one to which I will return. Bates moves quickly to defuse this tension with a passage that at once signals the progressivist and determinist limits of a midcentury Radical consciousness saturated by racialized identifications (see Hollis 1980; Thorne 1997). "It was natural to feel a little dismayed at the prospect of so great a change," he continues,

but now, after three years of renewed experience of England, I find how incomparably superior is civilized life, where feelings, tastes, and intellect find abundant nourishment, to the sterility of half-savage existence, even though it be passed in the garden of Eden. What has struck me powerfully is the immeasurably greater diversity and interest of human character in a single civilized nation, than in equatorial South America, where three distinct races of man live together. [Bates 1892:406–407]

The end of a narrative can be even more diagnostic than those calculated ethnographic moments-of-arrival to which Clifford Geertz (1988:1–24) has drawn attention. Bates's contrast between (temperate) intellect and (tropical) sensuality was both conventional and definitive, and, as he reveals below, registers an allegiance to the evolutionism of climatic determinism as well as a susceptibility to the long-standing belief in the "weakness" of America.<sup>15</sup> Native Americans, who bathed "as dogs may be seen doing in hot climates," were simply not in the right place:

The impression gradually forced itself on my mind that the red Indian lives as a stranger or immigrant in these hot regions, and that his constitution was not originally adapted, and has not since become perfectly adapted to the climate. It is a case of want of fitness; other races of men living on the earth would have been better fitted to enjoy and make use of the rich unappropriated domain. Unlike the lands peopled by Negro and Caucasian, tropical America had no indigenous man thoroughly suited to its conditions, and was therefore peopled by an ill-suited race from another continent. [Bates 1892:278]<sup>16</sup>

Here was an explicitly formulated environmental determinism that can readily be associated with the simplified materialist theoretical procedure of the Darwinian emphasis on the physical determinants of speciation; a contemporary scientific common sense that gained a persuasiveness and coherence from the alignment of natural selection with the familiar biological hierarchy of race already regulated by Linnaeus, among others. Indeed, it was a reasoning that enabled Bates to find ample evidence that native Americans were constitutionally unsuited to what Humboldt would have considered the encompassing *physique générale* of the Amazon.

In contrast, tropical nature is a thing of wonder. Writing to his brother Frederick just two years before he finally left these rivers, Bates apologizes for the brevity of his unflattering description of people in Ega, but "they are so uninteresting and unamiable a set of animals that you must excuse my giving any further account." Instead, and with deliberate emphasis on the opposition, he continues,

The charm and glory of the country are its animal and vegetable productions. How inexhaustible is their study! . . . It is not as in temperate countries (Europe), a forest of oak, or birch, or pine—it is one dense jungle: the lofty forest trees, of vast variety of species, all lashed and connected by climbers, their trunks covered with a museum of ferns, Tillandrias, Arums, Orchids, &c. The underwood consists mostly of younger trees,—great variety of small palms, mimosas, tree-ferns, &c., and the ground is laden with fallen branches,—vast trunks covered with parasites, &c. . . . One year of daily work is scarcely sufficient to get the majority of species in a district of two miles circuit. [Bates 1849–56:5658–5659]

With its elegantly heightened language and cascading detail, this is an unmistakably Humboldtian conceit. And it is one that resonates with more than just rhetoric. In a famous passage introducing the *Personal Narrative*, Humboldt contrasts the experience of voyagers to the New and Old Worlds. He is, he confesses,

fully sensible of the great advantages enjoyed by persons who travel in Greece, Egypt, the banks of the Euphrates, and the islands of the Pacific, in comparison with those



who traverse the continent of America. . . . In the Old World, nations and the distinctions of their civilization form the principal points in the picture; in the New World, man and his productions almost disappear amidst the stupendous display of wild and gigantic nature. [Humboldt and Bonpland 1895:xxi]

Bates, too, sees Amazonians fading away in the shadows of a forest that is alternately “interminable” (1852:3592), “glorious” (1852–56:3726), “sombre and oppressive” (1849–56:2840), “strange and wonderful” (1849–56:2837), and “teeming with valuable productions” (1852:3597). Yet his understanding of the relationship between people and nature is explicitly contingent on ideas of race and class and modulated by an associated vision—to which only rarely do native Amazonian farmers conform—of the way a rural landscape should be organized. Bates’s imagination dwells in a potent aesthetic of European settlement: individual holdings, fences, gardens, geometric space, monocultural rows, ornamental flowers, and domesticated animals. Resonant images of a simple but honest frontier life build an agrarian narrative that calls up a tradition of European family farming in alien environments—Australia, New Zealand, North America—while simultaneously incorporating the utopian aspirations of petit-bourgeois dissent. The coherence of this notion of a tamed, morally acceptable nature reordered along utilitarian lines is such that on those occasions Bates does recognize horticultural practices he assesses them by how closely they approximate this regimented norm. Necessarily, such criteria privilege the prosperous. Wealthy farms, and what are considered well-organized holdings, meet with approval. Struggling cattlemen, in contrast, invite scorn for their self-inflicted distress:

The lazy and ignorant people seem totally unable to profit by these [natural] advantages. The houses have no gardens or plantations near them. I was told it was useless to plant anything, because the cattle devoured the young shoots. In this country grazing and planting are very rarely carried on together, for the people seem to have no notion of enclosing patches of ground for cultivation. They say it is too much trouble to make enclosures. [Bates 1892:197–198]

Poor Amazonians’ inability to transcend local nature signifies a moral crisis, and the landscape through which Bates passes references their degeneracy. Foucault’s (1994:132) observation that natural historical modes of representation are characterized by the “nomination of the visible” is apposite here.<sup>17</sup> Bates ties what he sees as agrarian disorder to Amazonians’ inability to resist a decadence generated by the easy fertility of nature and the superabundance of life’s necessities. “The lower classes,” he says, “are as indolent and sensual here as in other parts of the province [Pará], a moral condition not to be wondered at in a country where perpetual summer reigns, and where the necessities of life are so easily obtained” (1892:77).<sup>18</sup>

Nevertheless, there was considerably more to Bates’s Amazonian experience than repetitious complaint might suggest. And there are times, even in the retrospection of *The Naturalist*, when the apparent certainties dissolve and representational hierarchies collapse. In Ega, where he lived for long enough to become a familiar sight around town, Bates experiences the dislocation of what Michael Taussig (1993) has called “second contact,” a moment of carnivalesque mimetic subversion that here occurs during a local *feira*:

One year an Indian lad imitated me, to the infinite amusement of the townsfolk. He came the previous day to borrow of me an old blouse and straw hat. I felt rather taken in when I saw him, on the night of the performance, rigged out as an entomologist, with an insect net, hunting bag, and pincushion. To make the imitation complete, he

had borrowed the frame of an old pair of spectacles, and went about with it straddled over his nose. [Bates 1892:280]

More than anything, it is the tangible sense of disappointment, of trust betrayed and community rebuffed, that makes this image so troubling. And, especially so, given that these are the very same people whom he has described to Frederick as “taciturn, idle, and phlegmatic; so apathetic that they never appear to feel any of the emotions or affections” (Bates 1849–56:5658). As the closing passage of *The Naturalist*, with its longing invocation of days spent in “gipsy fashion” suggests, his personal engagement is more complex than his theoretical architecture can allow. There is, he had written to his brother in 1855, “liberty and independence [in] this kind of life,” and, at times, he is able fluidly to evoke his sense of a hard-won freedom with palpable conviction and an empathy for his Amazonian associates that brings a submerged relativism welling up to the surface of his text (Bates 1852–56:5018).<sup>19</sup> It appears in his adoption and subsequent burial—preceded by a controversial public baptism—of a kidnapped Indian child in Ega (Bates 1892:275–277).<sup>20</sup> It is there in his undisguised pleasure on his excursions with local hunters, in the intimate camaraderie and his fascination with their skills. And it breaks through in his sensitivity to the generosity of poorly provisioned rural hosts who scramble through their minimal resources to assemble meals for an unexpected guest. It has sufficient substance to signify an alternate structure of feeling that endows his account with the layered richness that can come so powerfully from uncertainty. One such occasion finds him at night sailing on the Rio Tocantins toward the town of Cameté. He has been dozing on deck, wrapped in a sail, listening to the crew talk and sing:

The canoe-men of the Amazons have many songs and choruses, with which they are in the habit of relieving the monotony of their slow voyages, and which are known all over the interior. The choruses consist of a simple strain, repeated almost to weariness, and sung generally in unison, but sometimes with an attempt at harmony. There is a wildness and sadness about the tunes that harmonise well with, and in fact are born of, the circumstances of the canoe-man’s life: the echoing channels, the endless gloomy forest, the solemn nights, and the desolate scenes of broad and stormy waters and falling banks. . . . I fell asleep about ten o’clock, but at four in the morning John Mendez [the pilot] woke me to enjoy the sight of the little schooner tearing through the waves before a spanking breeze. The night was transparently clear and almost cold, the moon appeared sharply defined against the dark blue sky, and a ridge of foam marked where the prow of the vessel was cleaving its way through the water. The men had made a fire in the galley to make tea of an acid herb called *erva cidreira*, a quantity of which they had gathered in the last landing place, and the flames sparkled cheerily upwards. It is at such times as these that Amazons travelling is enjoyable, and one no longer wonders at the love which many, both natives and strangers, have for this wandering life. The little schooner sped steadily on, with booms bent and sails stretched to the utmost. Just as day dawned, we ran with scarcely slackened speed into the port of Cameté, and cast anchor. [Bates 1892:75–76]

There is, for sure, a loneliness in this gipsy life, but it nonetheless has a special appeal for Bates. How should we understand its charms? We need to think again about his feelings on the eve of departure from Pará or, at least, his representation of them as he closes *The Naturalist* and meditates on the appeal of a vagabond existence. In the aftermath of so many complaints about the indolence of Amazonian people, in the midst of his stark vision of industrial England, and as a conclusion to an account that can have left no reader in doubt as to the heroic character of his collecting efforts, his wistful appeal to an other way of life finds him looking both apprehensively

forward and fretfully back. On this last evening on the Amazon, Bates's antinostalgia draws on the grim figure of the industrial Midlands landscape that embodies so many anxieties about his future prospects. And it is a gloom brimming with tentative, defeated forebodings that even should he escape the hosiery workshop for which he has been raised, the scientific reward he craves for these 11 years of Amazonian hardship is no more than a sweetly poisoned chalice—promising only a life forever cut off from the entomologizing pleasures from which he is to sail in the morning. At this moment of crisis, there is—just for an instant—a final chance to reconcile with that transcendent yearning insistently loosening the clutch of his stubborn reproduction of alterity. For one final moment, he frees himself from his disdain for indolence and envies that fabled three-fourths of Amazonians living free of slavish conventionality. And then, with the shudder of presentiment, he hammers the lid down tight on the last of his collection and strides on board the ship for Liverpool.

### the lives of specimens

When Bates finally left the interior it was at the insistence of a local riverboat owner appalled at the deterioration in his health and his rapid loss of weight and strength. His sustaining dream—to reach the Andes and maybe the Pacific—was deferred, indeed abandoned. Reading his notebooks, letters, essays, and monograph, the isolation and vulnerability of his experience is striking. From them come a powerful sense of contradiction: not simply ambivalence, but, as I have shown, articulate, contradictory expressions of attachment and dislocation, of identification and indifference. Yet the crudeness of his racialized caricatures is jarring and seemingly belied by the considered character of his conduct in the field. And it appears that his internal struggle is with conventionality, that his journey, no matter where it takes him, is haunted above all by the commonplaces of middle-class England—by his own institutional aspirations, by the confines of his familiarity with geographical and ethnological thought, and by the anxious letters from home urging his return to the family business. And that, despite its audacities, his life is already unfolding as a series of unheroic compromises.

Bates's insecurities were fueled by his continuing status as little more than a professional collector. From an elite perspective, this was the role for which he was best equipped. And it is also clear that it was a role neither he nor Wallace particularly relished. Despite their reservations, however, it was only through entering the Banksian networks of commercial science that these independent, though not independently wealthy, travelers were able to finance their expedition.<sup>21</sup> Before resolving on the Amazon as a destination, they visited William Hooker at Kew and Edward Doubleday in the Lepidoptera department of the British Museum, arranging commissions for plants and rare insects and receiving assurances that demand for the fauna and flora of the Amazon was still strong despite the work of naturalist predecessors. More importantly, they engaged as their agent Samuel Stevens, an amateur entomologist and brother to a noted London natural history auctioneer. Stevens earned his commission: he successfully disposed of their collections, reliably forwarded money to Pará, and acted as a local booster, enticing metropolitan savants with extracts from Bates's letters, which he published at regular intervals in the *Zoologist* and other leading journals.<sup>22</sup>

Clearly, even for such rank amateurs there were locations on the networks of science and geography waiting to be accessed. The key nodes—sites of commercial possibility and social aspiration—were obvious: the institutional centers of metropolitan natural history based in Kew and Bloomsbury. Less transparent but equally material were the cumulative structures of fluvial exploration through which Amazonia had

been accessed since the late 16th century. Victorians were self-conscious about their Elizabethan inheritance and looked explicitly to the work of Richard Hakluyt, the moving intellect of early British transoceanic expansion. Hakluyt's achievement had been in the constitution of exploration as a broad field of nation making through the assembly and publication of the travel writing of the day. In his *Discourse of Western Planting* (1993), a foundational appeal to the crown to finance American exploration and settlement, he had drawn particular attention to the eastern Amazon:

All that parte of America eastwarde from Cumana vnto the River of *Saint* Augustine in Bresill conteyneth in length alongest to the sea side xxj C [2,100] miles, In *whiche* compasse and tracte there is neither Spaniarde, Portingale nor any Christian man but onely the Caribes, Indians, and saluages. In which places is greate plentie of golde, perle, and precious stones. [1993:51]<sup>23</sup>

Elizabeth had responded only half-heartedly to this coupling of absence of prior territorial claim with unlimited riches. The English, along with the Dutch, French, and Irish, all of whom had attempted to establish a footing on the coast north of Pará and along the estuary, were to be shut out by Portugal until the opening of Brazilian ports to friendly foreign vessels in 1808 (Lorimer 1989). Deferral, though, as the clamor surrounding Humboldt's pioneering voyage along the Orinoco and Rio Negro in 1799–1804 made clear, only stimulated appetites. The 16th-century American expeditions were rediscovered in the midst of an imperial vogue for travel writing, and seized upon as invitations, rather than mere precedents, and from 1808 onward Amazonian rivers were flooded with foreign entrepreneurs, spies, and scientists—with most individuals playing multiple roles. Bates and Wallace followed trails established not only by fellow collectors, but also by the repeated attempts of British naval expeditions to map a transcontinental link between the Atlantic and Pacific via the Amazon and Andes, and by the overwhelming domination of Amazonian commerce by British financial institutions.<sup>24</sup> Moreover, they were also traveling in the wake of a substantial Portuguese tradition of scientific exploration inaugurated by Jesuits such as Padre João Daniel and given major impulse by the celebrated nine-year expedition of Alexandre Rodrigues Ferreira.<sup>25</sup>

Writing in the RGS house journal following Bates's death, W. L. Distant, an old friend and a fellow entomologist, clearly identified this cumulative aspect: "Not only did [Bates's] expedition effect a history of the natural treasures of this interesting zoological province, but it also stimulated the zeal of many private and wealthy collectors, who subsequently promoted and assisted other zoological enterprises" (Grant Duff 1892:251). William Chandless' RGS surveys of navigable tributaries took place soon after Bates's return, as did Brown and Lidstone's detailed report for the Amazon Steam Navigation Company on the potential of territory ceded to the British firm by the Brazilian state.<sup>26</sup> And it was through such rapidly proliferating networks that the hospitality trails of sympathetic European merchants and officials came into being. Indeed, the prior existence of logistical support had been one of the factors determining Bates's choice of the Amazon as a collecting site.<sup>27</sup>

It is clear that putatively benign field activities—collecting, connecting, and circulating rare and exotic species; filling orders from metropolitan savants; and communicating systematic observations on botany, zoology, physical geography, linguistics, ethnology, and sociology to interested professionals—were often indistinguishable from the more patently instrumental projects of botanical espionage and transplantation also undertaken through state channels.<sup>28</sup> And it is also apparent that it is partly through such overlapping projects that space, in this case a region, becomes configured

and visible (“produced,” in the famous formula of Lefebvre 1991). Moreover, such work is dependent on decisive micropolitics. I have argued that natural historical practice was overdetermined by a range of contingencies and orientations—biographical, political, and philosophical. What is more, the politics of professionalization in the metropolitan sciences that propelled Bates across the Atlantic were themselves predicated on disciplinary regimes imposed by commercial and aesthetic codes for the collecting of nature then developing in Europe. This is one reason why the natural history collection is of such interest. Tied more tenaciously to traveling scientific practice than even the published narratives, and equally critical to his career, Bates’s vast collection was a key site for the elaboration of identity—both his own and that of the Amazons. Distant, writing in 1892, makes the point most succinctly:

The collections were unrivalled, and one can still hear echoes . . . of the intense interest with which Bates’ consignments were anticipated. The banks of the great river were at last telling the tale of their inhabitants to the zoologists of Europe, for the collections were widely circulated. [Grant Duff 1892:251]

The collection was a principal locus of anxiety. Marooned in the field with few reference books and incomplete knowledge of the most recent work in systematics, naturalists (no matter how skilled) were often unable to make the fine judgments that enabled species to be described, classified, and slotted into a Linnaean grid.<sup>29</sup> Instead, they supplied the metropolitan expert who, like a bourgeois Adam in his paneled library, simultaneously named and brought the natural world into being, occasionally acknowledging the collector with a Latinate flourish.<sup>30</sup> Yet, it was people with the experience of travel behind them—Huxley, Hooker, Darwin, Wallace, and Bates—who were most intimately associated with the Darwinian revolution, and Bates was quite explicit in his belief that this apparent paradox was governed by a causal relationship. In an 1862 letter to Darwin, he notes that his old friend Edwin Brown of Burton-on-Trent “is amassing material (specimens) at a very great expense. He has never traveled: this is a great deficiency for the relations of species to closely allied species & varieties cannot, I think, be thoroughly understood without personal observation in different countries” (Stecher 1969:35).<sup>31</sup>

Bates later referred to Brown’s kind of naturalist as a “species grubber” (Stecher 1969:45) to be “ranked with collectors of postage stamps & crockery” (Stecher 1969:38), and there were important distinctions being shored up by this disdain. Not only did he wish to separate those who traveled from those who stayed at home, but also, and more enduringly, he was dividing what he saw as the inconsequential journeymen who collected without reflection from the scientists whose theorizings imbued their collecting activity with real meaning.

In this aspiration toward the larger questions, both the ideas and style of inquiry developed in Humboldt’s *Personal Narrative* are quite explicit.<sup>32</sup> Humboldt’s Kantian distinction between “a true history of nature and a mere description of nature” (the latter, in his view, being symptomatic of Linnaean natural history), involved the application of a rigorous and technologically bolstered empiricism (Nicolson 1990:170). He traveled with the declared intent of confronting natural phenomena in all their vital complexity and affective detail, and precisely to transcend dependence on the lifeless extractions of the herbarium and cabinet. A true natural history would be revealed only through a study of the interrelationship of all of nature’s aspects in a grand synthetic enterprise. Conspicuous among these relationships were personal emotional and aesthetic responses: legitimate, valued data which, in this age of the sublime, introduced a Romantic variant of a familiar (environmental) determinism in

which an empathetic emotional response could indicate the effect of particular types of natural environment on human society. There is, then, considerable friction between the pulls of empiricism and Romanticism, and the mutual indispensability of reason and aesthetics provoke perspectives at odds with disciplinary compartmentalization. Malcolm Nicolson has put it nicely: "The mathematical precision of the stars' orbits," he writes, "was just as valid a topic for study as their sparkle and its associated delights" (Nicolson 1990:180).<sup>33</sup> By the time the Darwinians had finished digesting Humboldt, most of the sparkle had fizzled out. But this does not mean that Bates's occasionally anodyne rhetoric should be read as a detached stylistic analogue of a narrowly investigative empiricism. Feelings still mattered. As did *Beauty and Truth*. A collection of quality and elegance, and the rare and delicate creatures of which it was composed, was a vessel deep enough and wide enough to hold all these absolutes, and more besides.

Bates's criticism of Brown expresses the simmering antagonism between a resurgent English "natural" natural history that drew on native authorities (John Ray in particular), and what he and other Humboldtian Darwinians concurred was a listlessly mechanical classificatory impulse descended from Linnaeus.<sup>34</sup> New procedures for figuring the relationship between humans and nature had developed in Europe in the 17th and 18th centuries and had received expression, confirmation, and an important stimulus in the binomialism of the *Systema naturae* (Linnaeus 1964). Developments in systematics, as well as in the physical and chemical sciences, agriculture, navigation, and allopathic medicine combined to make the alien nature that had confronted earlier adventurers increasingly domesticated and predictable (see Ritvo 1992; Thomas 1983). It was these shifts—as well as a Romantic sensibility—that had provoked Bates's sense of anticlimax on his arrival in Brazil in 1848: "Where are the dangers and horrors of the tropics?" he wrote home to his friend Edwin Brown, "I find none of them" (1849–56:2837).

Linnaean taxonomy had transformed both the plant and animal sciences. With their absorbing focus on the minutiae of taxonomic organization, the natural historical modes of representation through which methodological imperatives came to be expressed worked to flatten the specificities of geographical, cultural, and historical location in a regime of recontextualization and distinction.<sup>35</sup> Darwin and his circle self-consciously distinguished themselves from this segmenting optic by the development of a theory of origins the force of which was understood as issuing from its holism. Nonetheless, it was systematics that underwrote evolutionary theorizing, and the theoretical urge was constantly in tension with the imperatives of laborious taxonomy.<sup>36</sup> Moreover, this routinized practice had its own financial and aesthetic charms. There is a false note in Bates's contempt for the mere collector, with its denial of his own seduction by the appeals of classification.

The assembly of a private collection was one of Bates's principal goals in traveling to Pará. An impressive natural history cabinet filled with rarities was a recognized form of capital in the appropriate circuit, with significant exchange value and an indispensable prestige function that could catapult its owner into the ranks of the learned.<sup>37</sup> But the question posed by Bates's comment on Brown was that of the collection's immediate purpose, and, in this, it is clear that notwithstanding the actualities of his situation, Bates saw himself as the heir of Humboldt, rather than of the journeymen Banksian collectors. And, indeed, it is as an instance of a new social actor—perhaps Humboldt's most significant invention—that he steps onto the historical stage: the post-Linnaean (post-Banksian) explorer-scientist, a subject with many counterparts in colonial service.<sup>38</sup>

It is through his work in refashioning and overcoming the contentious figure of the natural history collector that Bates maps his scientific and social aspirations and opens the routes through which his Amazons will travel. Back from the field, he haltingly forged relationships with senior scientific figures. In particular, as his correspondence clearly shows, both Darwin and Joseph Hooker acted toward him as solicitous and sensitive mentors. He, in turn, armed with the authority of travel, reciprocated with perceptive insight into the relationship between tropical entomology and natural selection, providing apparently endless data tapped by Darwin through precise and persistent questioning. With Bates unable to find work among the very limited opportunities then available in London professional science, it was Darwin who suggested he write *The Naturalist*, arranged introductions, advised him on contract negotiations with John Murray (London's leading publisher of travel books), nursed him through periods of despondency, encouraged his theoretical development, and guided him across the inhospitable terrain of the capital's scientific establishment. Through Darwin, Bates established his connection with Hooker, a powerful scientific patron who, in late 1865, succeeded his father as Director of the Royal Botanic Gardens at Kew.

In casting his lot with the Darwinians, Bates inevitably attracted hostility from their opponents, especially among the systematists at the British Museum, where his job applications were rejected and his claims about the number of new species contained in his collection were held up to ridicule. In a series of paternal letters, Hooker coached him on the mores of the scholarly upper class, explicitly situating his comments in terms of Bates's future career prospects. "It is," he advised, "extremely difficult to *establish a footing* in London scientific society: it is all along of [*sic*] the law of the struggle for life! You are instinctively regarded as an interloper, and it must be so in the nature of things. Do, I entreat you, smile at their sneers" (Clodd 1892:lxvi). Finally, of his new set, it was Murray who convinced the RGS to hire as their senior administrator the young entomologist with no executive experience (Grant Duff 1892:256).<sup>39</sup> It was an apt decision made possible by the persistence of amateurism in British science: to organize their insect collection, the Trustees of the British Museum had appointed a well-connected poet (see Paden 1964).

As Distant pointed out, it was through the collection that the "the banks of the great river were at last telling the tale of their inhabitants" (Grant Duff 1892:251) Removed from their "wild" context and resituated in collections physically organized to express hierarchical principles, natural history specimens became narrativized as tactile metonyms, not only for a generalized natural world, but, more specifically, for the region. The collection marked the region within an encompassing story of imperial destiny and masculine daring. And worth emphasizing here is that, allied to the travel narratives of prominent collectors, the contextual particularity of provenance became a critical supplement by which the identity of the specimen could be produced.<sup>40</sup> Part of Stevens's job was to breathe life into these dead insects with both history and the associative power of the local, and one of his tactics was to circulate selections from Bates's letters and essays from the Amazon, offering biographical texture for both the author and the nonhumans who were his victims and allies.

Stevens and Bates collaborated to exploit the plasticity of tropical nature by drawing on and raising the nascent symbolic capital of Amazonia. The agent's chummy note to *Zoologist* readers that introduced the first extract from Bates's correspondence gives some insight into his sophisticated management of the gentlemanly codes smoothing the paths of commerce:

Thinking some of the readers of the "Zoologist" who are acquainted with Mr. H. W. Bates would like to hear how he is getting on in his rambles of South America. . . . I

have the pleasure of sending extracts from some of his letters to me; and notwithstanding the many hardships he has undergone his health continues most excellent, the climate being fortunately very delightful and healthy. Among the many charming things now received are several specimens of the remarkable and lovely *Hectera Esmeralda*, and an extraordinary number of beautiful species of *Erycinidæ*, many quite new, and others only known by the figures of Cramer and Stoll. [Bates 1849–56:2663–2664]

Bates's first letter follows immediately, and Stevens, with a canny eye to the authenticity of the primitive, edited it to begin: "I get on very well with the Indians."

A great deal of Bates's activity was driven by demand. He conferred with Stevens over the preferences of individual savants and carefully chose specimens to whet their appetites and induce them into signing on as subscribers. Despite his expertise and Stevens's supplies of taxonomic monographs, however, Bates's letters reveal that he frequently had only an approximate idea of what it was that he was shipping.<sup>41</sup> Novelty was not a negotiable character, but neither was it readily apparent. Revealingly—as an insight into the historicized and ideological underpinnings of foundational scientific activity—the selection criteria Bates was forced to apply in lieu of precise inventory were almost entirely aesthetic, based on the attractiveness and size of an organism. But this was shrewd, if necessary, practice. Metropolitan demand was based as much on taste as on gaps in the systematic grid (e.g., Ritvo 1992:371–375). Given the latitude presented by the vast spaces existing in biological taxonomies, buyers wanted their novelties to satisfy as both aesthetic objects *and* natural historical icons.

A typical passage from Bates's letters in the *Zoologist*—exotic and anecdotal—ties identifiable specimens to a particular collecting practice, offering insight into the daily life of the field scientist abroad while revealing how the inclinations of metropolitan savants set the terms for his spatial practice, with his response to their needs determining his work rhythm.<sup>42</sup> On shipping a consignment of "the beautiful *Sapphira*, which you wished for more particularly," he cautioned Stevens:



Figure 1. Pencil portrait of Henry Bates by unknown artist, ca. 1860. © Royal Geographical Society



I hope what I send will satisfy you. . . . Do not think it an abundant species because I now send you so many; it is because I devoted myself one month to them, working six days a-week with a youth hired to assist me, both of us with net-poles 12 feet long. [1849–56:3450]

Metropolitan demand for a particular item also often dictated Bates's destination. Once there, he might find himself filling orders for items of distractingly peripheral, though symptomatic interest—the human hair referred to earlier or precise matches of Indian skin tone, for example. In this way, the purity of his science became subject to diverse corruptions, of which he himself was only too aware. No matter how far his wanderings took him from the metropolitan hearth, he never managed to shake off his dependence on the lifeline of the imperial-scientific network, nor make the leap of faith into that life of "liberty and independence" about which he had written so elatedly to Frederick. He demurred, fighting to carve out areas of autonomy by prioritizing the search for insects and carefully tending to his private stock—selling only duplicates and keeping as full a set as possible at his side for reference.<sup>43</sup>

Even more than the celebrated butterfly mimics, it was the beetles of Ega that guaranteed Bates's fame among his entomologist peers. His astonishing haul from that site alone included 3,000 species new to Europeans. This was the climactic event that transformed the obscure naturalist and fulfilled the promise of travel. And it shows the collection to be a site where the rich particularity of the local was simultaneously evoked and unmoored and a regional identity reinforced. Bates and Stevens's textual framings marked the biological exuberance captured in Ega as both local and transcendent, placed yet symptomatic. In contrast to now-standard arguments about the stripping of context and social meaning (i.e., culture and locality) from organisms in their incorporation in the circuits and projects of metropolitan science, it is clear that systematics here involved considerably more than a practice of decontextualization.<sup>44</sup> The extraction of insects from the forest and their reinvention as specimens in the collection demanded persistent, manufactured traces of locality as key components of value at every point. And, at the same time, scientific practice participated actively in a narrativizing of geography.

Increasingly, it is as his day closes and the tropical night shuts down that we meet this naturalist on the Amazon. When we read through his letters and notebooks today, we find him hunched over a cluttered table in an empty room on the outskirts of an isolated forest settlement, ceaselessly numbering species by the smoky glow of his oil lamp—totaling and bracketing, calculating and parsing, until the fine balance between time devoted to other people's requirements in order to support his personal project, and that tenacious project itself, is lost, and the activity becomes its singular justification. His status, his identity as traveler, explorer, and, most importantly, as scientist, becomes inseparable from the numbers. And, when he finally publishes *The Naturalist*, the first data he presents, on the second page of the Preface (Bates 1892:viii), are a species count, the bald enumeration of his outrageously massive collection:

Mammals . . . . .	52
Birds . . . . .	360
Reptiles . . . . .	140
Fishes . . . . .	120
Insects . . . . .	14,000
Mollusks . . . . .	35
Zoophytes . . . . .	5
	<u>14,712</u>

The theatricality of this rather Conradian image of Bates—deep in the jungle fastness, isolation nibbling at his rationality, forsaken at the distant terminus of a precarious but confining imperial network—should not distract from the point at issue: Bates's collection had a heavy load to bear. It explicitly signaled the abundance of Amazonian biology. But it also wracked his already frail constitution and—in the tales of hardship and tribulation—collapsed into itself that commonplace bifurcation between the ecstatic profusion of tropical nature and its pervasive menace. Moreover, though his collection was the emblem of his social and professional aspiration, in the act of assembling it he was irreducibly marked (once again) as plebeian. It is in this light, as much as in terms of his hopes about employment and the aggressive contemporary contest to define science, that we should understand his distressed reaction when John Gray, the keeper of the Department of Zoology at the British Museum, raised demeaning, calculated queries about the material he had brought back from his travels.

Unlike Conrad's incarnation of the colonial nightmare, Bates made it home to the "inaneities of 'society' " that his friend, the banker and essayist Edward Clodd, said he loathed (Clodd 1892:lxxxiv). Not only was a new Bates, the translator of butterflies and beetles, making his appearance in London, but with him came the Amazons—somewhere an inexperienced Leicester naturalist could find nearly fifteen thousand specimens, "no less than 8000 . . . *new to science*" (Bates 1892:ix), and an emerging site of unrestrained hyperbole.<sup>45</sup>

### impunity and impurities

I should have liked a sympathizing companion better than being alone, but that in this barbarous country is not to be had. I have got a half-wild coloured youth, who is an expert entomologist, and have clothed him with the intention of taking him with me as assistant: if he does not give me the slip he will be a valuable help to me.

—Bates to Stevens, Pará, August 30, 1849 (1849–56:2667)

Metropolitan science—its theorizings, its literatures, its spectacular collections, and its popular showcases—relied on an insistent stream of material that flowed through still embryonic channels originating in distant territories.<sup>46</sup> As I have suggested, commerce and aesthetics combined to influence the shape of its production in fundamental ways. And Bates's struggle to control a space within the imperial-scientific networks—his dogged attempts to carve out autonomy through on-site taxonomy—can be interpreted as an effort to capture more and more of the analytical activities associated with particular prestigious nodes. This was critical to his destabilization of the hierarchy of professionalizing science, his striving to insert himself at what were structured as progressively higher levels, where advancing status corresponded to the increasingly manipulated character of the data being handled. Though it was with deep misgivings that Bates enfolded himself in the embrace of the metropolitan species grubbers, it was perhaps more unsettling still to be caught in the bonds of dependency that tied him to his Amazonian porters, guides, cooks, canoeists, pilots, nurses, hunters, collectors, protectors, translators, advisors, informants, companions, hosts, and local experts like Vicenti, a "dreadfully independent and shrewd" character, who, nonetheless, "is an excellent assistant to us":

He is better acquainted with the names and properties of plants and trees than any man in Pará, and is a glorious fellow to get wasps'-nests, and to dig out the holes of monstrous spiders. [Bates 1849–56:2838]

Bates's on-the-ground interaction with Vicenti and the other rural Amazonians with whom he worked offers one more way to think about region making. There were, we know, commercial and institutional imperatives shaping his traveling practice, and we have already seen enough of the materialities of exploration to know that this story is not entirely about the generation of an Anglophone siting of Amazonia. But what happened to Bates's natural science in the moment of encounter with Amazonians and this hyperbolic nature? What mimetics and hybridities ensued from the field politics of intersubjectivity?<sup>47</sup>

European travelers had complained of labor shortages in the Amazon well before the Cabanagem. But Bates's ability to travel was wholly predicated on the availability of people prepared to fulfill the overlapping functions of crew member, porter, and guide. Even when he closely followed the emerging hospitality trails of European assistance and local political authority, moving along a network of planters, merchants, and municipal officials assembled through letters of introduction arranged in London, Pará, and Santarém, his progress could be held up for days or weeks or even entirely halted by the inability to secure assistance.<sup>48</sup> Despite their own divisions, there were times when elites and subalterns seemed to conspire in obstructing him. Considerably delayed in making a planned trip to the upper Tapajós in 1852, he finally sailed in June, a season of treacherous tides and unpredictable storms:

In arranging my voyage, I found the usual difficulty in finding men. Indians only understand the management of canoes; and these are so few in number in comparison to the demand for them, that they are not to be found. The authorities only can assist a stranger, but these parties in Santarém are not at all obliging, and I was compelled to hire two mulattoes,—one, a coarse specimen from the South of Brazil, the other, a harmless young fellow of very little use to me. The bigger one proved a great annoyance. I soon found that he understood less of navigation than myself; but he was insolent, and would have his own way. Our first day's voyage was very inauspicious. We weighed anchor at Santarém at 8, A.M., after a good deal of trouble with the police officers, who would not let this fellow go until I had paid his debts. [1852–56: 3801–3802]

They arrived in Aveyros after running aground and coming close to death. Bates at once dismissed the two men and used his prior acquaintance with the town authorities to secure the Indian crewmen on whom he placed such value. Within days, he was off again, but in his next letter he tells a familiar, if ironic, tale:

Altogether [this voyage on the Tapajós] has been the most labourious excursion I have made. . . . The two Indians I obtained with great difficulty of the Commandant of Aveyros, gave me constant trouble and anxiety,—two lazy, insolent young lads, who at last, when I wished to ascend the river to Curé, refused to accompany me any further. [1852–56:3841]

This is one native response to the work of imperial science. It can force the naturalist to surrender zoological specimens that his hungry boatmen would rather eat. It can leave him staring wistfully landward as impatient oarsmen whisk him away from a rich collecting site. It can take him on interminable diversions as his employees ferry relatives and friends between distant riverine settlements. It can see to it that the store of cane liquor he is having lugged around as a preservative is hijacked for more democratic ends.<sup>49</sup> It can render valued objects worthless—an alligator's head with its teeth pilloried for "charms," in one instance (1849–56:3321). And it can at times create a tenseness that hovers over these travels like a sickly pall to burst into a sudden

shower of violence—as when the botanist Richard Spruce narrowly thwarts a murder plot by his four Indian companions.<sup>50</sup>

Explorer-scientists were vulnerable and dependent, a resource as well as a burden. The lack of direct coercive sanctions available to the naturalists, their acute physical vulnerability on these sparsely inhabited, poorly mapped, and unpredictable rivers, and the generalized labor shortage with which foreign travelers were confronted, all gave local workers unusual relative strength. They were often in the gratifying position of being able to demand payment in advance for a journey and then, on receipt of the money, to abscond or, on occasion, to spend it and then win more before setting out.

Even though a European traveler was more or less entirely invested with the protective prestige of the Amazonian elite, such social relations were, inevitably, rather different from those that actually obtained between native labor and the local or provincial authorities. Punitive unpaid forced expedition, conscription into the abusive *Corpo de Trabalhadores*, aggressive press-ganging for provincial militias, routine and sadistic brutality—the intensified state regulation of Indian and peasant labor imposed following the pacification of the Cabanagem rebels radically changed conditions in the interior by extending and deepening racialized forms of control that had previously been limited to the area around Belém.<sup>51</sup> Although never succeeding in ignoring these disagreeable goings-on, the responses of travelers varied considerably. Some, the North American Edwards, for example, endorsed such arrangements as normalizing an otherwise impossible transport situation.<sup>52</sup> For Bates, the situation was more problematic, and at times the post-Cabanagem upheavals seem a distant echo of the industrial revolution transfiguring the rolling Midlands landscape he had only recently scoured for his first butterfly specimens.

In similar ways but often in contradiction to the demands of metropolitan buyers, native involvement in the naturalists' progress strongly influenced these explorers' spatial practice by restricting where they were able to travel, how long they would remain in a particular location, and, frequently, the extent of their investigations once they were settled. In addition, more effectively even than topographical obstacles, the desertions of crew members and servants, or their refusal to enter areas occupied by hostile, undefeated Indian groups, would—just as much as the resilience of those groups themselves—temporarily close off whole sections of Amazonia to scientific enterprise.<sup>53</sup>

In general, though, positive support was as frequent as obstruction, and readily forthcoming from all sections of rural society. The daily logistical assistance given to the visiting naturalists—the sheltering, canoeing, portering, hunting, and fishing that enabled travel—was critical to their success. So too was the contribution of the *regatões*, the itinerant river traders who carried Bates's collections unescorted, without incident, and often without charge to Pará for shipment to England. Just as the pliability of the relations between Bates and the people who performed many of these services offered room for maneuver on the part of the latter, so for some, this same space, and the favorable wages and novel conditions Bates was forced to offer, made such work inviting.<sup>54</sup>

Less mundane though were the activities of those individuals who worked for him as collectors. Many of these supplied specimens on approval, and his arrival in a village prompted a procession of hunters, young and old, male and female, to emerge from the forest bearing animals for sale. Some helped by training him in specific technologies: the use of blow-pipes for killing birds perched high in the forest canopy, for example. Boys accompanied him into hunting grounds, silently indicating animals

that he would attempt to shoot and they retrieve in seemingly impenetrable undergrowth. Men allowed him to tag along on hunting trips. And other people—like Vicenti—established more formalized, less transient relationships as assistants. Bates's 1851 description of his first visit to Ega is helpful here:

I worked very hard for Coleoptera in Ega from the 1st of January to the 20th of March, being the showery and sunny season, before the constant rains set in. Whenever I heard of beetles seen at a distance, I would get a boat and go many miles after them, and employed a man (the only one disposed for such work in the whole village) with his family, who worked in some clearing in the forest, to hunt for me. Every day he brought me from ten to twenty Coleoptera, and thus I got some of my best things: so that I think I looked Ega pretty well, and the results may be taken as representing the products of the Upper Amazons. [1849–56:3321]

By pushing us to focus on bodies, labors, and knowledges (of the habits and ecology of insects), relationships of this type throw questions of authorship into sharp relief.<sup>55</sup> Examples from other imperial contexts are not hard to find. Take Albert Howard, a sensitive colonial official who, impressed by the indigenous agriculture he had witnessed in India, returned to England to found the European organic farming movement (Howard 1924; Palladino and Worboys 1993:99–100). Or there is that on which Mary Pratt muses when she wonders if Humboldt's native guides communicated "their own knowledge of the ecosystem and their reverence for it" (Pratt 1992:143) during the ascent of Chimborazo that led to the influential planar zonation of the Andes depicted in the *Essai sur la géographie des plantes* (Humboldt and Bonpland 1959). As Pratt points out, this was an indigenous mental topography that was to reappear in John Murra's (1979) modern "verticality thesis" of Andean resource management and spatio-social organization (Humboldt and Bonpland 1959; Murra 1979; Pratt 1992:143; see also Grove 1995:73–90).<sup>56</sup>

Scientific practice turns out to be a negotiation of local knowledges of conjunctural context. Amazonians' understandings of the forest mediated by their assessments of the institutional resources and priorities of the visitor enter into a fluid dialogue with Bates's own conflicted allegiance to natural historical systematics as mediated by all the complications stirred up in his Amazon experience. This needs underlining: at stake is the making of spatial categories, metropolitan natural science, and local materiality. Although Bates's training was ever toward the abstraction of the general from the specific, these field interactions constantly pull him back to locality, and again, reveal the critical importance of particularity.

Not surprisingly, Bates understood his science as being of a different order of rationality from what is now often called indigenous knowledge. Although his collecting relied on local expertise and his future career rested on the ability of informants to trap large numbers of diverse organisms, he was confused by any sign of native familiarity with the science of physiological process.<sup>57</sup> This knowledge hierarchy was difficult to sustain. The assignment of local people's ingenuity in the manipulation of plant materials (by which he was enduringly fascinated) to a category prior to science was undermined by the high status of the instrumental imperial science of economic botany. Applied local knowledge formed an intellectual resource of which he was fully aware and a pool of commercial data to which he was directed by metropolitan demand.<sup>58</sup> Yet it was methodologically treacherous.

All too often, and particularly when working with botanical specimens, Bates was forced to suspend the normal rules by which objects collected in their habitat are situated in taxonomic relationships. The standard procedure did not apply. Rather than reinventing a natural object as a cultural artifact, Bates started out with the discovery

of a cultural object—a plant derivative, perhaps a medicine or a household implement—and then, through fieldwork, tried to track back to reconstruct its natural form. Only in this way could he arrive at breaking down the specimen into the definitive morphological elements through which it would reveal its secrets. This procedure greatly increased his dependency on local informants:

The difficulty is not in collecting together plenty of different kinds of balsams, resins, or medicinal roots and barks (really or so reported), the real difficulty is in identifying these separate objects with the tree which produces them, and acquiring a flowering specimen of it. This is much aggravated by the loose terminology of the Indians who give the same name to very different things. [1852–56:4550]

It is only after the plant had been reassembled that a species became available to taxonomy. And, only then, in the act of being successfully cataloged, did it become loosened from its relationship to local practice.

Bates knew his Spix and Martius.<sup>59</sup> But even these venerated predecessors encountered only a tiny portion of the novelty of the Amazon valley. Hired informants and field assistants not only selected many of the species for inclusion in his collection, but also provided much of the data that enabled identification. Their descriptions of local ecologies and their namings of individual species—often in sets with implicit and persuasive typological affinities—structured a dialogic field of interleaving taxonomies (see Grove 1995:88–90).<sup>60</sup> Reliant on local familiarity with the properties of individual species, the naturalist, restricted by classificatory lacunae, had little alternative but to begin work by recording vernacular names, traits, and meanings (assigned by local people according to both their own priorities and their strategic understandings of the scientist's needs).<sup>61</sup> One effect of this procedure is to illustrate the Linnaean-derived dependence of biological systematics on morphological distinction. Another is to highlight the spatial and conjunctural contingency of classification: if the plant is not significant to Amazonians there at that moment, it might well not appear in the record. Still another is to draw the natural historian into the seductive logics of immanent properties and alternative taxonomies, ones that may or may not correspond to phenotypic characters held as significant elsewhere.

Local narratives of nature articulated with the Darwinian predisposition to Humboldtian holism, insinuating themselves into the space created by disputes over the methodology of biological systematics and the contested status of systematics in the project of scientific natural history. And these narratives underwrote the situated local knowledge of the traveling naturalist. Aside from economic botany, this becomes apparent in a less instrumental but perhaps more formative mode as Bates depends on forest people to indicate and explain weather changes, the intricacies of rivers and tides, the habits and ecology of particular animals and plants, and the histories of land use that enable him, for example, to distinguish between *capoeira* (regenerating agricultural fields) and long untouched areas of vegetation. Piece by piece, Bates incorporates native descriptions of forest structure, fluvial dynamics, and seasonality, translating these into a discursive patchwork in which technical language and racialized determinisms sit awkwardly with the collapsing of ethnographic distance that comes with his assimilation into the tenor of daily activity. In a typical passage of this type in which he describes events in Ega, Bates reproduces local narratives that bring together seasonal activities, climate, faunal distribution, and fluctuating livelihoods, legitimating his account through the use of a native terminology that represents the authority of reported speech. Albeit through its rearticulation, it is native experience and explanation that authorize scientific discourse. Bates offers a bricolage of ethnology,

physical geography, ecological zoology, and political economy, proposing a synthetic vision of Amazonian life at odds in both tone and focus with the systematist's optic:

The fine season begins with a few days of brilliant weather—furious hot sun, with passing clouds. Idle men and women, tired of the dulness and confinement of the flood season, begin to report, on returning from their morning bath, the cessation of the flow: *as aguas estao paradas* [sic], “the waters have stopped.” The muddy streets, in a few days, dry up; groups of young fellows are now seen seated on the shady sides of the cottages, making arrows and knitting fishing-nets with tucúm twine; others are busy patching up and caulking their canoes, large and small: in fact, preparations are made on all sides for the much-longed-for “verão” or summer, and the “migration” as it is called, of fish and turtle; that is, their descent from the inaccessible pools in the forest to the main river. . . . The fall continues to the middle of October, with the interruption of a partial rise called “repiquet,” of a few inches in the midst of very dry weather in September, caused by the swollen contribution of some large affluent higher up the river. The amount of subsidence also varies considerably, but it is never so great as to interrupt navigation by large vessels. The greater it is the more abundant is the season. Every one is prosperous when the waters are low; the shallow bays and pools being then crowded with the concentrated population of fish and turtle. All the people, men, women, and children, leave the villages, and spend the few weeks of glorious weather rambling over the vast undulating expanses of sand in the middle of the Solimoens, fishing, hunting, collecting eggs of turtles and plovers, and thoroughly enjoying themselves. The inhabitants pray always for a “vasante grande” or great ebb. [1892:288]

It is in the “intersubjective space of ethnographic encounters” (Thomas 1994:7) that explanations for the specific logic of practice emerge. Bates, like so many fieldworkers since, masks his inhabiting of this space—denying its potency by asserting his mastery within it. But its effects on him and his science are far-reaching. By the time he sits down to write the substantive penultimate chapter of *The Naturalist*, his vision is of a contextualized, ecological taxonomy that reflects the mediation of metropolitan scientific dispute by Amazonian encounter. And he is able to advance his claim to professional stature based not just on the power of numbers—as he has in the Preface—but on a theoretically confident reading of his empirical achievement:

As may have been gathered from the remarks already made, the neighbourhood of Ega was a fine field for a Natural History collector. With the exception of what could be learned from the few specimens brought home, after transient visits, by Spix and Martius and the Count de Castelnau, whose acquisitions have been deposited in the public museums of Munich and Paris, very little was known in Europe of the animal tenants of the region; the collections that I had the opportunity of making and sending home attracted, therefore, considerable attention. . . . The discovery of new species, however, forms but a small item in the interest belonging to the study of the living creation. The structure, habits, instincts, and geographical distribution of some of the oldest-known forms supply inexhaustible materials for reflection. The few remarks I have to make on the animals of Ega will relate to the mammals, birds, and insects, and will sometimes apply to the productions of the whole Upper Amazons region. [Bates 1892:331]

Bates's was a self-consciously mobile science depending, as he put it, on “personal observation in different countries” (Stecher 1969:35). His travel, though, was always fraught with danger, no less intellectual than physical and moral, and turned out to be a persistent site of excess and corruption. The point here is not only the authorizing ethnological invocation of the “personal” in the presence of difference. There is also weight to that modest word “observation,” with its claims to independence and

its assumption of the prior configuration of nature and space, of an Amazons, like its butterflies, awaiting the defining taxonomic eye.

### “Bates of the Amazons”

Back in England, Bates eventually found his niche as assistant secretary of the RGS. Perhaps his most important duty, and the one for which his obituary writers praised his accomplishments above all else, was sympathetically to advise prospective travelers and edit their communiqués for publication in one of the Society's two periodicals.<sup>62</sup>

There is an unmistakable whiff of stiff-necked glamour to the pages of the *Proceedings* and *Journal* of the RGS in this period, and it is still possible to feel the expansive energy, dynamism, and planetary reach of this rapidly coalescing center that had inherited the Banksian mantle as “Britain's quasi-official directorate of exploration” (Stafford 1989:22). Bates played a backroom role as a modernizer at the RGS, promoting Darwinism whenever possible and pushing for the institutionalization of geography as an academic discipline (Dickenson 1992a). Yet it was the aura of the Amazons he had done so much to create that guaranteed his fame, and his obituaries unanimously recalled this defining episode of his life and the proprietorial nickname by which he was affectionately known: “Bates of the Amazons.”

In an extensive obituary in the *Fortnightly Review*, the novelist Grant Allen recalled an evening at Edward Clodd's North London home “when Bates broke his wonted reserve in a rare fit of communicativeness.” Allen describes the old man as speaking with “child-like simplicity” and compares his account to one of “religious martyrdom” (Allen 1892:803).

Bates told us with hushed breath how on that expedition he had at times almost starved to death; how he had worked with slaves like a slave for his daily rations of coarse food; how he had faced perils more appalling than death; and how he had risked and sometimes lost, everything he possessed on earth with a devotion that brought tears to the eyes of grown men who heard him. [Allen 1892:803]

As they rose to leave, these men, who included the writer Samuel Butler and the Africanist explorer Paul du Chaillu, expressed the same regret: “Oh, if we had only had a phonograph to take that all down—accent, intonation, and everything—exactly as he spoke it!” (Allen 1892:803).

It is a wonderful and complicated image. The London elect at a moment of ascendancy. Patronage, science, exploration, and literature gathered to hear tales of the great river. It is a site of region-making that can now barely be imagined: a point where materiality and discourse come together in the most ordinary of ways at a moment when discovery and empire are still the business of the day, and in a place where all that effort—the sweeping out of the workshop, the part-time studying, the endless debating of Malthus and Lyell, the years of note taking and drawing, the perpetual translation, the preserving and packaging, the dread and the longing—dissolves in the landscape of accomplishment. It is a glimpse into a domesticity in which all those anxious practices that I have argued are so important to the making of Amazonia in this time of rediscovery are finally, collectively erased.

Or are they?

This too is a colonial situation. And like those Amazonian trails Bates knew so well, it is a space of encounter and creation, defined in this instance by an unmarked imperial habitus. These men are also *there*, in place, at this historic moment in which



a region is made in storytelling, made real through the authenticity and authority of experience.

And the Amazon that Bates conjures! The stories that he tells! We can only guess at their specificities, but we know their contours: limitless nature, incredible hardship, broken health, intimate comradeship, an impossible freedom. But, even in this circle of communion, the anxieties return; the politics of class and the identifications of race slip back in. What is it to which these men of substance are compelled to draw attention in the midst of all this enchantment? It is Bates's accent, his intonation, his provincial origins, his childlike lack of cosmopolitanism despite his heroic travels. It is, though Allen does not say it in so many words, the illiterate wife and the many children who never make it into the professional classes. It is a terrible anticlimax, but it confirms the rationality of anxiety.

Several of the notebooks Bates kept while on the Amazon are now in the manuscript collection of the Entomology Library of the British Museum of Natural History in South Kensington. They are simple exercise books filled with delicate watercolors of butterflies and beetles, miniatures of such clarity that they seem hardly faded despite the distance traveled. In a careful, precise hand, Bates has cataloged his collecting and with it those pervasive instabilities—"some mistake here. . . . I think I have ticketed the wrong specimen, the insect is *not* *Pleuracanthus*" (Bates 1851–59: 192).

## notes

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1. Recent accounts of region making have been as diverse as Bartlett 1993, Connery 1994, Pletsch 1981, and Taylor 1991.

2. More than twenty-thousand people were to die in the six years it took for the Rio government's brutal pacification campaign finally to take hold, and I would not want to gloss the very real and decisive intraregional contradictions of race and class around which the Cabanagem coalesced (see Cleary 1998; Pinheiro 1999). Nevertheless, the rebellion also stands as a rare moment of northern political assertion in a tense history of national ambition and regional recalcitrance. The regional consciousness (in the region-*for-itself* sense) presupposed by the early moments of the Cabanagem may well have been a preoccupation primarily of the liberal elite, but it quickly generalized—in radicalized form. Although strongly derivative of European republicanism, such politics had a distinctively local cast and are an important reminder that my concern in this article with the dynamics of metropolitan region making does not substitute for analyses focused more squarely on the development of regional identities and region-making practices among elite and subaltern Amazonian populations. Political and cultural regionalisms in Amazonia were made and remade in oblique and reciprocal relation to

metropolitan projects, not simply through them or in response to them. On the centrifugal tendencies of this period, see Buarque de Holanda 1970.

3. I am grateful to Dan Linger for clarifying this point. On an “area” as “that which is not universal,” see Cheah 2000.

4. I use *imperial science* to indicate knowledge mobilized through institutions of the imperial state and practiced in and on both formally and informally colonial contexts. This would, of course, include the work of such outward-looking institutions as Kew Gardens and the Royal Geographical Society (RGS). *Metropolitan science*, by contrast, should suggest knowledge constitutive of Western scientific traditions. These are, of course, overlapping and relational categories.

5. My focus on the experience and outcome of colonial encounter draws on perspectives advanced by, among others, Comaroff and Comaroff 1991, Grove 1995, MacKenzie 1995, Pratt 1992, and Thomas 1994, although it is also obviously underwritten by reflexive attention to fieldwork practice more generally in anthropology. On field agonisms in relation to dialogics, see Crapanzano 1992.

6. Until very recently, there has been little writing on this topic that has escaped a pervasively heroic mode of presentation. As prominent examples, see Hagen 1945, Raby 1996, Smith 1990, Ure 1986, Woodcock 1968, and, although lodged within a more natural-scientific discourse, many of the papers collected in Seaward and FitzGerald 1996.

7. Darwin’s enthusiastic response to this paper was expressed in his correspondence with Bates (see Stecher 1969). For a popular assessment, see Gould 1985.

8. Even though professional training in science did not exist at this time in Britain, the scientific establishment was, inevitably, filled by men with Oxbridge credentials. Academic training opened careers in medicine, law, or the clergy. Darwin, for instance, had studied medicine and then switched to theology. Hooker and Huxley were both trained in medicine, Lyell in the law. An additional restriction was the imposition of orthodox religious examinations for matriculation or fellowships (Beddall 1969:6–7).

9. Some of their views on Lyell, Chambers, Darwin, and Humboldt can be gauged from letters extracted by Wallace in his autobiography (Wallace 1905). Humboldt had extended an irresistible challenge: “America offers an ample field for the labours of the naturalist. On no other part of the globe is he called upon more powerfully by nature to raise himself to general ideas on the cause of phenomena and their mutual connection” (Humboldt and Bonpland 1895:xxi).

10. Extensive Bates bibliographies can be found in Dickenson 1990, 1992b, and O’Hara 1995. On the RGS years, see Moon 1976:54–71.

11. Bates apparently viewed this narrowing of focus as an inevitable accommodation to the increasing specialization of biological science (Allen 1892); however, Wallace’s bitter obituary suggests—as do his own career and those of Darwin and Huxley—that there were alternative intellectual roads to walk for scientists of Bates’s status and talent. As George Woodcock (1968) points out, though, the RGS job was certainly not to be sneered at by a man under pressure to support a growing family.

12. Thompson pays little attention to popular botany, though see his brief description of northern textile communities (1968:322). John Mackenzie’s comment (1990:5) that “the striking thing about 19th-century science was indeed that it was ubiquitous” is too general but does at least acknowledge nonelite participation.

13. I am grateful to one of the reviewers for this journal for clarifications regarding the relationship of Unitarianism to Dissent and also for very helpful comments on the early racialist identifications of working-class radicalism to which I refer below.

14. According to Kropotkin, Bates responded enthusiastically to the thesis of *Mutual Aid*, exclaiming: “That is true Darwinism. It is a shame to think what they have made of Darwin’s ideas” (1988:300). I should note that at one time contradictions within these circles were less apparent and that Bates had named one of his sons Herbert Spencer Bates and another Darwin Bates.

15. See Gerbi 1973 and 1985 on the persistent belief—expounded most famously by Hegel and Buffon—in the inferiority of the New World in relation to the Old and, specifically,

that American animal life (including human) "suffers from degeneration and arrested development" (1985:3).

16. Racial theorizing in Brazil was indelibly complicated by the hybridity of categories, and Bates was generally disapproving of the existing solution to his race problem. Occasionally, however, he is open to a reluctant ambivalence: "It is interesting," he notes in Cameté, "to find the *mamelucos* displaying talent and enterprise, for it shows that degeneracy does not necessarily result from the mixture of white and Indian blood" (1892:77).

17. I place Bates's mobilization of racial typing in this context. Note, for example, the seamless move from observed, surface traits to correlative innate characteristics in the following passage: "The cheek-bones are not generally prominent; the eyes are black, and seldom oblique like those of the Tatar races of Eastern Asia, which are supposed to have sprung from the same original stock as the American red man. The features exhibit scarcely any mobility of expression; this is connected with the apathetic and undemonstrative character of the race. They never betray, *in fact they do not feel keenly*, the emotions of joy, grief, wonder, fear, and so forth" (1892:39–40, emphasis added).

18. It was Wallace who expressed these ideas in their most polemical form and who most clearly theorized the intersection of race and environment. See, particularly, Wallace 1891. Spurr (1996:61–75, 156–165), discusses scientifically supported racial hierarchization and the malleability of the European tradition of environmental determinism that "identifies non-European peoples with the forces of nature and then places nature in opposition to culture" (1996:158). Wallace also was more rigorous in allowing for the effects of such a binarism on *European* development. He and Bates are able at times to share in the Rousseauian fantasy of the indolent, sensual native as innocent primitive, but they read it through the prism of scientific selection in which intellectual and moral capacity is judged by the ability of a race to transform nature in the name of progress. Spurr finds explicit and convincing links between evolutionary science and the rather nonspecific "colonial discourse" he is concerned to delineate. Also see Stocking 1987:96–102 (on Wallace) and Kuper 1997.

19. Bates's relativism was not always *positively* humanist in the terms I am suggesting: it could also be inflected by a class snobbery that ascribed negative characteristics to the uneducated.

20. Controversial, that is, because of the humanity that it afforded the child.

21. For a useful discussion of Joseph Banks's efforts to establish a global network of botanical collectors during the late 18th century, see MacKay 1996. Adequate consideration of Banks's pivotal role in the story of colonial science would require a supplementary article. Carter 1988 breathed new life into Banks scholarship, rehabilitating a figure that historians of science had tended to overlook largely because he wrote little. Useful discussions can be found in Gascoigne 1994; Mackay 1979, 1985.

22. Extended fragments of Bates's letters to Stevens and as well to others of his family and friends were published in the *Zoologist* between 1850 and 1857 [vols. 8–15] under the heading "Extracts from the correspondence of Mr. H. W. Bates now forming entomological collections in South America," or the more general "Proceedings of natural-history collectors in foreign countries." Bates also submitted (via Stevens) several detailed accounts of short excursions. On Wallace's relations with Stevens, see Camerini 1996.

23. The Quinns, in Hakluyt 1993:161, take the "River of Saint Augustine" to be the Amazon. For a more detailed discussion, see Raffles in press, and on Hakluyt and his significance in the 19th century, see Helgerson 1992 and Taylor 1934.

24. See Cohn 1996:3–15. In an early 19th-century Latin American context of newly independent nation-states, much of the administrative technology that Cohn describes for India only existed outside a formally colonial context. There can be little doubt, however, as to the depth of penetration of British capital into the region, the excited interest of British entrepreneurs and scientists once access became available, and the application of modalities of data collection and management that correspond in large measure to those mobilized in other regions of the world and circulated through the same institutional calculating centers. See Dickenson 1996:66–67; Graham 1968; Maw 1829; Pantaleão 1970; Smyth and Lowe 1836.

25. See the important historiographical recuperation of this work by Cleary 2000 and Porro 1995, especially pp. 181–198. The key primary texts—long ignored by English-language scholars—are Daniel 1975 and Ferreira 1971–74. Cleary accurately describes the latter’s expedition, which lasted from 1783–92, as “the beginning of professionalised natural science in the Amazon basin” (2000:5). Daniel was a Jesuit priest resident in the Amazon from 1741 until the Pombaline expulsion of the order in 1757.

26. I am drawing here on Bruno Latour’s notion of “cycles of accumulation” (1987: 215–257; also, Braun 2000). See Brown and Lidstone 1878; Chandless 1866, 1869, 1866–70.

27. Prior to leaving London, Bates and Wallace met with W. H. Edwards—a recent graduate of the new natural history courses at Williams College and author of *A Voyage Up the River Amazon, Including a Residence at Pará* (1847). Edwards provided valuable letters of introduction to Europeans and North Americans in Belém and the interior. The book had made a powerful impression on the two friends. In his autobiography, Wallace writes that “[it] gave such a pleasing account of the people, their kindness and hospitality to strangers, and especially of the English and American merchants in Pará, while expenses of living and of travelling were both very moderate, that Bates and myself at once agreed that this was the very place to go to” (Wallace 1905:264).

28. On the often clandestine instrumentalities of British botany in Latin America—the most notorious South American examples of which were the transfer of rubber and cinchona to Asia—see Brockway 1979 and Drayton 2000. The professionalization of botany and zoology occurred concurrently with that of other emerging sciences. See, for example, Stafford 1989.

29. For example, in a cataloging entry in his field notebooks Bates writes: “Probably new species of the genus—at any rate I have the descriptions of 5 out of the 7 sp<sup>s</sup> known and it does not agree” (1851–59:183). To Stevens in 1851, Bates writes: “My great objection is, that I cannot mention any animal, or insect, or plant, under a name by which it will be recognized” (1849–56:3232).

30. Linnaeus cast himself as Adam in the frontispiece of the 1760 edition of his *Systema naturae*. Interestingly, the trope points to the restricted nature of the field-collectors’ Eden: they could wander there, but the political economy of natural history prevented them from exercising the critical authority.

31. Contemporary scholars find themselves making a very similar case in relation to the hermeneutic value of fieldwork. See, for example, Geertz 1988.

32. For an introduction to Humboldt’s geography, see the lucid discussion by Nicolson 1990. Cannon 1978 was originally responsible for the rediscovery and configuration of “Humboldtian science” in the history of science and includes a useful commentary on Darwin. For a recent reassessment, see Dettelbach 1996.

33. For a discussion of the inverse relationship—the impact of voyages of exploration such as Humboldt’s on the Romantic poets—see Frost 1979:5–19.

34. See Cannon 1978:16–24 for an elegant discussion of Ruskin and Dickens in this context.

35. The key work here remains Foucault 1994. As I argue below, however, there were contradictory imperatives enforcing a reliance on these very specificities, and locality—in a broad sense—was a crucial supplement to the specimen.

36. A point made by Humboldt himself: “The progress of the geography of plants depends in a great measure on that of descriptive botany; and it would be injurious to the advancement of science, to attempt rising to general ideas, whilst neglecting the knowledge of particular facts” (1895:x).

37. On competition between the state and collectors, see Sangwan 1997.

38. See, for example, the colonial foresters described by Sivaramakrishnan 1996.

39. Moon 1976:63 suggests that Darwin was also a key player in this appointment, for which the only other candidate was Wallace.

40. See Derrida 1976 for a discussion of the double function of the supplement as a gesture that completes even as it betrays inadequacy.

41. For example, in an 1852 note attached to one shipment to Stevens, Bates writes: "You can send me the names &c. of the species; say whether rare, the price of each specimen, and if I should send more" (Bates 1849–56:3449–3450).

42. For a sophisticated discussion of spatial practices, see Moore 1998.

43. He also depended on Stevens's efficiency: "I now see by the books sent, how little is known of Diurnes, &c. Besides the notes sent, I find I can add a great deal of information from memory; thus you see it is important that I should find my collection complete, with all the Nos. attached, when I return" (1852–56:3728).

44. Compare the influential work of Pratt 1992, following Foucault 1994.

45. Mary Poovey tracks the ambiguity of the statistical fact in the mid-19th century: its deracinated facticity and its contradictory status as evidence, necessarily theorized. Bates's practice can usefully be read in relation to this tension. An inductionist with an activist commitment to theory, he relies on the evidentiary fact, yet also finds himself and his Amazons caught up in the deductive logic and representational aesthetics of aggregate number. One way to understand this tension more specifically is in terms of the lengthy struggle between natural history (as aggregation of the deracinated particular) and natural philosophy (as systematic knowledge)—and as an indication of the persistence, of the former (Poovey 1998:9, 315–317; Raffles in press). Many thanks to Bill Maurer for encouraging this line of inquiry.

46. Which is not to ignore the domestic vernacular sources. See, for example, Feeley-Harnik 2000.

47. Homi Bhabha has argued that one should look for the effects of colonial power in "the production of hybridization rather than the noisy command of colonialist authority or the silent repression of native traditions" (1994:112, emphasis removed; also Young 1995). Hybridity, of course, does not have to designate the joining of stable or unitary objects, nor need it imply equivalence or the absence of domination. In this sense, Bhabha's insight undergirds my argument here that Bates's representational practice became a site for the insinuation (and appropriation) of Amazonian perspectives, a key way in which non-Europeans contributed to the metropolitan regionalization of the Amazon and to the logic of metropolitan science. However, the very vagaries of the notion of hybridity mean that when looking closely at the processes through which such outcomes emerge, it is important to take care that "hybridization" does not displace attention to mimesis, nor obscure the work of a clutch of simultaneous practices—including dialogue, performance, and articulation. My thanks to Teresa Caldeira and others at UC Irvine for a series of comments that helped me think through this question. On "indigenous knowledge" and the parochialization of metropolitan science, see Agrawal 1995 and Gupta 1998.

48. Perhaps it is this preoccupying difficulty that forces Bates to confront Amazonian politics and devote extensive passages to discussions of the Cabanagem and other issues of regional history. I should also acknowledge, however, his self-consciously wide-ranging intellectual interests. Bates's encompassing strategy of investigation could be contrasted with Kristine Jones's (1986) commentary on the narrowly commercial and dehistoricizing narratives of Bates's contemporaries traveling in Argentina.

49. See, for example, Wallace: "The temptation of being left alone for nearly a day, with a garafão of caxaça, was too strong for them. Of course I passed all over in silence, appearing to be perfectly ignorant of what had taken place, as, had I done otherwise, they would probably both have left me, after having received the greater part of their payment beforehand, and I should have been unable to proceed on my voyage" (1853a:237).

50. Or so Spruce tells it (1908:487–493). Spruce encountered considerable hostility, including an elderly and rather Shakespearean nurse who—he reports—would shout at her near-to-death patient, that is, at Spruce himself: "Die, you English dog, that we might have a merry watch-night with your dollars!" (1908:465).

51. Thanks to David Cleary for clarifying this point. In the period from the disintegration of the Directorate in 1798 until the 1830s, conditions for populations of the Amazon interior were notable for their autarkic lack of regulation. See Cleary 1998, di Paolo 1986, and Pinheiro 1999.

52. It "looks very like compulsion," writes Edwards of forced labor, "but it is little more than jury duty" (1847:81).

53. For one example, see Bates 1849–56:3230. And, for the inhibiting effects of a *quilombo* (a settlement of escaped slaves), see Bates 1892:202 and Sweet 1992.

54. It is only fair to draw attention to Bates's (rather pedagogical) humor, which could no doubt enliven an excursion. On one occasion, for example, he lined up himself and his companions holding hands, and, by repeatedly touching an electric eel with the tip of his hunting knife—to general amusement—sent shocks passing through all five of them (1892:324).

55. These issues are now, of course, very familiar to anthropologists. See, as foundational, James Clifford's pertinent question: "Who is actually the author of field-notes?" (1988:45).

56. See Grove 1995:73–90. Also Koerner 1996:158–59, who describes connections between Linnaeus and "indigenous knowledge" that were even more direct—forged by the taxonomist's own philosophical commitment to a hybrid "new science" to be formed through his "cross-cultural mediation between high and folk/tribal knowledges." These arose through Linnaeus's own traveling science as well as via his emphatic instructions to his students to prioritize the study of local practices

57. See, for example, his near-astonished reaction on being told a chrysalis would soon become a butterfly (Bates 1892:371–372).

58. Wallace and Spruce were similarly directed. As a paradigmatic example of the convergence of systematics and utilitarian ethnology in economic botany, see Wallace 1853b.

59. As Bates's comment below indicates, northern Europeans were most familiar with two Amazonian collecting expeditions at this time, both of which were large-scale, state-sponsored affairs. The first was that of the Bavarians Spix and Martius, who collected in the Amazon in 1819–20 and who had spent ten days at Ega from November to December in 1819. The other, just preceding the visit of Bates and Wallace in 1848, was that of Comte Francis de Castelnau, a correspondent of the *Muséum National d'Histoire Naturelle* in Paris. Castelnau traveled through Brazil and the Andes in 1843–47, before being appointed French Consul to Brazil in 1848 (Castelnau 1850–59; Spix and Martius 1823–31).

60. This is by no means to imply a homogeneity of Amazonian ideas of nature and local knowledges.

61. For a convincing reconstruction of this interaction in relation to colonial cartography, see Burnett 2000.

62. See the comments by Clements Markham and Francis Galton in Grant Duff 1892:255, 256. In this methodological vein, Bates (1871) contributed "Hints on the collection of objects of natural history" to the Society's important "Hints to travellers" series.

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