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Introduction by Kara Murphy Schlichting, Queens College CUNY

Ian M. Miller's *Fir and Empire: The Transformation of Forests in Early Modern China* inverts the traditional narrative of environmental decline due to the commodification of natural resources. Miller opens, rather than closes, *Fir and Empire* with an environmental crisis. The subsequent chapters trace property regime and taxation changes that turned woods of southern China into property and commodities. He then explores the function of commercialized land and wood and the role of taxation in these markets. Finally, Miller connects these processes with the role of empire in timber consumption. Yet the rise of commercial forestry is not a story one might expect from environmental history, which is often a story of natural resource exploitation and environmental decline. This is a provocative, persuasive history of early modern sustainability. In response, this wide-ranging roundtable asks weighty questions concerning global patterns of commercial silviculture, the abstraction of natural resources into commodities, environmental declensionism, and nothing less than whether the state or the market are the best way to frame environmental history.

Jonathan Schlesinger commends *Fir and Empire* for successfully telescoping between local dynamics and market actors as well as comparative global history, teasing out illustrative comparisons between forestry regimes across Asia, North America, and Europe. Schlesinger also highlights Miller's careful attention to the "relatively humble sources" of formulaic Huizhou forest deeds. In his review, Schlesinger wonders what other histories might emerge from research in such sources rather than documents produced by and for the state. **Ruth Mostern** celebrates *Fir and Empire* as an accomplished contribution to early modern environmental and Chinese imperial history. Like Schlesinger, she highlights how Miller persuasively eschews a declensionist framing to argue for the long history of sustainable growth and resource management in China's southern forests. Miller traces how four Chinese regimes, from the twelfth through the nineteenth century, enacted forest regulations via tax policy that encouraged property arrangements and investments that led to sustainable growth. *Fir and Empire* inspires Mostern to ask a litany of questions that can inspire future scholars to use Miller's contributions as a starting point to further explore timber terrain ecology, transportation networks; plantation labor; and the consumption patterns of trees once they left plantations. **Keith Pluymers** recommends Miller's work to scholars across boundaries of political geography and historical periodization. *Fir and Empire* should inspire historians of early modern European and Atlantic forest history to ask new questions about the role of the state and privatization schemes and to look with fresh eyes at property records—what unconsidered "patterns of transaction and private behavior" might appear? Pluymers additionally uses his roundtable response to frame out the historiographic innovations of Miller's work to scholarly debates around sustainability, empire, and markets. He also challenges Miller to further think through the juxtaposition between deforestation and the transformation of China's forest through commodity abstraction.

In his response, **Ian M. Miller** highlights a number of ideas that unite the roundtable responses. Miller reflects on the spatiality of southern China's forests and their relationship to the rest of the region. He encourages us to consider forests as both ecological zones and through the management and production of information about them through their commodification. Miller also reflects on his archival sources—as he evocatively phrases it, “the simplifications necessary to represent forests on paper.” Linking these two themes, Miller also poses his own (big) question on the role of abstraction and the organization of nature in environmental history: should we look to the state or the market to explain the transformation of nature into commodities? Miller is not, however, content to leave this transformation in the grip of such amorphous authorities. He concludes his author response by reminding us that it was plants and plantation laborers who actually produced the value of timber. This history awaits telling.

Before turning to the first set of comments, I would like to pause here and thank all the roundtable participants for taking part. In addition, I would like to remind readers that as an open-access forum, H-Environment Roundtable Reviews is available to scholars and non-scholars alike, around the world, free of charge. Please circulate.

Comments by Jonathan Schlesinger, Indiana University Bloomington

The environmental history of early modern China is a vibrant field; it resists simple categorization. Still, it seems, some topics garner more attention than others; the histories of rivers and floods, for example, and the expansion of agriculture into wetlands, grasslands, and forests seem perennially resonant.¹ By researching these topics insightfully and innovatively, environmental historians of China are producing critically important work that pushes our field in new directions. It is remarkable, all the same, just how enduring our interest in these topics has proven to be. Floods and frontiers were central concerns of Chinese courts from their inception, and emperors, bureaucrats, and scholars wrote extensively about them. Should we be inspired or concerned, then, that our own interests so often align with imperial ones? Are sources guiding us to our research agendas, or *vice versa*? What exactly do canonical sources obscure, and what might alternative sources reveal about China's environmental history?

Fir and Empire offers provocative answers to all of these questions, showing that while conventional sources left historians "without a clear chain of documentation" of "an effective forest system" in China, one flourished all the same (10). Educated elites, who produced so much of the documentary record, wrote relatively little about silviculture in imperial China; instead, as Miller argues, they "treated it as a minor branch of agriculture and confined botany to tangential aspects of medical herbology and local geography" (9). One of *Fir and Empire* central contributions, then, is to leverage the power of relatively humble sources—Huizhou forest deeds, which recorded "simple, repetitive acts that produced the forest landscape" but were "opaque to the state" (77)—and to capture the history of "a forest system that combined minimal state documentation with widely distributed ownership" (39). It is credit to Ian Miller's imagination and skill that *Fir and Empire* does this work so compellingly.

It has been common to see in Chinese history, as Mark Elvin so memorably described it, "three thousand years of unsustainable growth:" a steady transformation of varied ecosystems, wherever and whenever possible, into farmland through massive deforestation and reclamation of wetlands.² *Fir and Empire* offers a different vision: sustainability over decline; regional distinctions over homogeneity; local dynamics; local actors; local perspectives. You can jettison stereotypes of imperial China as a land of peasant farmers; *Fir and Empire* takes us into the worlds of savvy forest

¹ The number of innovative works covering these topics are many. For entry points into the history of rivers during the imperial period, see Ling Zhang, *The River, the Plain, and the State: An Environmental Drama in Northern Song China, 1048-1128* (New York: Cambridge University Press, 2016) and Ruth Mostern, *The Yellow River: A Natural and Unnatural History* (New Haven: Yale University Press, 2021). For an overview of imperial-era frontier dynamics, see Robert Marks, *China: Its Environment and History* (New York: Rowman & Littlefield Publishers, Inc., 2012), 103-222.

² Mark Elvin, "Three Thousand Years of Unsustainable Growth: China's Environment from Archaic Times to the Present," *East Asian History* 6 (1993): 7-46.

owners, litigation experts, hunting households, sojourning laborers, investors in wood-futures markets, and others.³

The state it is not the driving force of this account; these various market actors are. The state, to be sure, provides institutional supports that empowers landowners and investors to pursue sustainable, reliable profits. Tax registration, in this regard, was “the best way for owners to prove their claims and recoup their losses” (92). Taxation and measurement standards likewise play a facilitating role in allowing markets to flourish. We learn to see the state, then, as property owners would, and how ordinary people used taxes, standards, forest titles, and the law for their own purposes. Seeing the state from their vantage is one of the many valuable contributions of this book.⁴

Clearly, another contribution is the book’s comparative analysis. Miller charts parallels between forestry in southern China and Venice, Holland, France, England, the Ottoman Empire, Chosŏn Korea and Japan, with China now reframed as a model of effective, market-driven conservation. Contingency emerges as a key historical factor from many of these comparisons. One is continually reminded, moreover, of the importance of moving beyond Western Europe, China, or Japan in making such comparisons.⁵

Even without its comparative dimensions, though, *Fir and Empire* offers plenty for historians of China to mull over. Chinese history, it turns out, looks quite different from a local, environmental perspective. The “persistence of local norms” is one of the book’s throughlines (16). It leads us to different interpretations of grand events in imperial history. The great crisis of the nineteenth century, which ushered in the collapse of the imperial system itself, becomes along these lines less an expression of centuries of untenable environmental exploitation than the result of novel issues of the age (10). Other cornerstone events in Chinese history take on new significance as well: the southward shift of the Song court to Hangzhou in 1127, for example, is most notable for foreclosing opportunities for the state to secure timber from former monopolies in the north, and not from private stands in the south. Still other cornerstone events in Chinese history take on new significance as well; the introduction of the “single whip method” (*yitiaobian fa*) during the Ming becomes, in part, a response “to a crisis in the management of wildland resources through labor conscription” (60). Specialists in more particular aspects of Chinese history will find rich arguments as well: the Hakka are framed as “forest specialists,” for example,

³ Interested readers can now pursue in depth the economic and environmental history of these actors in the Qing period. See Meng Zhang, *Timber and Forestry in Qing China: Sustaining the Market* (Seattle: University of Washington Press, 2021).

⁴ For a more sustained discussion on ordinary people’s engagement with the state, see Michael Szonyi, *The Art of Being Governed: Everyday Politics in Late Imperial China* (Princeton: Princeton University Press, 2017).

⁵ For more in-depth discussion of Chinese forest history in a comparative context, see Ian Matthew Miller, Bradley Camp Davis, Brian Lander, and John S. Lee, *The Cultivated Forest: People and Woodlands in Asian History* (Seattle: University of Washington Press, 2022).

defined by their roles within “private arrangements” in a market-driven forest system (61, 73).⁶

One wonders what else becomes obscured when historians focus their attention on clear chains of documentation left behind by states and scholarly elites, especially in light of other recent environmental histories, which draw, in their own ways, on unconventional and provocative sources and methods, from study of material things and sedimentation records to digital history and mapping.⁷ Outside the forested belt of southern China, then, what can historians write of other forested places, where different institutional arrangements were at play? What are we failing to understand about “forest specialists” that were more fully marginalized by the imperial system, and who might not have even identified as Chinese? And what should we make of the fact a border-crossing dynamic—the Columbian Exchange, with the proliferation of sweet potatoes and maize—plays such a central role in undoing this forest system (17)? More places, more people, and more dynamics: *Fir and Empire* suggests that opportunities abound for enterprising environmental historians of China and a field growing more vibrant and insightful by the year.

⁶ For those like myself interested in the environmental history of Qing Manchuria and Mongolia, the discussion of the Mongol Yuan court’s incorporation of “hunting and fishing families” and their environments into its tax system is valuable in particular for framing subsequent Qing policies. See Miller, 63.

⁷ For an inspired blending of natural and textual sources, and on digital approaches, see Mostern. On the possibilities of studying material things and their connection to local environments, see Susan Naquin, “The Material Manifestations of Regional Culture,” *Journal of Chinese History* 中國歷史學刊 3. 2 (2019), 363–79.

Comments by Ruth Mostern, University of Pittsburgh

Putting Timber in its Place

Fir and Empire: The Transformation of Forests in Early Modern China is one of the most accomplished works of Chinese imperial history that I have read in recent memory. It covers hundreds of years of history, four different regimes, and much of the vast landscape of south China, bridging its many biomes and entraining multiple relationships between people, trees, and the state. Ian Miller takes a trenchant and persuasive anti-declensionist approach. Earlier generations of environmental historians generally assumed that human transformations of the environment caused scarcity, depleted natural resources, and gave rise to unintended environmental consequences. Miller demonstrates that in the forests of south China, this was absolutely not the case. Following a wood crisis in the eleventh century, the merchants of Huizhou and other wealthy prefectures made a massive investment in tree farming. They pioneered new arrangements in labor, transportation, land ownership, markets, and other kinds of social and fiscal structures that supported the transformation of wild trees into valuable timber.

Fir and Empire is a rare book about sustainable development in the early modern era. (Conrad Totman's *Green Archipelago: Forestry in Pre-Industrial Japan*, published in 1989, has significant kinship with *Fir and Empire*, and I would be interested to hear Miller compare his work with Totman's).⁸ Historians struggle to join interdisciplinary conversations about sustainability, which tend to focus on technical problem solving rather than social critique.⁹ *Fir and Empire* offers a way into those discussions. It demonstrates that Ming forestry could be sustainable. It could "meet [...] the needs of the present without compromising the ability of future generations to meet their own needs," as the landmark 1987 United Nations Brundtland Commission put it.¹⁰ However, Ming forestry also significantly transformed ecosystems and compromised biodiversity. Miller's work brings to mind the fruitful paradox of "three thousand years of unsustainable growth," a phrase embedded in the title of a classic article by Mark Elvin that simultaneously invokes and critiques sustainability as an analytical framework.¹¹

Since trees are its subject, it is easy to categorize *Fir and Empire* as a work of environmental history. However, it is fundamentally a book of institutional history. It explains how early modern Chinese markets and government policies turned trees

⁸ Conrad Totman, *The Green Archipelago: Forestry in Pre-Industrial Japan* (Berkeley: University of California Press, 1989).

⁹ For a recent critique of sustainability frameworks, see Marit Hammond, "Imagination and Critique in Environmental Politics," *Environmental Politics* 30, iss. 1-2 (2021): 285-305.

¹⁰ Gro Harlem Brundtland et al., "Report of the World Commission of Environment and Development: Our Common Future," United Nations, 1987. <http://www.un-documents.net/our-common-future.pdf>.

¹¹ Mark Elvin, "Three Thousand Years of Unsustainable Growth: China's Environment from Archaic Times to the Present," *East Asian History* 6 (1993): 7-46.

into commodities and rendered them legible to the state and to merchants at high levels of abstraction. Miller is a close and creative student of imperial tax history who has read widely in sources that seem far distant from forest history. He demonstrates that a series of Chinese regimes enacted forest regulations via tax policy, which encouraged merchants to invest in farmed trees rather than cutting old-growth forest. Rather than developing a new forestry bureaucracy, the Ming court used existing fiscal structures. In doing so, the court created free markets in trees, timber futures, and forestry labor. The book is also a story about property arrangements that permitted owners of land appropriate to forestry to make long-term investments with confidence that they would pay off. Tax arrangements incentivized them to do so.

And yet this is not a book about all of China, nor even fundamentally about all of south China. Even as the merchants of Huizhou and their interlocutors in Ming officialdom, the subjects of Miller's book, pioneered sustainable forestry policy in the heartland of the early modern mercantile world, the Pearl River lowlands farther south were experiencing rapidly rising rates of erosion as a result of deforestation on the Lingnan uplands.¹² The story is the same in the Yellow River basin of north China, where deforestation in the northwestern Qinling and Taihang mountains caused disaster on the floodplain to the east.¹³ Map 2.1 in Miller's book (53) depicts a band of forest registration that ran through the upland regions of Zhejiang province, the southern part of Anhui province, and along the Gan River in Jiangxi province. Additional sporadic and non-standard registration ranged down the east coast through the provinces of Fujian and Guangdong. According to that map, there is no data about forest registration, or no registered forests at all, elsewhere in the realm. I hope that this roundtable offers Miller an opportunity to situate the story of Huizhou forests in a wider context of timber exploitation throughout the Ming realm.

A robust consideration of core-periphery dynamics would be helpful to that discussion. In the decades since G. William Skinner completed his pioneering work on Chinese regional geography in the 1970s, historians of China have been accustomed to thinking about Chinese historical economics and trade networks in terms of physiographic macroregions, which were relatively distinct economic zones constituted by river basins and divided from one another by rugged mountains. Within each macroregion, Skinner posited core regions with dense marketing networks, peripheries with fewer economic connections, significant transportation between core and periphery within each macroregion, and limited transportation

¹² Peter Perdue, "The Environmental History of China: Past, Present, and Future," in *A Companion to Chinese History*, ed. Michael Szonyi (Wiley Online Library, 2016). Osamu Saito, "Forest History and the Great Divergence: China, Japan, and the West Compared," *Journal of Global History* 4, iss. 3 (2009): 379-404. Robert Marks, *Tigers, Rice, Silk, and Silt: Environment and Economy in Late Imperial South China* (Cambridge: Cambridge University Press, 1998).

¹³ Ruth Mostern, *The Yellow River: A Natural and Unnatural History* (New Haven: Yale University Press, 2021).

between macroregions.¹⁴ Bulky commodities like timber seem likely to fit Skinner's model. Indeed, Miller's story focuses on what Skinner refers to as the Lower Yangzi macroregion.

Skinner's work is consistent with a large bibliography about the geography and economics of environmental exploitation and the intensification of state power. In locally variant but globally consistent historical processes, economically powerful and politically well-situated people, who lived in metropolitan cores, sought to profit from semi-peripheral regions like the Middle Yangzi uplands by intensifying cultivation and regulating land tenure. At the same time, they promoted purely extractive exploitation, often involving violence against humans and other animals and destruction of ecosystems, in more distant, colonized, or marginal locales. I have learned a great deal about this topic from authors including Jason Moore, John Richards, Kenneth Pomeranz, Alf Hornborg, and Carole Crumley.¹⁵ I would like to see Miller engage with some of this literature and this framework.

In general, I would be eager to see Miller make explicit some of the spatial and ecological stories that are often implicit in his narrative. I am curious about the ecology of timber plantation terrain. It was presumably land that was too rugged to farm more lucrative commodities but that still afforded good transportation to commercial markets and that had well developed land and labor markets. It would also have required weather and soil conditions appropriate to the growth of commercially viable trees, with adequate rainfall but low erosion. I would like to see Miller, or some subsequent author armed with a collection of GIS shapefiles, estimate the approximate acreage and location of places would have met these specifications in the Lower Yangzi region and other parts of the realm. I would like to know more about transportation networks for timber, how timber transportation relied on waterways, and how the geography of timber plantations aligned with the hydrology of the lower Yangzi region (including both naturally occurring streams and canals). I would like to know more about the material conditions of mobility between the great market cities of the Yangzi delta and the upland timber plantation zones. There must have been significant movement by people -- landowners, timber brokers, imperial officials, and timber workers -- circulating knowledge, laws, social networks, and financial capital - in addition to the transportation of timber and other commodities.

¹⁴ The best introduction to this work is Mark Henderson, "Macroregions," *Oxford Bibliographies Online*, 2018. [DOI: 10.1093/obo/9780199920082-0055]

¹⁵ Jason Moore, "The Rise of Cheap Nature," (2016). *Binghamton Sociology Faculty Scholarship 2* [https://orb.binghamton.edu/sociology_fac/2]; John Richard, *The Unending Frontier: An Environmental History of the Early Modern World* (Berkeley: University of California Press, 2006); Kenneth Pomeranz, *The Making of a Hinterland: State, Society, and Economy in Inland North China, 1853-1937* (Berkeley: University of California Press, 1993); Alf Hornborg and Carole Crumley, eds., *The World System and the Earth System: Global Socioeconomic Change and Sustainability since the Neolithic* (Walnut Creek: Left Coast Press, 2007).

I would also like to know more about the entire timber commodity chain of the Lower Yangzi and the relationship between production and consumption. What happened to trees after they left the plantations? I would like to hear about timber brokers, people who processed raw logs into planks and other products, and end users who built boats, machines, tools, and buildings out of wood; who provided wood for home heating and industrial heating (including conversion into charcoal); and who produced pine-soot ink, paper, and other commodities that required wood. In short, I would like to hear Miller speculate about how the story of this book flows into narratives about cities, consumers, industry, and the labor and economic arrangements that accrued around these questions.

Finally, and most speculatively, in addition to thinking more about the early modern Chinese timber history from the point of view of labor, I am also curious about histories that center the perspectives of trees and other more-than-human forest-dwelling plants, animals, fungi, and microbes. That would amount to learning more about the environmental needs of farmed trees, more about the ecosystems that the tree plantations replaced, and more about the ecosystems that they created. Since *Fir and Empire* is centrally a book of taxation history, it foregrounds stories of ownership and investment rather than those of trees themselves, or those of the people who labor in relationship to trees, especially those outside of the registration system.

Certainly, many of these questions lie far beyond the scope of Miller's interests and expertise. It is a token to the accomplishment of this excellent book that it has inspired me to think so broadly. I look forward to seeing it in bibliographies for many years to come.

Comments by Keith Pluymers, Illinois State University

In *The True English Interest* (1674), the political economic writer Carew Reynell called for all of England's forests to be "inclosed and planted." Doing so would be "as good as joyning another Country to us for help." The model for doing so, he claimed, was China, which was "remarkable" for the "great Husbanding and enclosing of their Country, that they say, there is no more Wasts, besides the Roads, in all that vast Dominion." For Reynell, a land "so infinite full of People, Trade, and Cities" was far superior to one full of trees.¹⁶ Reynell's vision of China was a fantasy, part of a long tradition of Europeans using China as a funhouse mirror to re-envision their own societies. Nonetheless, the general themes in his environmental story—competition between forests and fields and an emphasis on the intensity and scope of agriculture in pre-modern China (in comparison with western Europe)—remain powerful ones even among modern scholars. One of the most widely read works on China's environmental history in English, Mark Elvin's *Retreat of the Elephants*, set the conflict between forests and farms at the core of China's environmental history through the powerful image of the "Three Thousand Years War" between humans and elephants. In that war, highly intensive agriculture came to replace the forest habitat, leading to the dramatic reduction of elephants' presence in pre-modern China.¹⁷

Ian Miller's *Fir and Empire* tells a radically different story. Rather than a conflict between forests and farms, Miller demonstrates that from the twelfth through nineteenth centuries farmed trees came to dominate significant portions of South China. "Instead of *deforestation*," he writes, the period saw "a massive *transformation* of China's forests" (11). Wooded lands remained, but their character and composition had changed. Private owners selected species and planted their lands to serve private timber markets that met the needs of timber consumers and the state. These "anthropogenic forests" (a phrase Miller uses throughout the book) and the commercial silviculture that produced them largely met demands from merchants and the state until the middle of the eighteenth century.

Miller carefully reconstructs how this transformation took place, examining the environmental and political crises that led to the failure of the earlier regulated regime (Chapter 1), legal reforms that made woods into property (Chapter 2), and shifts in taxation that created commercial markets for forest labor (Chapter 3). He then explores how the commercial land, wood, and labor markets functioned (Chapter 4). Finally, he returns to questions of state and empire, exploring taxation (Chapter 5), naval timber (Chapter 6), and construction timber used for palaces and ornate imperial buildings (Chapter 7). Through all of these, he consistently balances a focus on what people and institutions do with the ways in which those actions

¹⁶ Carew Reynell, *The True English Interest, or, An Account of the Chief National Improvements in Some Political Observations...* (London, 1674), 41.

¹⁷ Mark Elvin, *The Retreat of the Elephants: An Environmental History of China* (New Haven: Yale University Press, 2004), 9–19.

transformed landscapes. Even as he takes on centuries at a time, Miller carefully delineates regional and chronological particularities.

One of the things that makes environmental history such a vibrant field is the ability to consistently read and engage in scholarship across boundaries of political geography and historical periodization. *Fir and Empire* is a concise book that exemplifies that virtue with its capacious, comparative vision and a compelling argument that should speak to scholars across multiple fields and geographies. Miller consistently and profitably engages with both classic and very recent works of forest history focused on Europe and North America, as well as works on South Asia, Japan, and Korea. In doing so, he avoids the problem of the “shadowy presence of Western analogies and differences” that Elvin warned faces historians of China writing in English.¹⁸ Miller does not attempt to avoid comparison but instead moves it out of the shadows by making them explicit. As a result, *Fir and Empire* invites forest historians working on Europe and its colonies to ask new questions.

Miller’s argument offers two major contributions to environmental history and forest history, broadly conceived. First, it demonstrates the necessity to shift our thinking about deforestation. Michael Williams’s *Deforesting the Earth* opens with a concise definition of deforestation as “the thinning, changing, and elimination of forests,” but, for many historians of forests and forestry and for wider publics, thinning and elimination have often dominated our conceptualizations.¹⁹ *Fir and Empire* demands that we take changing forests seriously and not only when thinking about current tree plantations providing “sustainable” timber, paper, and wood products. Second, Miller challenges the centrality of the European model of state-formation and bureaucracy in forest history, arguing that commercial production was at the center of China’s “silvicultural revolution” with the state providing a “distinct form of forest oversight” (10) that had its own institutions but was “limited [and] largely market-based” (8). At the same time, Miller shows that even without direct state management, empire remained a critical force across multiple centuries.

I’d like to invite Miller to further think through the juxtaposition between deforestation and transformation and Williams’s definition of deforestation as thinning, changing, and eliminating. Miller uses the distinction between deforestation and transformation to great effect when setting commercial forestry against “imperial logging.” Imperial logging was “predicated on bountiful nature harvested by forced labor” (159), and by the late-1600s, it had led to a situation in which “some old-growth woods remained, largely in inaccessible valleys and at high altitudes” while stands of old growth accessible by water “were logged clear of their best timber” (159). Miller argues, however, that this situation was “not the same as total deforestation” and that the presence of anthropogenic forests oriented towards commercial production was essential in creating it. Imperial logging focused on

¹⁸ Elvin, xxiii.

¹⁹ Michael Williams, *Deforesting the Earth: From Prehistory to Global Crisis (An Abridgement)* (Chicago: University of Chicago Press, 2003), xv.

exceptionally large trees that commercial forests did not produce, not the most typical types of construction timber. In other words, the transformation of some woodlands prevented deforestation of others. In the conclusion, Miller argues “that we must reconsider the terms in which we understand forests and forestry” (169). How should forest historians understand and define deforestation? In particular, how should we describe changes to forest composition?

Thinking about shifts in forest composition also invites new questions about states, forests, trees, and timber. James Scott put forestry at the center of his discussion of the early modern European state. In an evocative turn of phrase, Scott wrote that European state forestry replaced “the actual tree with its vast number of possible uses” with “an abstract tree representing a volume of lumber or firewood.” Yet, as he would note shortly thereafter, abstraction was not confined to the state, rather what made the state “distinctive” was “the narrowness of its field of vision, the degree of elaboration to which it can be subjected, and above all, ... the degree to which it allowed the state to impose that logic on the very reality that was observed.”²⁰ Miller describes China’s forest administration as “precocious and strange, a sort of ‘lost modernity’” (162) based on the state’s coherent, functional, but distinctive approach (from Europe and northern Asia), yet, as Miller shows, the process of transformation in China’s forests imposed the logic of abstraction onto the landscape far more successfully than early modern European counterparts. Chapter 2, one of the most crucial in the book, traces the effects of shifting administrative definitions of woodlands “from open, common-access landscapes into exclusive property,” a process that “made forests fiscally legible to the state” (38). People who had planted trees or who planned to cultivate them eagerly embraced this new property regime, which gave legal protection to their arboreal investments. These legal and administrative shifts were essential to the creation of anthropogenic forests composed of fir species. As Miller puts it, “Without the state, there would still have been tree planting in South China, but landowners would not have been enabled to transform biomes on such a scale” (57). The production of abstract trees was crucial to this transformation. As he writes when discussing tariffs, “standards for size, species, and grades of timber and fuel” were critical “indirect” influences in the transformation of China’s forests, even if the state itself neither owned nor directly administered those woodlands (115). Despite the differences from early modern European examples, China’s state also seems to play a critical role in the production of abstract trees, a process that transformed landscapes. Rather than just seeing early modern China as distinctive, can we use it to re-think the relationship between the state and the abstraction of nature? How might that re-envisioned relationship look?

Finally, I’d like to return to Carew Reynell’s brief comment on China, forests, and enclosure and to think about how *Fir and Empire* can challenge early modern European and Atlantic forest historians to rethink our subject. Reynell saw forests as an impediment to making all land in England “inclosed and planted.” Other

²⁰ James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (Yale University Press, 1998), 12–14.

seventeenth-century English pamphleteers, surveyors, improvers, and forestry officials, however, saw the problem differently. Woodlands were good and necessary, they claimed, but confining woods to royal forests, wastes, and commons prevented their efficient management. These proposals, including from members of the state's forest bureaucracy, saw private tree plantations and the privatization of royal forests as the solution to England's purported wood scarcity. Indeed, John Evelyn's *Sylva* (1664) wrote that the solution to wood scarcity lay not only in the preservation and repair of royal forests but was "what every Person who is Owner of Land may contribute to."²¹ Miller writes that, were it not for the contingent conditions that forced the Song into southern China, "we might remember Cai Jing as China's Colbert, or even think of Colbert as France's Cai Jing" (36), setting European state forest bureaucracy against a path not taken in twelfth-century China. *Fir and Empire* should prompt early modern European forest historians to look at the presence of so many privatization schemes in early modern England and ask why it did not have its own Li Chunnian (the vice minister at the Song Board of Revenue whose survey records enabled the transformation of woodlands into private property) and to more closely examine property records to see if we can find patterns of transaction and private behavior that produced wooded landscapes like those Miller found in Huizhou. If, as Elvin put it, "Western analogies" have often shaped questions and models in histories of China, how might early modern European and Atlantic historians begin to reverse that dynamic?

Fir and Empire is a book that exemplifies the need for environmental historians to read and think across geographic boundaries. That is a result both of Miller's detailed and convincing analysis and his conscious, careful comparisons between China and the wider world, particularly early modern Europe. As scholars working across the early modern world contend with it, we should be open to revising existing models for state formation and forest management, and, in doing so, may find a place for analogy as well as distinction.

²¹ John Evelyn, *Sylva* (London, 1664), B1v.

Response by Ian M. Miller, St. John's University

Accounting for Forests

I would like to begin by thanking these three scholars for insightful comments that provide both invitation and a provocation to go beyond the ideas that initially inspired *Fir and Empire*. While there are many questions deserving of further thought and research, I will focus on two intertwined lines of inquiry: the spatial relationships between southern China's forests and the rest of the region; and the issues raised by the sources underlying the study, in particular the simplifications necessary to represent forests on paper.

First, these reflections necessitate a more careful eye to the spatiality of forests in China—including both the distribution of forests as ecological zones and the management and production of information about these sites. *Fir and Empire* is fundamentally a story about part, rather than the whole of China, which raises the question of its relationship to the rest of the empire. From an administrative perspective, the silvicultural revolution sprouted in the nursery of Song dynasty Hangzhou and grew in the shadow of Yuan and Ming dynasty Nanjing. Meng Zhang's *Timber and Forestry in Qing China*, and an exciting body of new evidence, both suggest that this form of forestry continued to flourish—despite substantial challenges—into the Qing and the early twentieth century.²² While tax-paying forests (*shan*) were eventually registered in other regions, this particular institution seems to have produced no data on the north and very little in the far south or west, despite the fact that there were certainly wooded areas in all of these regions.

From a physiographic perspective, the forest belt described in *Fir and Empire* was painted along the margins of multiple watersheds. Some scholars have described this region as the “Yangzi highlands,” or, as Ruth Mostern notes, the periphery of Skinner's “Lower Yangtze” macroregion.²³ I find both descriptors limiting, as the heartland of timber plantation included not only the headwaters of southern tributaries of the Yangzi River, but also the Qiantang, Ou and Min Rivers, and eventually regions further

²² Meng Zhang, *Timber and Forestry in Qing China: Sustaining the Market* (Seattle: University of Washington Press, 2021). In the last decade or so, substantial bodies of deeds and legal cases involving forests have been uncovered in Longquan County in Zhejiang Province and Yongtai County in Fujian Province. For a brief English-language survey of this emerging literature, see Ian M. Miller, “Forestry by Contract,” in *The Cultivated Forest: People and Woodlands in Asian History*, eds. Miller et al. (Seattle: University of Washington Press, 2022): 28–33. For Chinese-language introductions, see Du Zhengzhen and Wu Zhengqiang, “Longquan sifa dang'an de zhuyao tedian yu shiliao jiazhi,” *Minguo dang'an* 2011, no. 1 (January 2011): 118–23; Zheng Zhenman, “Ming Qing shiqi delinye jingji yu shanqu shehui - Fujian Yongtai qiyue wenshu yanjiu,” *Xueshu yuekan* 52, no. 2 (February 2020). Many of these materials are now published in Bao Weimin et al., eds., *Longquan sifa dang'an xuanbian* (Beijing: Zhonghua shuju, 2012); and Zheng Zhenman et al. eds., *Fujian minjian qiyue wenshu* (Fuzhou: Fujian renmin chubanshe, 2022).

²³ Stephen C. Averill, “The Shed People and the Opening of the Yangzi Highlands,” *Modern China* 9, no. 1 (1983): 84–126; Anne Osborne, “The Local Politics of Land Reclamation in the Lower Yangzi Highlands,” *Late Imperial China* 15, no. 1 (1994): 1–46.

south and west. While timber itself was generally traded along diverging river routes, both seedlings and planters were as likely to cross the mountains as to descend out of them. Based on available evidence, I am tempted to think of this belt of highlands as a distinct region, albeit one with indistinct boundaries. The slope, shade, and elevation of its intersecting mountains made the region poorly suited for rice, but its climate allowed it to be productive in China fir, pine, bamboo, paper mulberry, and tea—and later indigo, sweet potatoes, and ramie. The fractal outlines of this zone correspond, if imperfectly, to a floristic region: the lands suitable for the growth of China fir (*Cunninghamia lanceolata*) and horse-tail pine (*Pinus massoniana*). More research is certainly needed to elaborate the chains of exchange that brought timber from forest to building sites, let alone the uses of other forest products with less documentation. Yet it is clear that these forests were co-produced by the repeated actions of people and plants under the dual constraints of institutions and ecology.

As Ruth Mostern points out, China's upland south was just one of several regions from which Beijing sought to extract particular forest commodities. It is increasingly clear that the forests in other parts of China—and its informal colonies abroad—involved other institutional-ecological relationships. Mostern's own research reveals that along the Yellow River state presence was far greater than in the south, through both the military and water conservancy, and the progress of deforestation was also far more significant.²⁴ Along the southeast coast, timber from the headwaters of regional rivers was often secondary to the supply from Southeast Asia.²⁵ In Manchuria, Jonathan Schlesinger shows that the distinctive environment was the product of another set of institutions that cordoned off the region from settlement while also extracting forest products through highly-organized forms of hunting and gathering.²⁶ More broadly, Beijing's preference in non-Han regions was to establish semi-permeable boundaries, with specialized institutions granted exclusive rights to trade across them. In the Yun-Gui Plateau, this institution was the timber tribute—first the requirement of “native offices” (*tusi*) to submit nanmu timber for imperial construction, later a right of first purchase granted to comprador merchants.²⁷ In Taiwan, the military works foreman (*jungong jiangshou*) monopolized forest rights in the interior in exchange for providing camphor to the imperial shipyards.²⁸ If we look at the empire as a whole, Keith Pluymers's observations of the British Atlantic apply equally well to the lands ruled from Beijing: “Rather than a seamless narrative of

²⁴ Ruth Mostern, *The Yellow River: A Natural and Unnatural History* (New Haven: Yale University Press, 2021), 141-55, 193-202, 231.

²⁵ See, e.g. Melissa Macauley, *Distant Shores: Colonial Encounters on China's Maritime Frontier* (Princeton University Press, 2021), 7, 57.

²⁶ Jonathan Schlesinger, *A World Trimmed with Fur: Wild Things, Pristine Places, and the Natural Fringes of Qing Rule* (Stanford, CA: Stanford University Press, 2019). See also David A. Bello, *Across Forest, Steppe, and Mountain: Environment, Identity, and Empire in Qing China's Borderlands* (Cambridge: Cambridge University Press, 2016).

²⁷ In addition to *Fir and Empire*, Chapter 7, see Zhang, *Timber and Forestry*, Chapter 1; Zhang Yingqiang, *Mucai zhi liudong: Qingdai Qingshuijiang xiayou diqu de shichang, quanli yu shehui* (Jinping, Guizhou: Shenghuo dushu xinzhi sanlian shudian, 2006).

²⁸ See Chen Kuo-tung, “Jungong jiangshou' yu Qingling shiqi Taiwan de famu wenti,” *Renwen ji shehui kexue jike* 7, no. 1 (March 1995).

scarcity spurring colonial expansion, this is a story of fits and starts, of experiments often ending in failure, and of confusion and conflict. Attempts to define, measure, and manage woods...took place within the context of deep uncertainties and limited access to information..."²⁹

These comments also open a provocative conversation about the role of simplification and abstraction in environmental history. As Pluymers notes, the process of turning actual trees into abstract trees is central to James Scott's highly influential discussion of the modern state.³⁰ Juxtaposed against this is Jason Moore's emphasis on the transformative power of capitalism, which he terms "a way of organizing nature" that constantly produces new frontiers of extraction.³¹ So which is it: the state or the market? I think it is no accident that Scott's preferred example is Prussia, while Moore's is Amsterdam - one the classic example of modern state-building, the other the first capitalist republic. What then does the example of southern China tell us that Holland and Germany do not? I think it shows that the organization or abstraction of nature was never the sole product of either the state or the market, but the co-construction of both.

Coming at this from another angle, Schlesinger asks, "Should we be inspired or concerned...that our own interests so often align with imperial ones?" I am certainly as guilty as my informants of extracting data while remaining ignorant of the subsurface dynamics. Can these data truly tell us anything about the ecological transformation of forests, as opposed to mere transitions in administrative oversight? To answer these questions, I have tried to ask a set of slightly different ones: what does calling something a forest *do*? Who performs this administrative act - naming something a forest? And who or what do they act on?

To better understand the vectors of power involved in this performance, it is worth taking the documents themselves very seriously. Let us begin with cadasters. These represent plots of land through their boundaries and locations, their owners' names, their acreage, and their tax rates. The essential feature of this type of document was to link a specific plot of land to a tax payment. The first act (documentation) was performed once, and perhaps copied by subsequent generations of bureaucrats; the second act (payment) was performed annually by a designated owner or his heirs. Almost everything else was elided from the register, the subject of contractual documents rather than fiscal ones. And what do the contracts show? Once again, an interest in linking a specific site to a particular value and to the people able to extract that value, whether in the form of rents or an eventual profit from logging. Once again,

²⁹ Keith Pluymers, *No Wood, No Kingdom: Political Ecology in the English Atlantic* (Philadelphia: University of Pennsylvania Press, 2021), 10.

³⁰ See James C. Scott, *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed*, Yale ISPS Series (New Haven: Yale University Press, 1998), Chapter 1.

³¹ Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (Verso Books, 2015). 14 and *passim*. For his explanation of timber frontiers, see Jason W. Moore, "'Amsterdam Is Standing on Norway' Part II: The Global North Atlantic in the Ecological Revolution of the Long Seventeenth Century," *Journal of Agrarian Change* 10, no. 2 (2010): 188-227.

most of the concrete acts on the land and its vegetation were absent—or at best summarized—in the document. Once again, a single act of documentation produced repeated acts of payment.

In both types of document, there was a near-total indifference to the ecology of the sites, and even to the daily labors of planting, pruning, and patrolling that transformed them. Instead, the point was to produce abstract, fungible value. In the case of the contract, this abstraction could itself be subdivided, securitized, inherited, bought, sold, and used as debt collateral—all acts that produced their own documentation but had little to no bearing on the land or the trees. In the case of the cadaster, both the abstracted data and the fungible revenue it represented could be transferred to other jurisdictions or subsequent administrations, and combined with line-items of related *value* but that represented very different *things*, such as the tax on farmland, or the income from the salt monopoly. What is only barely revealed through these documents are the behaviors of those who actually produced the value—the laborers and the plants. Recovering the stories of trees and plantation workers will probably require other sources, and perhaps other methods entirely. I suspect that this will often take us away from texts, to ethnography and oral history, and to “reading the forested landscape,” following the examples of scholars such as Tom Wessels, Oliver Rackham, and Akira Miyawaki.³²

Returning to the question of where the power of simplification originated, this exercise leads me to suspect that while the state had greater authority, the market had greater penetration. The most powerful schemes to describe and transform environments came from their combination: when officials set the terms under which the market could operate, and capital-owners sought profits both within these terms and beyond their bounds. I suspect that any attempt to separate the effect of “the state” from that of “the market” will be in vain. In southern China, the state's preferred form of forest documentation—cadasters—appeared almost simultaneously with landowners' preferred documents—deeds—but the two emerged from very different precedents.³³ In some ways, this was the product of unique path-dependencies, but it was also a response to pressures and incentives seen throughout the early modern

³² See e.g. Tom Wessels, *Reading the Forested Landscape: A Natural History of New England*, 1st ed. (Woodstock, Vt.: New York, N.Y: Countryman Press, 2005); Oliver Rackham, *The History of the Countryside: The Classic History of Britain's Landscape, Flora and Fauna* (London: Phoenix, 2001). For an example of a mixed-method study, see Harrell et al., “Sunny Slopes are Good for Grain, Shady Slopes are Good for Trees,” in Miller et al. eds. *The Cultivated Forest*. For an English-language summary of Miyawaki's work, see Akira Miyawaki, “A Vegetation-Ecological View of the Japanese Archipelago,” *Bulletin of the Institute of Environmental Science and Technology, Yokohama National University* 11 (1984): 85-101. His prodigious work on Japanese vegetation appears in the ten-volume Miyawaki Akira, ed., *Nihon shokusei shi* (Tokyo: Shibundo, 1980-89). Miyawaki also developed the concept of the “Miyawaki forest” - small, dense planting of native trees that quickly grow into groves that mimic the ecology of old-growth forest remnants.

³³ Du Zhengzhen suggests that there was precedent for both forest cadasters and forest deeds in the first millennium CE. In the first case, these appear to have primarily documented production forests; in the latter, they almost exclusively documented *grave* forests. See Du Zhengzhen, “Ming Qing yiqian dongnan shanlin de dingjie yu quequan,” *Zhejiang shehui kexue* 2020, no. 6 (June 2020).

world. To better understand the interplay between power over land and information about landscapes will require not just study of individual examples, but thoughtful comparison across world regions.

My original title for this book was *Frameworks of Empire*, and this remains how I understand the project. On one hand, I hope it reveals something about the structure of imperial political ecology, and indeed, the materials on which the edifice of state was literally constructed. On the other hand, this was always intended as a foundation for subsequent work, and I am grateful to these three esteemed scholars for laying another layer of interpretation on this framework.

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