

Imperial agendas and India's forests: The early history of Indian forestry, 1800–1878*

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The influences and interests that shaped colonial forest policy have become the subject of increasing historical interest. In terms of colonial intrusion in land management, the Indian Forest Department came to own a fifth of the land area of the subcontinent, making it one of the largest forestry enterprises in the world. Foresters were often the new face of an alien power, whose control over the countryside extended far beyond the cultivated lands into the hills and jungles. Thus, the story of the origins of forestry can help understand the changing attitudes of the British towards the woods and the people who used them. We need to consider too the extent to which the colonial era was a major ecological watershed. Further, the influence of particular interests or specific ideological preferences on policy choices requires rigorous analysis.

The central premise of imperial forester historians was that the imperial phase was a watershed. Ribbentrop argued that scientific forestry under imperial aegis marked the end of a 'war on the forests'.¹ Stebbing contended that rapacious private interests had been brought under scientific supervision and control.² For the imperial forester historians, a peace with nature was a logical corollary to a peace among the subjects of the empire. Pax Sylvana was coterminous with Pax Britannica.

It is only recently that such notions have begun to be revised and qualified. Guha has argued that the practices of colonial forestry were largely an outgrowth of the revenue and strategic needs of the empire.³

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¹ B. Ribbentrop, *Forestry in British India*, Calcutta, 1900, pp. 37, 61.

² E.P. Stebbing, *The Forests of India*, London, 1921, Vol. I, p. 532.

³ Ramachandra Guha, 'Forestry in British and post-British India, an Historical Analysis', *Economic and Political Weekly* (hereafter *EPW*), xvii, 1983, pp. 1882–96.

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Customary restraints on the use of trees had earlier ensured renewal, but colonial land control and commercialisation led to deforestation.⁴ Gadgil sees the period up to A.D. 1800 as a time of 'equilibrium' between people and nature.⁵ Guha argues that the genesis of colonial forestry lay in a drive to obtain timber for shipping in Malabar in 1806. But it was the need to ensure a steady supply of timber for railway construction which led to the creation of the Forest Department in 1864.⁶ Guha's work places the subject of forest history closer to the wider concerns of South Asian history. He sets up a contrast between community control of forests and an ecological equilibrium in the pre-colonial period and the disruption of rural society and the ecological balance by the British. Yet, the contrast between the harmony in the pre-colonial period and the disruption in the colonial period is drawn too sharply to be convincing.

Grove questions Guha on the character and chronology of colonial conservation. Grove contends that the ideological commitment of a section of colonial officials to conservation was much more significant than narrow materialist concerns. Conservation was more than a justification for the strategic and commercial interest of the empire in obtaining timber. Forest conservancy measures for the supply of ship timber collapsed, and were only revived in 1837 due to lobbying by Scottish surgeons of the East India Company. They played on the fears of disorder arising from drought induced by deforestation. A wider concern with agrarian prosperity and social stability rather than a justification of specific colonial interests was primarily responsible for conservation. Grove pushes the story back beyond the formal history of forestry in India. He sees a break not with the colonial period, but in the turn from broader social concerns of early nineteenth century officials like Cleghorn to the production-centred agendas of the later imperial officials.⁷ The strength of Grove's analysis is in his recognition of the significance of ideological issues and the debates among colonial administrators. Yet, he does not examine how such ideas actually influenced changes on the ground. Even if policies were not a pale reflection of economic interests, the political and economic context of early conservation requires more careful consideration.

Many of the differences between Guha and Grove are due to the difference in the chronological focus of their research. Grove is concerned with the early colonial period, and Guha focuses on the late nineteenth

⁴ Ramachandra Guha, *The Unquiet Woods, Ecological Change and Peasant Resistance in the Western Himalaya*, Delhi, 1989, p. 29.

⁵ M. Gadgil, 'Towards an Ecological History of India', *EPW*, xx, 1985, pp. 1909-13; also see R. Guha and M. Gadgil, *This Fissured Land: An Ecological History of India*, Delhi, 1992.

⁶ R. Guha and M. Gadgil, 'State Forestry and Social Conflict in British India', *Past and Present*, cxxiii, 1989, pp. 141-77, esp. p. 145.

⁷ R. Grove, 'Conservation and Colonialism—a study of the Evolution of Environmental Attitudes and Conservation Policies on St. Helena, Mauritius and in India, 1660-1860', Ph.D. thesis, Cambridge University, 1988, pp. 267-303.

century. It is therefore essential to examine British attitudes to forests at an all-India level across the divide of the mid-nineteenth century. It is obvious that the significance of forests for the British changed over time. In order to understand the evolution of British attitudes, it is essential to examine briefly the ways in which pre-colonial regimes impinged on uncultivated lands.

There is a considerable body of evidence to suggest the absence of an ecological equilibrium in pre-British India. There were indeed some customary restraints on the use of trees, as in the sacred groves protected by villagers. Many of these areas survived into the late nineteenth century, and were described by British officials.⁸ Such groves were still in existence in areas as diverse as Wynad in the southern parts of the peninsula and Gorakhpur in the north.⁹ However, it would be misleading to ignore the extent of fluidity of the border between the forests and cultivation. Peasants had carved the cultivated arable of the plains, valleys and hills out of the woodlands. In turn, the jungles had retreated and recovered in the face of hoe and plough. Every period in Indian history had its own 'forest line', besides its political and military boundaries.¹⁰ States such as the Delhi sultanate under Muhammad bin Tughluq (1325–1351) tried to encourage agrarian extension by remitting revenues and providing credit to those peasants who cleared fresh land for agriculture. Conversely, excessive taxation could contribute to the contraction of cultivation. This was especially so in medieval India, where labour was a scarce resource and peasants could simply move away rather than pay high taxes.¹¹

Not only was the 'forest line' a shifting boundary, it also demarcated the areas where rebels, robbers and peasants fleeing taxation could find a refuge. The clearance of the woods, therefore, brought more revenues and also enabled increased political control by governments. For instance, in the fourteenth century, the middle Doab was still covered with thick jungles where peasants could avoid tax collectors. By the end of the sixteenth century cultivators had developed these lands for agriculture.¹² However, the low population density in many parts of the Mughal empire meant that peasants could still convert forested land into arable.¹³ Even

⁸ D. Brandis, *Indian Forestry*, Woking, 1897, p. 12.

⁹ Public Works Dept., Rev.-Forests, June 1871, Nos. 72–73, p. 3, 'Protection of Fine trees in Sacred and Temple Groves', Memo. by Acting Inspector General of Forests, G.F. Pearson, 6 August 1869, National Archives of India, New Delhi. Hereafter, all archival sources, as distinct from published works, quoted in this paper are from the National Archives of India, unless specified otherwise.

¹⁰ I. Habib, *The Agrarian System of Mughal India, 1556–1707*, London, 1963, p. 1; I. Habib and T. Raychaudhuri, eds., *The Cambridge Economic History of India, Volume I, c. 1200–c. 1750*, Delhi, 1982, pp. 2–4.

¹¹ Habib and Raychaudhuri, *Cambridge Economic History of India, I*, pp. 64–65.

¹² *Ibid.*, p. 48.

¹³ Habib, *Agrarian System*, p. 117.

densely populated and intensively cultivated areas had patches of land covered with trees and undergrowth. For instance, the Mughal emperor Jahangir (1605–28) was aware that the villagers near Agra evaded taxes by hiding in dense thickets in the ravines near the river Yamuna.¹⁴ There was a close connection between deforestation and military campaigns. In addition to long-term measures for the extension of agriculture, forests became a target of attack in order to extend the military and political power of conquerors. Wood-cutters and ploughmen accompanied the Mughal army from the time of Shahjahan (1628–56), and the lands cleared by them were annexed to new zamindaris.¹⁵ Fayerer described how armies in the Maratha areas used fire in order to leave their opponents 'destitute of recesses'.¹⁶ During his Coorg campaign Tipu Sultan (d. 1799) had his amirs and khans cut away and burn the trees and bushes for three miles along the roadside.¹⁷ Other Indian rulers such as the Sikhs also denuded the countryside during conquest and counter-insurgency operations.¹⁸ Battles in the woodlands often became battles against the forests.

The relationship of Indian states with forest areas was not entirely a negative one. However, it appears that state control was limited to the extraction of certain plant or animal species or to the maintenance of hunting reserves. The Mughal *badshah* or emperor exercised prior rights to hunt in the reserves. Bernier wrote of reserves near Agra and Delhi where local inhabitants were only allowed to net quails, hares and rabbits. No one was allowed to 'disturb the game', which was therefore abundant.¹⁹ There was thus a hierarchy of user-rights rather than an absolute notion of property. In Mughal times logs of wood were floated down several rivers for use in ship building and construction.²⁰ Aurangzeb issued a farman or imperial order sanctioning the cutting of *sal* trees in the hills of the Punjab, but this does not appear to be part of a broader policy to control timber

¹⁴ I. Habib, *Peasant and Artisan Resistance in Mughal India*, Quebec, 1984, pp. 11–12.

¹⁵ M. Alam, 'Eastern India in the Early Eighteenth Century "Crisis": Some Evidence from Bihar', *Indian Economic and Social History Review* (hereafter *IESHR*), xxviii, 1991, pp. 43–72, esp. p. 66.

¹⁶ J. Fayerer, *A New Account of Travels in the East India and Persia being Nine Years Travels (1672–1681)*, ed., W. Crooke, London, 1921, Vol. I, p. 310, quoted in Habib, *Peasant and Artisan*, p. 26.

¹⁷ M.H.A.K. Kirmani, *The History of the Reign of Tipu Sultan being a Continuation of the Neshari Hydari*, trans., Col. W. Miles, London, 1884, p. 79.

¹⁸ C.A. Bayly, *Indian Society and the Making of the British Empire—The New Cambridge History of India*, Cambridge, 1988, II, i., pp. 138–39.

¹⁹ F. Bernier, *Travels in the Mughal Empire, 1656–68*, ed., A. Constable, London, 1891, p. 375, quoted in S. Ali, 'The Mughal Emperors of India as Sportsmen and Naturalists', *Journal of the Bombay Natural History Society*, xxxi, 1927, p. 839. The article is in three parts: xxxi, pp. 838–61; xxxii, pp. 34–63; xxxii, pp. 264–73.

²⁰ Habib, *Atlas of the Mughal Empire*, Delhi, 1983, Notes to Sheets 7B (Gujarat, Economic), p. 25; Sheet 16B (South India, Economic), p. 66; Sheet 15B (East Deccan, Economic), p. 62.

forests.²¹ Moreland found 'no hint' of Mughal efforts to conserve or exploit forests on a systematic basis. He argued that restrictions were largely limited to the exaction of dues by local or imperial authorities.²² Certain forest products were important for trade, and rulers tried to stake a claim to the wealth by asserting their rights. The successor states followed similar policies of claiming property rights over certain varieties of trees. For instance, Tipu asserted rights to sandalwood, a valuable tree.²³

Some of the successor states of the Mughals had more intrusive policies for controlling forest utilisation. These included measures by rulers and by landed groups either to provide hunting grounds or for the strategic defence of forts. The Talpur *mirs* of Sindh even took up a programme for the afforestation of extensive areas near the river Indus. These were to serve as *shikargahs* or hunting reserves. This process began in 1783 in some areas, and many of the reserves were still extant at the time of the British conquest of Sindh in 1843. The reserves near Karachi even had walls around them to keep out intruders.²⁴ In 1839, when there was a British Resident in Sindh, British military officers had to seek permission from the *mirs* in order to cut wood in the *shikargahs*.²⁵ They were given permission but were warned of 'dire misfortune' if they endangered the reserve by kindling fires.²⁶ The *mirs* had thus not only afforested large tracts of land, but also controlled the use of these areas. Landed groups also undertook the control and protection of existing forests for strategic reasons. The zamindars of Awadh protected thickets of bushes and trees around their forts so as to have a 'secure asylum' from the *chakledars* or revenue collectors.²⁷ William Sleeman described the jungles as being thick enough to be impenetrable for cannon shot. Soldiers could only enter through narrow paths, and were vulnerable to attack by defenders. The zamindars of Awadh even tried to maintain and increase the vegetation around forts and on river fronts by curbing grazing, tree-felling and cultivation by

²¹ The farman is reproduced in the Sirmur State Gazetteer, Part A, Lahore, 1939, p. 15.

²² W.H. Moreland, *India at the Death of Akbar—An Economic Study*, London, 1920, p. 144.

²³ F. Buchanan, *A Journey through the Countries of Mysore, Canara and Malabar*, London, 1884, Vol. I, p. 51; Vol. II, p. 135.

²⁴ A.W. Hughes, *A Gazetteer of the Province of Sind*, London, 1876, p. 335. Other reserves are also described on pp. 12, 31, 301, 335, 473, 476, 604, 655, 695, 806. *Shikargah* is derived from a Persian word which means a hunting lodge. There was a subtle change in the meaning of the term in the colonial period. British officials used it to describe the hunting grounds of Indian rulers. It is used here in the latter sense.

²⁵ Foreign Dept., Secret, 17 July 1839, No. 19, p. 6, 'Brigadier and People in Sind', Brig. Valiant, Commanding Officer, British troops in Lower Sind to H. Pottinger, Resident in Sind, 17 July 1839.

²⁶ Foreign Dept., Pol., 4 May 1840, Nos. 60–62, 'Fire in the Shikargah', Lt. Col. Cunningham, Hyderabad to the Gov. Gen., 12 March 1840.

²⁷ D. Butter, *Topography and Statistics of the Southern Districts of Awadh*, 1839, Reprint, Delhi, 1982, pp. 4–5.

peasants.²⁸ Many forts of the talukdars were dismantled only after the British conquest of Awadh in 1856, and as many as 147 of the forts had extensive forests around them.²⁹ The landed groups, both the zamindars and the talukdars, exercised a degree of control over the use of strategic jungles by peasants.

The pre-British era was not an idyllic one, and there were many ways in which the policies of states led to changes in the forested tracts. Pre-British regimes had often encouraged the clearance of woodlands to augment revenues and secure military control. Sindh and Awadh were perhaps exceptional for the degree to which the local inhabitants were excluded from areas of special interest to the rulers and landed groups. In general, states asserted their prior rights to certain commercially valuable products. The political fragmentation of the Mughal empire should not detract from significant initiatives by some later regimes. But, in general they were concerned with pushing back the jungle, not with controlling access or extraction of forest produce. It is against such a background of limited but significant state intrusion that the British entered the picture.

The changes brought about by the British have to be viewed in the context of social changes within Britain. The new rulers came to India with a specific history which conditioned, but did not determine, their attitude to the extensive forests of the subcontinent. Their own military history and the Agricultural Revolution often disposed them to a negative view of woodlands. Troops in seventeenth century Ireland had speedily levelled forests to deny cover to Irish rebels who were known as woodkernes.³⁰ In the context of the Agricultural Revolution in England, the cutting of trees and the cultivation of wastes were taken to be signs of progress. Forests had long been seen as the abode of robbers and other disorderly people. Through the seventeenth and eighteenth centuries, forest dwellers in England were locked in struggles with crown officials and larger landlords over control of the woodlands.³¹ The wider agenda of agrarian improvement played a crucial role in the breaking up of common tenurial systems in Ireland and the Scottish highlands.³² Wastelands were now either to be

²⁸ P.D. Reeves, ed., *Sleeman in Oudh—an Abridgement of W.H. Sleeman's Journey through the Kingdom of Oude in 1849–1850*, Cambridge, 1971, pp. 293–94.

²⁹ R. Mukherjee, *Awadh in Revolt, 1857–58: A Study in Popular Resistance*, New Delhi, 1984, pp. 175–83. The daimyo in sixteenth and seventeenth century Japan similarly maintained bamboo groves as 'defensive barriers' against invaders: See C. Totman, *Green Archipelago-Forestry in Preindustrial Japan*, Berkeley, 1989, p. 56.

³⁰ E. McCracken, *The Irish Woods since Tudor Times—Distribution and Exploitation*, Belfast, 1971, p. 28.

³¹ K.V. Thomas, *Man and the Natural World, Changing Attitudes in England, 1500–1800*, London, 1983, pp. 194–95; E.P. Thompson, *Whigs and Hunters, The Origins of the Black Act*, London, 1975, p. 121.

³² C.A. Bayly, *Imperial Meridian, The British Empire and the World, 1780–1830*, Cambridge, 1989, pp. 123–24.

cleared or brought under closer control by the crown and the landowners. From around 1750 English landowners planted trees on privately owned and enclosed lands. Trees were to be grown and cut on a regular basis like crops. The woods became a managed and controlled landscape rather than an untamed forest.³³

In India the early British rulers hoped to consolidate their control by extending cultivation. The denudation of the countryside helped them gain a military advantage against their foes. Arthur Wellesley took up strategic denudation in earnest in Malabar in 1800–1802.³⁴ The new rulers inherited certain Indian ideas of the inherent conflict between farm and forest, but they gave such notions a new significance. The British believed that jungles were lands that had lapsed into a state of nature because of inadequate care by humans to clear wild vegetation.³⁵ For instance, Nathaniel Halhead defined the jungle as, 'land laid waste for five years'.³⁶ The jungle was thus seen as the result of the abandonment of cultivation, and was also a place of wild, rank vegetation. The actual record of the new rulers may have been a mixed one, but their ideological animosity towards uncultivated lands was very deep. British fiscal pressures often had the unintended consequence of reducing the area under cultivation. In Birbhum, for instance, the proportion of arable land under cultivation declined from 70 per cent in 1771 to 50 per cent in 1776, largely due to increased revenue demands.³⁷ The extension of the cultivated acreage was an index by which the British evaluated the success or failure of their policies. Forests were a landscape to be conquered and tamed.

New fiscal pressures were only one way in which the British changed the economic relationship between the hills and plains. Earlier, the periodic tribal raids on the plains had partially redressed the flow of wealth out of the highlands through unequal relations of trade. The relatively limited control of hill areas by states had also constrained the diffusion of colonists and traders into these lands. British power provided an umbrella for mercantile interests and colonist cultivators to accelerate their advance. For instance, British military campaigns in the Rajmahal hills in 1772–78 put an end to plunder by the Paharia tribals.³⁸ It also led to increased

³³ Thomas, *Man and the Natural World*, p. 196; N.D.G. James, *A History of English Forestry*, Oxford, 1981, pp. 166–68.

³⁴ Bayly, *Indian Society*, p. 140.

³⁵ F. Zimmerman, *The Jungle and the Aroma of Meats, Ecological Themes in Hindu Medicine*, London, 1989, pp. 14, 44.

³⁶ N. Halhead, *A Code of Gentoos Laws*, Calcutta, 1776, p. 190, quoted in H. Yule and A.C. Burnell, eds., *Hobson-Jobson being a Glossary of Anglo-Indian Colloquial Words and Phrases*, London, 1886, p. 359.

³⁷ R.K. Gupta, *The Economic Life of a Bengal District, Birbhum, 1770–1857*, Burdwan, 1984, pp. 31 and 317.

³⁸ A. Pratap, 'Paharia Ethnohistory and the Archaeology of the Rajmahal Hills: Archaeological Implications of an Historical Study of Shifting Cultivation', Ph.D. thesis, Cambridge University, 1987.

immigration of the Santhals who brought the rulers higher land revenues.³⁹ The pace of change and the precise way in which it came about may have varied enormously, but the general pattern was clear. Not only would the 'forest line' now often be in retreat, but the new political context led to a tilt against groups on the fringes of settled agriculture. Each of these changes—strategic denudation, the bias against jungle and the tilt against hill areas—was a change in emphasis. They did not mark a complete break with the past, but gave certain older trends a fresh impetus.

However, the major innovation flowed from the strategic and commercial imperatives of a transcontinental empire. South Asia acquired a new significance in the context of Anglo-French rivalry and the need to tap new sources of wood for shipping. Naval rivalry accentuated the problem of the shortage of timber within Britain. By 1760 the demand for the Royal Navy had resulted in a scarcity of oak along the Welsh coastline and in parts of England.⁴⁰ By 1809 the combined tonnage of the British fleet was over 4 million tonnes, but the continued expansion of the navy and of the fleet of merchant ships became difficult.⁴¹ There were very few large oak trees left in English royal forests, and planting had been persistently neglected.⁴² At the same time the notion that the retreat of the woods was a sign of progress was still widespread. The decline of oak was seen as a sign of 'improvement', as agricultural crops were more remunerative to landowners than plantations of slow-growing oak trees.⁴³ Large landowners in parts of Scotland did take to tree planting, but this was mainly in reaction to internal market demand, and did not help supply wood for ship building.⁴⁴ Yet, the global search for timber was not merely an outcome of an absolute shortage of the raw material. It was also a response to the strategic isolation of Britain during the revolutionary and Napoleonic wars between 1793 and 1815. The Baltic supply lines for ship timber were cut off due to the neutrality of the Baltic countries during the blockade. The British then reached out to distant sites including the Cape, New Zealand and Australia.⁴⁵

The record of ship building by Indian and European rivals of the East India Company gave cause for the hope that Indian teak would supply wood for British shipping. The problems of obtaining adequate timber for ships led to the first steps for the control of the use of forests. Ships had

³⁹ Gupta, *Birbhum*, p. 19.

⁴⁰ W. Linnard, *Welsh Woods and Forests: History and Utilization*, Cardiff, 1982, pp. 82–85.

⁴¹ W. Taylor, 'Observations on the Expediency of Ship Building at Bombay', *Quarterly Review*, viii, 1812, pp. 42–52, esp. p. 47.

⁴² G.E. Mingay, ed., *The Agrarian History of England and Wales, Volume VI, 1750–1850*, Cambridge, 1989, p. 69.

⁴³ R.G. Albion, *Forests and Sea Power, The Timber Problem of the Royal Navy, 1652–1852*, Cambridge, 1926, p. 119.

⁴⁴ M.L. Anderson and C.J. Taylor, *A History of Scottish Forestry, Volume II, From the Industrial Revolution to Modern Times*, Edinburgh, 1967, pp. 154, 308–9.

⁴⁵ Albion, *Forests and Sea Power*, pp. 361–63.

been built in dockyards such as the one at Calcutta from 1780 onwards, and teak was a commodity for export.⁴⁶ There were excellent teak forests in areas such as the Northern Circars near the port of Rajamundhry on the east coast.⁴⁷

But it was the west coast that principally attracted the attention of many strategists. In 1802 the Earl of Vincent called for the regular construction of ships of Indian teak in Bombay.⁴⁸ By 1800 ships built in India had already been deployed in places as distant as Java and the Red Sea. From 1804 onward the new chief of the Royal Navy worked to upgrade ship-building facilities in the subcontinent. Arthur Wellesley and other officials of the East India Company assisted such efforts. By 1805 Parsi shipwrights had built the Salsette, the first of a new line of Indian-built vessels. The construction of ships in Bombay became a regular feature.⁴⁹ However, the decision to exercise control over some teak forests opened a veritable Pandora's box. How best to manage and control tree wealth was now the question at issue. Some officials argued that there was no threat of a decline. Even those who agreed that there was such a threat could differ widely on the best remedies against it. Given the complex history of the attitudes of Indian rulers to forest utilisation, some of their actions were cited as precedents for the new rulers. Though there were important continuities, especially due to the stakes of Indian rulers and traders in the teak trade, there was a change in context brought on by the Company Raj.

In both southern India and in Tenasserim, the hesitant measures to control commerce soon gave way to more strident calls for strict state control. Some local officials saw the control of the trade in timber as the first step towards more comprehensive powers to control private use of the forests. Such positions were articulated in the case of Malabar, which had been conquered in 1792 and Tenasserim, annexed in 1826 after the first Anglo-Burmese war. In August 1800 the Company promised not to infringe on private property in Malabar. Landowners were free to dispose of trees that grew on their own land. A Conservator of Forests was appointed in Malabar in 1806. But the local officials pressed ahead, and in 1807 they claimed that they had a monopoly on all wood on private and public land in both Malabar and Travancore. Peasants were not even to be allowed to cut trees for fuel.⁵⁰ The surgeon and botanist Dr. Wallich took a similar view of the situation in the Attaran and Salween forests in Burma. He inspected

⁴⁶ S.B. Singh, *European Agency Houses in Bengal (1783-1833)*, Calcutta, 1966, pp. 171-72, 18-19.

⁴⁷ *Parliamentary Papers, 1812* (hereafter *PP* with relevant year), vii, 13, p. 623, J. Grant to W. Hastings, Gov. Gen., 20 December 1784.

⁴⁸ *PP 1813-14*, viii, 115, p. 525, Earl of St. Vincent to the Chairman and Deputy Chairman, East India Company, 31 March 1802.

⁴⁹ Albion, *Forests and Sea Power*, pp. 367-68.

⁵⁰ Anon., *Summary of Papers Relating to Madras and Bombay Forests, Selections from the Records of the Bengal Government, Volume IX*, Calcutta, 1852, pp. 178-79 (hereafter, *Madras Forests*).

the area following the British conquest of Tenasserim in 1826. Wallich predicted that private enterprise would 'render fruitless' all attempts to obtain timber for public works and would destroy a valuable source of revenue.⁵¹ The term 'annexationist' has been used to describe the views of officials who advocated total state control of woodlands during the debate on the Forest Acts between 1865 and 1878.⁵² But the term is equally valid for the views of some early colonial officials. Their conclusion was that complete control of forests by the government was both desirable and necessary.

However, there was no question of a unanimity of opinion among officials. A view diametrically opposed to that of the annexationists was taken by Thomas Munro. He argued that the residents of Malabar planted and protected trees on a regular basis. A free market in wood was all that was required in order to help preserve and replenish tree cover. Munro favoured a minimal role for the government, and had a deep faith in the ability of peasants and other landowners to act in their own long-term interests.⁵³ As a consequence of such beliefs, the post of Conservator was abolished in Malabar in 1823. Munro believed that the whole country was 'hostile' to a system of control in which people had no stakes or gains. He even compared the proposed regulations to the inequities of the Norman Forest Laws in English history.⁵⁴ Traders did stand to gain from the abolition of the post, as there was to be unfettered access to the woodlands.⁵⁵ But it was also a question of how far regulation of the trade in wood could serve a useful purpose.

Other officials favoured limited state intervention in preference to monopoly control or a free market. In the Attaran forests of Tenasserim, which were surveyed by the botanist Wallich, the government's monopoly on the use of the woodlands lasted for only two years. In 1829 private extraction and trade were resumed under supervision.⁵⁶ In 1830, the Raja of Nilambur in Malabar argued that government regulation was essential to prevent the total destruction of all valuable trees. Yet, he did not favour a monopoly on the trade in wood.⁵⁷ The income derived from timber exports to Kutch and the Persian Gulf not only brought the rulers of Travancore over

⁵¹ N. Wallich to Sir A. Campbell, 23 March 1827, quoted by H. Falconer, 23 January 1851 in Report on the Teak Forests of the Tenasserim Provinces, with the other Papers on the Teak Forests of India, Selections from the Records of the Bengal Government, Volume IX, Calcutta, 1852, p. 6, (hereafter Tenasserim).

⁵² R. Guha, 'An Early Environment Debate: The Making of the Indian Forest Act of 1878', *IESHR*, xxvii, 1990, pp. 65–84.

⁵³ Munro to the Board of Revenue, September 1823, *Madras Forests*, p. 205.

⁵⁴ Rev., Agri. and Comm., F, May 1879, A, Nos. 32–52, pp. 205–26, 'Rights of Government in the Forests of South Canara', Munro quoted in a minute by H.W. Robinson on 3 November 1876.

⁵⁵ E.P. Stebbing, *The Forests of British India*, London, 1921, Vol. I, p. 65.

⁵⁶ Tenasserim, p. 6.

⁵⁷ Tenasserim, pp. 80–82.

£94,000 between 1814 and 1821, but also paid for subsidies to the Company.⁵⁸ Some provincial officials and rulers, such as those in Travancore and Nilambur, concurred on the need to regulate the felling of trees. In April 1830 the government of Bombay and the Navy Board agreed on the need to appoint a Conservator to protect teak.⁵⁹ In June 1839 Admiral Malcolm reported to the Bombay government that he favoured the revival of the office of Conservator.⁶⁰ The attrition of timber reserves in the long term was a major reason for protective measures. The Governor of Bombay, Farish, warned that the negative results of the 'retrograde' steps of 1821 had taken two decades to become obvious. Timber would be scarce in the future, unless some restraints were imposed to prevent reckless exploitation.⁶¹ The Collector of Malabar pointed out that no trees had been planted by Conservators in the past. The issue was not only one as to who controlled trade or extraction. It was also one of renewal of the resource, how successful it could be under a new regime of controls. There were still sceptics like Threshie who ruled out any chance of a decline of timber in Malabar. The forests of Palghat and Wynad had not 'felt the axe' for over 30 years.⁶²

The debate on conservation was given a fresh impetus by the surgeons in the service of the East India Company. The surgeons, especially Alexander Gibson and Hugh Cleghorn, widened the issue beyond one of protection of timber. From 1837 onwards they drew attention to the connection between deforestation and drought. Protection of forests was now seen to be essential for maintaining water supplies and safeguarding agricultural prosperity.⁶³ They claimed that the destruction of forests in the catchment areas was leading to the siltation of rivers and of southern ports.⁶⁴ The surgeons pitted the stability of the Company state against the short-term interests of those who cleared woodlands. In particular, *kumri* or shifting cultivation in the Western Ghats was indicted for deforestation. *Kumri* cultivators were obviously a 'softer target' compared to timber traders. Though both were blamed for denuding the land of tree cover, the shifting cultivators felt the brunt of government regulations.⁶⁵

⁵⁸ J. Edye, 'A Description of the Ports of the Coast of Malabar and the Produce of Adjacent Forests', *Journal of the Royal Asiatic Society*, ii, 1835, pp. 324-77, esp. p. 331.

⁵⁹ Clementson, Collector, Malabar, 24 May 1838 and Captain C. Taylor, 24 July 1837, Madras Forests, pp. 182-83.

⁶⁰ Malcolm to Government of Bombay, June 1839, Madras Forests, pp. 188-89.

⁶¹ Governor Farish, 4 April 1839, Madras Forests, p. 199.

⁶² Threshie to Government of Bombay, 1838, Madras Forests, p. 192.

⁶³ R.H. Grove, 'Conservation and Colonialism—A Study of the Evolution of Environmental Attitudes and Conservation Policies on St. Helena, Mauritius and in India, 1660-1860', Ph.D. thesis, Cambridge University, 1988, pp. 297-99.

⁶⁴ Stebbing, *Forests of British India*, Vol. I, pp. 120, 213, 215.

⁶⁵ R.H. Grove, 'Colonial Conservation, Ecological Hegemony and Popular Resistance: Towards a Global Synthesis' in J.M. Mackenzie, ed., *Imperialism and the Natural World*, Manchester, 1990, pp. 15-47, esp. p. 23.

However, the condemnation of indigenous forest users has to be placed in the wider context of British interaction with groups on the fringes of the cultivated arable lands. Policies vis-à-vis hill peoples reflected concerns broader than anxiety about desiccation. The general distrust of such groups led to British efforts to bind them down to plough cultivation or to wage labour.⁶⁶ The scientific criticisms of hill agriculture gave a sharper edge to existing British prejudices against nomadic groups. Anxiety about desiccation did play a role in the ban on *kumri* in Coorg in 1848 and its restriction in Belgaum in 1856.⁶⁷ But the measures against *kumri* reflected wider concerns about revenue and labour supply. Thomas Cannan, a planter in Kanara frankly hoped that the 'savages' who practised *kumri* would be 'more profitably employed' on public works and plantations.⁶⁸ In May 1847 the Superintendent of the Shimoga Division warned that *kumri* exhausted the soil and prevented coffee from growing on it.⁶⁹ Leading proponents of the notion of desiccation, such as Hugh Cleghorn and Forbes Royle, shared such views. Their report in 1852 criticised the *kumri* cultivators for 'vagabond habits', low agricultural productivity and the destruction of timber. The issues of climatic change, in particular of the disruption of rainfall and of ground-water supplies, were indeed taken up. But the broader agenda was one of the control of the patterns of settlement and production.⁷⁰ The survey and assessment of wastes brought hill areas under an unprecedented degree of state control.⁷¹ Blaming swidden cultivators for desiccation fitted in well with the extension of colonial regulation of woodlands and wastes.

However, the scientists and surgeons formed only a small section of the colonial elite. Vast areas of South Asia were open to British commercial expansion or were being brought under British rule. The negative consequences of the degradation of forests in such areas had to be felt before any preventive action was taken. Due to the rise in demand, commercial logging increased even in areas that were not under British rule. For instance, in 1841 Lieutenant Ball of the Indian Navy cut trees in the forests of the inner Himalayas, and floated logs down the Sutlej and Beas. In the absence of roads, the rivers had to be the means of transport for timber. Ball hoped to demonstrate that the 'inexhaustible forests' of the interior

⁶⁶ Bayly, *Indian Society*, p. 141.

⁶⁷ Stebbing, *Forests of British India*, Vol. I, p. 121.

⁶⁸ H.F. Cleghorn, *The Forests and Gardens of South India*, London, 1861, p. 129.

⁶⁹ Supt., Shimoga to Secy. to Chief Commissioner, Mysore, 5 May 1847 quoted in H.F. Cleghorn, et al., 'Report of a Committee to Consider the Possible Effects in an Economical and Physical Point of View in the Destruction of Tropical Forests', *Transactions of the British Academy for the Advancement of Science*, viii, 1852, pp. 78–102, esp. pp. 84–85.

⁷⁰ *Ibid.*, pp. 84–86.

⁷¹ C.A. Bayly, 'Creating a Colonial Peasantry: India and Java, c. 1820–1880', *Itinerario*, xi, 1987, pp. 93–106, esp. p. 96.

could replenish supplies in the plains and on the western coast.⁷² Elsewhere, the economic changes in the wake of British territorial expansion led to increased deforestation. This was the case in the North West Provinces and the plains of the Punjab, where the need for fuel and timber in British cantonments led to a reduction of tree cover. Trees had been felled by the previous rulers as well, but this made the woodlands all the more vulnerable to new pressures for fodder and fuel for the British armies.⁷³

The shift towards policies aimed at renewal entailed changes in the way in which the new rulers controlled the forests. The change in emphasis was most marked in Sindh. Wood from the old *shikargahs* was used to construct barracks for British troops in the aftermath of the conquest in 1843.⁷⁴ The management plans for the *shikargahs* drawn up by officials reflected the new priorities. New sources of demand included fuel for steamers in the Indus flotilla. The bark of the acacia or *babul* was required by tanneries. The reserves were not to be maintained for hunting, but became a source of timber. The wood was mainly used for public works and mature trees were speedily felled. Only the best of the younger trees were to be spared, and all the rest cleared away. The specimens with the 'straightest' trunks were retained so as to provide a steady supply of wood suitable for construction. The *bahoo* trees in the forests near Sukkur were not to be protected unless valuable varieties such as *babul* and *siris* could grow in the area.⁷⁵ Similar changes were taking place in Madras and Awadh. The acquisition of lands on lease was followed by curbs on the use of these forests with a view to promoting the growth of timber. This raw material, in turn, was reserved for state use, especially for construction or for military purposes. The Madras government acquired the Annamalai forests in 1847, and sought to protect teak from fires.⁷⁶ Teak from the area was used in the dockyards and in the Nilgiri barrack works.⁷⁷ In Awadh officials reported a growing scarcity of mature *sal* trees. In 1852 the Resident at

⁷² Foreign Dept., Secret, 6 December 1841, No. 62, pp. 4–5, 'Report on the Pine Forests of the Himalayan Mountains and the Possibility of Floating Them Down from the Hills to Bombay and Places on the Sutlej and the Indus', Lt. A.W. Ball, Indian Navy to the Agent to the Gov. Gen., North West Frontier, 3 November 1841.

⁷³ Lt. W.H. Parish, 'On the Influence of Trees on Climate', *Journal of the Asiatic Society of Bengal*, xvii, 1849, pp. 791–98, esp. pp. 796 and 798.

⁷⁴ Foreign Dept., Secret, 23 March 1844, No. 194, 'Detailed Estimate of the Cost of Constructing a Barrack for Half a Company of European Infantry', Commanding Officer, Karachi, 27 December 1844; A. Gibson, *Handbook to the Forests of Bombay*, Bombay, 1857, p. 139.

⁷⁵ Foreign Dept., Secret, 13 July 1844, Nos. 24–26, pp. 1–2, 'Memorandum on the Shikargahs and Forests of Sindh', Captain W.E. Baker, 13 July 1844.

⁷⁶ Brandis, *Indian Forestry*, p. 26.

⁷⁷ Forest Dept. Files, 1890, No. 1169, 'Information Asked for by the Government of India in View to the Compilation of a Short History of the Indian Forest Service', Major Michael to Under Secy. of State for India, 14 June 1890, Central Records Room, Madhya Pradesh State Archives, Nagpur (hereafter CRR, MPSA).

Lucknow, Lt. Colonel William Sleeman, ordered that the best forests be acquired on lease and the trees reserved for ordnance factories.⁷⁸ In 1857 *sal* and *sissoo* were reserved for exclusive use by the government, and all felling of immature trees was banned. The objective was to facilitate the circulation of wood in the 'most economical' manner possible.⁷⁹ As timber became a valued resource, officials in various provinces began to regulate access to forests. Though such measures were largely in response to local circumstances, they did mark a fresh attempt to resolve the problems of supply through the protection of forests.

The close connection between initiatives for conservation and the shortage of timber was evident in the Punjab in the wake of the British conquest. The Punjab was conquered in 1849, and after the denudation of the plains logs were brought from Kashmir under licence from the Dogra ruler.⁸⁰ In 1851 Dalhousie despatched Major Longden to explore Busahir and Chamba for timber.⁸¹ 'So long as the supply was abundant, no thought was paid to the future', wrote George Carnac Barnes, Commissioner of the Cis-Sutlej states. 'The first attacks' ceased only when there was a crisis in the supply of timber.⁸² It was feared that there would be an acute shortage of wood in the Rawalpindi hills once the Murree cantonment was built. The demand for wood along the Grand Trunk Road also added to the pressure.⁸³ Authorities in the Punjab began to regulate access to selected forests, especially those with *deodar* or cedar. G.C. Barnes, the Commissioner of the Cis-Sutlej states suggested demarcating the hills with *deodar* trees in the British-ruled areas and in the princely states. Forest guards were asked to prevent the illegal cutting of trees, cultivation, cattle grazing and the lighting of fires. The guard's duties were to be 'negative rather than positive. He is appointed simply to allow nature fair play.'⁸⁴ Governor-General Dalhousie supported strict protection of the woods from 'wasteful' felling and 'unrestrained' grazing. However, he felt that the Draft Rules proposed by local officials were not stringent enough to prevent the destruction of woodlands. He argued that the assertion of forest rights by the

⁷⁸ Foreign Dept., Pol., 6 August 1852, Nos. 56-72, p. 55, Lt. Col. Sleeman, Resident at Lucknow to Captain Smith, 7 February 1852.

⁷⁹ Foreign Dept., F.C., 19 June 1857, Nos. 29-33, p. 41, G. Couper, Secy., Chief Commissioner to Edmonston, Secy., G.O.I., Foreign Dept., 28 April 1857.

⁸⁰ *General Report on the Administration of Punjab for the Years 1849-50 and 1850-51*, London, 1854, p. 101.

⁸¹ H.F. Cleghorn, *Report upon the Forests of Punjab and the Western Himalayas*, Roorkee, 1864, p. ii.

⁸² Foreign Dept., Pol. Consultations, 25 May 1855, No. 97, pp. 25-26, G.C. Barnes, Commr. and Supt., Cis-Sutlej states to Lord Hay, Depy. Commr., Simla, 20 February 1854.

⁸³ Foreign Dept., Pol. Consultations, 25 May 1855, No. 97, pp. 2-3; 'Hill forests, Punjab', Thornton, Commr. and Supt., Jhelum Div. to Temple, 30 October 1854.

⁸⁴ Foreign Dept., Pol. Consultations, 25 May 1855, No. 97, pp. 27-28, Barnes to Lord Hay, D.C. Simla, 20 February 1854.

government in India had to go far beyond the powers usually exercised in Europe.⁸⁵ The regulations empowered officials to restrict the cutting of trees, and also gave them the right to charge a fee for use of areas taken over by the government.⁸⁶

The process of government control was even more highly sophisticated in Pegu, where German-trained foresters entered the picture. The debates on forest annexation were re-enacted in Pegu when the territory came under British control in 1852. The first Superintendent of Forests, John McLelland, blamed the swidden agriculture of the Karens for the destruction of teak. The German forester Dietrich Brandis became Superintendent in 1856.⁸⁷ In 1856 Major Seaton of the Madras Army tried to incorporate the swidden agriculture of the Karens into forestry through the mixed cropping of rice and teak.⁸⁸ Brandis attempted to encourage the regeneration of teak through the prevention of fires and the regulation of shifting cultivation.⁸⁹ The issue was not simply one of prohibiting practices that could harm the teak forests. The labour of the Karens was drawn upon to further the aims of the foresters.

The common elements of early British forestry in India were already evident by this time in several provinces. The local inhabitants were excluded, or else they were incorporated into a regime of control. Either way the wider British interest in timber and revenue was paramount. The technical strategies for manipulating forest use had far more in common with the techniques of forestry in France, Prussia and Bavaria than with plantation forestry which was in vogue in Britain.⁹⁰ Plantation of trees was taken up as in Malabar in 1842.⁹¹ Yet, this was exceptional, and the manipulation of agrarian practice was the main thrust of strategies of 'improvement'. The manipulation of the floral composition of the forests was restricted to the few areas under state control or ownership. The appointments of Conservators in Bombay and Madras in 1847 and 1856 respectively was indeed significant.⁹²

The broad features of developments in the early phase can be summed up as follows. Groups on the fringes of arable society were considered responsible for deforestation in addition to being lawless and unproductive.

⁸⁵ Foreign Dept., Pol. Consultations, 25 May 1855, Nos. 98–102, pp. 28–32, Dalhousie, 13 April 1855; Stebbing, *Forests of British India*, Vol. I, pp. 274–75.

⁸⁶ Foreign Dept., Pol. Consultations, 25 May 1855, Nos. 98–102, pp. 2–3, 'Draft Rules for the Conservancy of Forests and Jungles in the Hill Districts of the Punjab Territories', n.d. but commented upon by Dalhousie, 13 April 1855.

⁸⁷ Brandis, *Indian Forestry*, p. 29.

⁸⁸ Stebbing, *Forests of British India*, Vol. I, p. 163; Brandis, *Indian Forestry*, pp. 38–40.

⁸⁹ A. Colvin, *The Rulers of India: Sir John Colvin*, Oxford, 1895, p. 153; Brandis, *Indian Forestry*, pp. 29, 32–33, 36–40.

⁹⁰ Stebbing, *Forests of British India*, Vol. II, p. 463.

⁹¹ Brandis, *Indian Forestry*, p. 24.

⁹² Stebbing, *Forests of British India*, Vol. I, p. 205.

The changing relations on the agrarian frontier framed the context in which the desiccation theory left a mark on British attitudes. Officials in many provinces were concerned with the supply of timber for strategic and commercial ends. The absence of a department at an all-India level meant that such initiatives rarely had a coherent point of focus.

A Rule of Property: The Forest Act of 1878

The importance of early attempts at intervention should not lead one to overestimate the scale of the exercise. Initiatives were largely at a local level, often in response to exigencies and 'without any methodic or systematic policy'. In most cases the provincial officials had taken the initiative for conservation only when the supplies of timber for public works were inadequate. In November 1862 the Government of India admitted to the Secretary of State that 'until the last few years, no forest administration has in truth existed.'⁹³ The major impetus for more comprehensive measures came from the railway construction programme. The building of the first railway line from Bombay to Thane in 1853 and the subsequent expansion of the railways generated a high level of demand for wood. A mile of broad-gauge rail track required about 1,800 to 2,000 sleepers. By 1878 over 2 million sleepers had been used for the construction of railway lines. Other than the *deodar* trees from the Himalayas, *sal* and teak were the main sources of wood.⁹⁴ In addition to timber railways generated a demand for fuel, especially in areas like the Punjab where there was no coal.⁹⁵ The long-term interest in building an effective rail system led to a new regime of forest control that sought to rein private extraction in order to secure raw materials for the railways. Officials were anxious to prevent the felling of trees for the short-term profit of railway contractors.⁹⁶ The regulation of access to forests led to a fresh set of debates. The appointment of Brandis in December 1862 was central to further developments. As the Officer on Special Duty, he examined and advised on the systems of forest management in various provinces. He thus became the first official with such extensive powers on this issue.⁹⁷ The crisis in the supply of timber for the railways led to the consolidation of existing initiatives for conservation.

The Forest Act of 1865 was the first step towards a rule of property for the forests of British India, but the provisions of the act soon became a matter of fierce debate among officials. Sir Henry Maine explained that the government had no intentions of abridging community rights. Rights to soil

⁹³ *PP* 1871, iii.i (77), p. 6: Gov. Gen. of India in Council to Secy. of State for India, 1 November 1862.

⁹⁴ D. Brandis, 'Memorandum on the Supply of Railway Sleepers of the Himalayan Pines Impregnated in India', *Indian Forester*, iv, 1879, pp. 365–83, esp. p. 366.

⁹⁵ Anon., 'Railway Fuel in the Punjab', *Calcutta Review*, xlvi, 1867, pp. 262–327.

⁹⁶ Gadgil and Guha, 'State Forestry and Social Conflict', pp. 140–77, esp. pp. 145–46.

⁹⁷ *PP* 1871, iii.i (977), p. 15, Resolution by G.O.I., P.W.D., 21 October 1862.

or to forest produce acquired by 'individuals, villages or wandering tribes' were not to be adversely affected by the new law.⁹⁸ The act, therefore, provided for only a limited degree of state intrusion and control. The government's right to woodlands under its control was not absolute. The key question was how far state intervention ought to go and to what extent the rights of users ought to be curtailed. While the act had not provided for the total curtailment of user rights, several positions emerged in the course of the debate on a new forest bill. The various options ranged from total control of the forests by the government to self-regulation by village communities. B.H. Baden Powell sought to extend state control over all uncultivated lands. He argued that conservation was only possible if the government had absolute property rights over forested land. The reckless cutting of trees by people was 'an evil that must be suppressed' and was akin to sati or smallpox. He believed that it was impossible to conserve a forest, 'unless you have an absolute or more or less limited proprietary right in it'.⁹⁹ There was a section of officials who criticised the very idea of state control. For instance, Dalyell disagreed with one of the major aims of the bill, which was to 'extinguish all customary forest rights.' He argued that such rights were all the more essential given the diverse nature of land relations in the subcontinent.¹⁰⁰ The Collector of Nasik, H.N. Erskine, felt that the expropriation of forests would damage tribal interests. It was 'absurd' to imagine that tribals would be able to produce written evidence of their customary rights.¹⁰¹ Brandis favoured a policy of selective annexation of those areas which were vital for commercial, strategic or climatic reasons. He steered a middle ground between Baden Powell and those who supported the rights of village communities.¹⁰²

Despite the significant differences among the various officials, there was a broad unity on the need for new legislation. T.C. Hope summed up the results of the deliberations. The government's programmes for preservation were in conflict with the 'ancient privileges' of cultivators. Effective conservation required that the government determine which privileges would be retained. This was seen as essential for the benefit of 'the whole community'.¹⁰³ There was a significant shift away from the rights of communities to their privileges. The ideological premises and material interests

⁹⁸ Leg. Dept., March 1878, A, Nos. 43-142, Appendix BBB, 'The Statement of Objects and Reasons of Act VII of 1865', Petition to the Viceroy, Lord Lytton, from proprietors of the freehold villages in the taluqa Salsette, Thana, Bombay, 10 October 1877.

⁹⁹ B.H. Baden Powell, 'The Political Value of Forest Conservancy', *Indian Forester*, ii, 1876, pp. 280-88, esp. pp. 280 and 285.

¹⁰⁰ Leg. Dept., March 1878, A, No. 137, p. 5, Dalyell, Extract from the Procs. of the Leg. Council, 31 January 1877.

¹⁰¹ Leg. Dept., A, March 1878, Nos. 43-142, p. 8, Appendix RRR, E.N.B. Erskine, Collector, Nasik, 11 November 1876.

¹⁰² Guha, 'An Early Environment Debate', pp. 83-84.

¹⁰³ Leg. Dept., March 1878, A, No. 137, p. 7, T.C. Hope, Extract from the Procs. of the Leg. Council of the Gov. Gen., 6 March 1878.

of the Raj were closely connected in the Forest Act of 1878, though opinions were bound to differ on specific issues. C.F. Amery was frank that the shift in policy was a product of the increasing commercial value of trees. Lands that had earlier yielded no revenue were now worth 'a thousand rupees an acre'.¹⁰⁴ T.C. Hope claimed that the objective was not the mere generation of revenues but the preservation of the tree cover to maintain the climatic equilibrium and supply the needs of the people.¹⁰⁵ Imperial stewardship of the forests was seen as essential for their survival and the welfare of the mass of Indians. The Pune Sarvajanic Sabha was more prosaic in its view of the impact of the new law. Its members argued that poor cultivators would have to pay for the higher profits of the railways. The 'sweeping definition' of forest produce would lead to the utter ruin of tribals. Expropriation and control of the woodlands would only add to the distress caused by the increases in land revenue and the salt tax.¹⁰⁶ The critics of the new legislation anticipated that it would impose a new burden on the poor in hill areas.

Yet, any assessment of the impact of the act has to take account of the variations within British India. There were at least three levels of variations linked to the category of the forest in a given area, the applicability of the act to a province and the local system of land tenure. All government forests were not alike. The key provision in the act lay in the distinction between reserved and protected forests. In the latter, rights were to be recorded but not settled.¹⁰⁷ In the former, no rights could be acquired unless explicitly ceded by the provincial government under the act.¹⁰⁸ The new law did not apply to all parts of British India. The Madras government resisted the new law until the passage of a separate Forest Act in 1882, which brought it in line with the other provinces. Separate acts were also passed for Burma in 1881 and Berar in 1886.¹⁰⁹ Second, the amount of land owned by the government and the kinds of user rights could vary from province to province. In reserved forests all rights were recorded and settled but in protected forests, user rights were not always set aside. Further, the division of waste depended on the nature of the land revenue system. In permanently settled areas of Bengal and Banaras the zamindar owned the waste. In ryotwari areas, as in most of the Madras Presidency,

¹⁰⁴ C.F. Amery, 'On Forest Rights in India', in D. Brandis and A. Smythies, eds., *Report on the Proceedings of the Forest Conference held at Simla, October, 1875*, Calcutta, 1876, pp. 27-30, esp. p. 29.

¹⁰⁵ Leg. Dept., March 1878, A, No. 137, p. 7, T.C. Hope, Extract from the Procs. of the Leg. Council of the Gov. Gen., 6 March 1878. Hope did not believe that the zamindars would be responsible custodians of the forests.

¹⁰⁶ Leg. Dept., A, March 1878, No. 42, pp. 26-27, Memorial of the Pune Sarvajanic Sabha to Lord Lytton, 3 March 1878.

¹⁰⁷ Rev., Agri. and Commerce, F, April 1878, A, No. 7, Sections 28-29, Indian Forest Act.

¹⁰⁸ Rev., Agri. and Commerce, F, April 1878, A, No. 7, Section 19, Indian Forest Act.

¹⁰⁹ Ribbentrop, *Forestry in British India*, pp. 114-16.

all wasteland other than the village grazing grounds was owned by the government.¹¹⁰

The diversity in systems of land tenure in the various provinces meant that the impact of the new legislation was far from uniform. In addition to this, the way in which the laws were applied to particular areas could also differ from one province to another. Forests were now often taken over by officials, and were regarded as more than potential arable land. Unlike previous rulers who had cut down trees for strategic reasons or to increase their revenue, the British began to systematically protect forests to secure timber. They also tried to regulate the use of land by groups on the fringe of the settled arable. The creation of an all-India Imperial Forest Service and the enactment of legislation marked a major change. It was now possible to attempt to exclude rural land users and promote the growth of commercially valuable species on a larger scale than ever before.

Conclusion

The early history of Indian forestry provides rich insights into the logic of colonial intervention in rural land use. There were significant contrasts between the pre-colonial regimes and the British in terms of the impact on forested and hill areas. The pre-colonial situation was certainly not one of static equilibrium. The border between the cultivated arable and the forests was often in a state of flux, with revenue policies playing a crucial role in the expansion and contraction of agriculture. Rulers cleared away the vegetation to enhance military control of the countryside. However, there were limitations on the extent to which rulers or landed groups regulated the use of forested lands. Rural land users were not completely denied access even in the hunting grounds of the Mughal *badshahs*. The amirs of Sindh were perhaps exceptional in the extent to which they took up afforestation along the banks of the Indus. The new conditions of military security against tribal attacks on the lowlands accelerated the advance of colonists and traders into the highlands. British notions of property were also more absolute than the Indian ideas of property as a hierarchy of user rights. The new rulers also gave a sharper edge to the process of clearing the woods and advancing the agrarian frontier. Their own experience of ecological warfare in Ireland and the 'improvement ideology' that informed English agriculture had negative consequences for the forests of the sub-continent. Thus, the notion of an ecological watershed in the colonial era is valid. However, it should not be forgotten that India's forests were already undergoing significant changes long before the British entered into the picture.

¹¹⁰ J.F. Voelcker, *Report on the Improvement of Indian Agriculture*, London, 1893, p. 140; Ribbentrop, *Forestry in British India*, pp. 97–105.

The early nineteenth century found the first signs of British interest in woodlands that went beyond the mere clearance of trees. The teak forests of South Asia became a vital resource for British shipping. The initial interest was merely 'predatory', the emphasis being on the acquisition of more timber from forests that seemed to be inexhaustible. The regulation of tree felling in Malabar marked the first attempt to control the use of forests. Early administrators in Bombay and Malabar differed on what was to be done, but they anticipated many of the dilemmas of their later day counterparts. Initially, the focus was largely on the question of obtaining a continued supply of timber. In this respect the anxieties about desiccation marked a major shift in the discourse. The actual impact of such ideas on policy was limited, even in the period from the 1830s to the 1850s. However, they added a new dimension to the existing British bias against the itinerant groups on the fringes of the cultivated arable. Swidden cultivators could now be branded as a threat to the agrarian stability of the lowlands due to their deleterious impact on forests and the hydrological cycle. This provided officials with a new rationale for conservation which was often seen as indispensable for agricultural prosperity. In turn, itinerant groups were seen as being ecologically destructive in addition to being lawless and unproductive. Efforts to bind them to a fixed spot could now be legitimised on environmental grounds. Conservationist concerns meshed well with a broader agenda of annexing labour for agrarian extension and putting an end to more mobile forms of human settlement.

However, desiccation was only one of the influences that shaped the course of early nineteenth century Indian forestry. The shortage of wood for the construction of military barracks was often the motivating factor for forest management. Officials in provinces such as the Punjab, Sindh and upper Burma pioneered the tactic of excluding rural land users and selectively fostering commercially valuable tree species. Afforestation was not widespread, except in some areas like Malabar. The regulation of timber extraction and the use of natural forests were the main items on the agenda. Despite the fact that this was the result of local initiatives in response to exigencies, the early experiments anticipated some of the key elements of later nineteenth century Indian forestry. The debates in the decades *before* the launch of formal forestry merit far more attention than they have received to date. There is ample evidence of a more absolute notion of property being applied to forested lands than had ever been the case in the past. In many instances activities like grazing, tree-felling and the use of fire were curbed in order to enhance the reproduction of commercially valuable tree species. Such attempts to change the composition of the forests predated the actual introduction of continental forestry in South Asia. In addition to the regulation of tree-cutting, there were now strategies aimed at the renewal of the forest cover. Yet, the particular mix

of strategies that were tried out were often uncannily similar to what was to be attempted in the coming years by foresters trained in France and Germany.

In the wake of the railway timber crisis, the initiatives and debates acquired a clear all-India focus. The passage of the Forest Act of 1865 and the creation of the Forest Department were major milestones. The second Forest Act (of 1878) provided more extensive powers for officials. The new developments did not mean that local and provincial variations vanished overnight. The government did not annex all uncultivated lands. There was no simple polarisation between the Forest Department and the villagers, as the situation varied enormously in different regions. Yet, legislative enactments and executive measures had created a structure for intervention and information regarding forests. It was within this new framework that the conflicts and controversies about India's forests would now take place.

The debate about the logic of colonial forest policy has wider implications. One line of argument has stressed the role of the changing interests of the rulers, while the other has given more emphasis to the ideologically charged debates within the ranks of the rulers. The difference between these positions is not as irreconcilable as it appears, for this was a point of tension at the heart of colonialism itself. Yet, it is obvious that material interests and value-based preferences were not watertight compartments. Material concerns were important in the agendas of the most committed proponents of desiccation such as Cleghorn. Conversely, the later nineteenth century foresters who sought to meet the demand for railway timber took aboard the 'desiccationist' case against the shifting cultivator. The references to climatic equilibrium in the debates on the forest laws in the 1860s and 1870s often drew on the work of a previous generation of administrators. There was thus no simple polarity between ideological and material influences on policy.

What was crucial was the change in the administrative context in which choices were made. Individual experts had a certain degree of autonomy in the early nineteenth century, because institutions were still in an early stage of evolution. With the creation of the edifice of imperial forestry the space for such initiatives shrank, even though it did not entirely vanish. Responses became more routine, and common referral points crystallised in the idiom of foresters. There were thus different phases in the 'making' of Indian forestry. The Forest Act of 1878 provided a new framework in which choices would be made. Yet, the history of attitudes to forests prior to the introduction of formal forestry is a vital link in the chain of events that led to the creation of a system of forest access control in British India.