

CONTESTING THE RESOURCE:
THE POLITICS OF FOREST MANAGEMENT IN COLONIAL BURMA

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ABSTRACT

This thesis examines the politics of forest management in colonial Burma. Chapter 1 establishes the theoretical and analytical concerns of the study. Chapter 2 describes the laissez-faire practices in early colonial Tenasserim which resulted in the depletion of that territory's teak forests. Chapter 3 examines how the Forest Department sought to regulate shifting cultivators, timber traders and peasants between 1856 and 1881. Chapter 4 points out that the growth of a professional forest service meant not only that the relationship between forest and civil officials had to be clarified, but also that state and societal forest rights needed differentiation.

Chapters 5 and 6 trace the efforts of the Forest Department to rationalize forest use in the late nineteenth and early twentieth centuries. During the era of expansion (1881-1902), which is the subject of Chapter 5, forest management was extended to new territories and activities, but was above all reflected in the growth of reserved forests. Chapter 6 relates that during the era of consolidation (1902-23) these reserves were the focus of departmental activity. But, if the concentration of teak extraction in the hands of the European firms eased forest management in one respect, broad societal and ecological changes intensified the conflict between the Forest Department and the peasantry. After the introduction of partial self-rule in 1923, that conflict became more pronounced as forest management was politicized. Chapter 7 assesses the implications of this change for forest politics up to the Japanese invasion (1942).

Chapter 8 situates the politics of forest management in colonial Burma in a wider context. The Burmese experience is summarized and then compared with that of Dutch-ruled Java, British India and autonomous Siam in order to clarify the nature of Asian forest politics in colonial times.

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PREFACE

This study examines forest politics in colonial Burma by addressing the question: "What were the political consequences of the advent of a forest service in 1856 on forest access and conflict?" To answer that question, three notions were differentiated: forests as a contested resource, the Forest Department as a resource manager, and conflicting perceptions of forest use. In turn, these notions serve as the analytical framework of the thesis.

Given the colonial focus, research centred on a reading of colonial reports, journals and proceedings. Providing a detailed record of forest management in British Burma, most of these documents are located at the India Office Library and Records in London. Especially valuable were the annual reports of the Forest Department (1856-1940), the India and Burma Forest Proceedings (1864-1924), the Indian Forester (1876-1946), the European Manuscript collection and the Burma Office Files (1938-44). Due to funding constraints, it was not possible to examine records retained in Burma after the advent of partial self-rule in 1923. However, a comprehensive collection of working plans and other forestry documents held at the Indian Institute and the Oxford Forestry Institute (both in Oxford) provided a wealth of material on the post-1923 period. Legislative Council proceedings (Burma and India), general colonial documents (ie. gazetteers) and secondary sources at the School of Oriental and African Studies (SOAS) and the University of London libraries were used to round out coverage of the colonial era.

Several problems associated with the use of colonial forest records merit comment. First, colonial sources often overlook or fail to capture the breadth and scale of everyday forms of popular resistance. As Scott notes, the logic of such resistance is "to leave few traces in the wake of its passage...[which] eliminates much of the documentary evidence that might convince social scientists and historians that real politics was taking place".¹ If this is a general and inescapable drawback, it must not be overstated. As this thesis shows, the colonial state was not always internally united. Many civil officials opposed the expansion of Forest Department powers by drawing attention to the social effects (including peasant unrest) of forest restrictions.

Colonial forestry accounts have an additional drawback in so far as records are highly technical. For non-foresters, there is, then, a problem of interpretation - understanding scientific reports in order to glean their political meaning. Yet, such an endeavour is essential. To understand how the Forest Department asserted control over diverse groups is also to appreciate the scientific dimensions of social and ecological control.

If this thesis examines forest politics in colonial Burma, it situates that investigation in a theoretical and comparative perspective. Chapter 1 introduces the analytical framework in the context of a discussion of political ecology that encompasses the role of the state, peasant resistance, bureaucratic politics and perceptions of resource use in

¹ James C. Scott, Domination and the Arts of Resistance: Hidden Transcripts (New Haven: Yale University Press, 1990), 200.

forest access and conflict. In contrast, Chapter 8 compares and contrasts the Burmese experience with that of Dutch-ruled Java, British India and autonomous Siam in order to emphasize the wider significance of colonial forestry. In this manner, the thesis links an analysis of forest politics in colonial Burma with broader theoretical and comparative questions.

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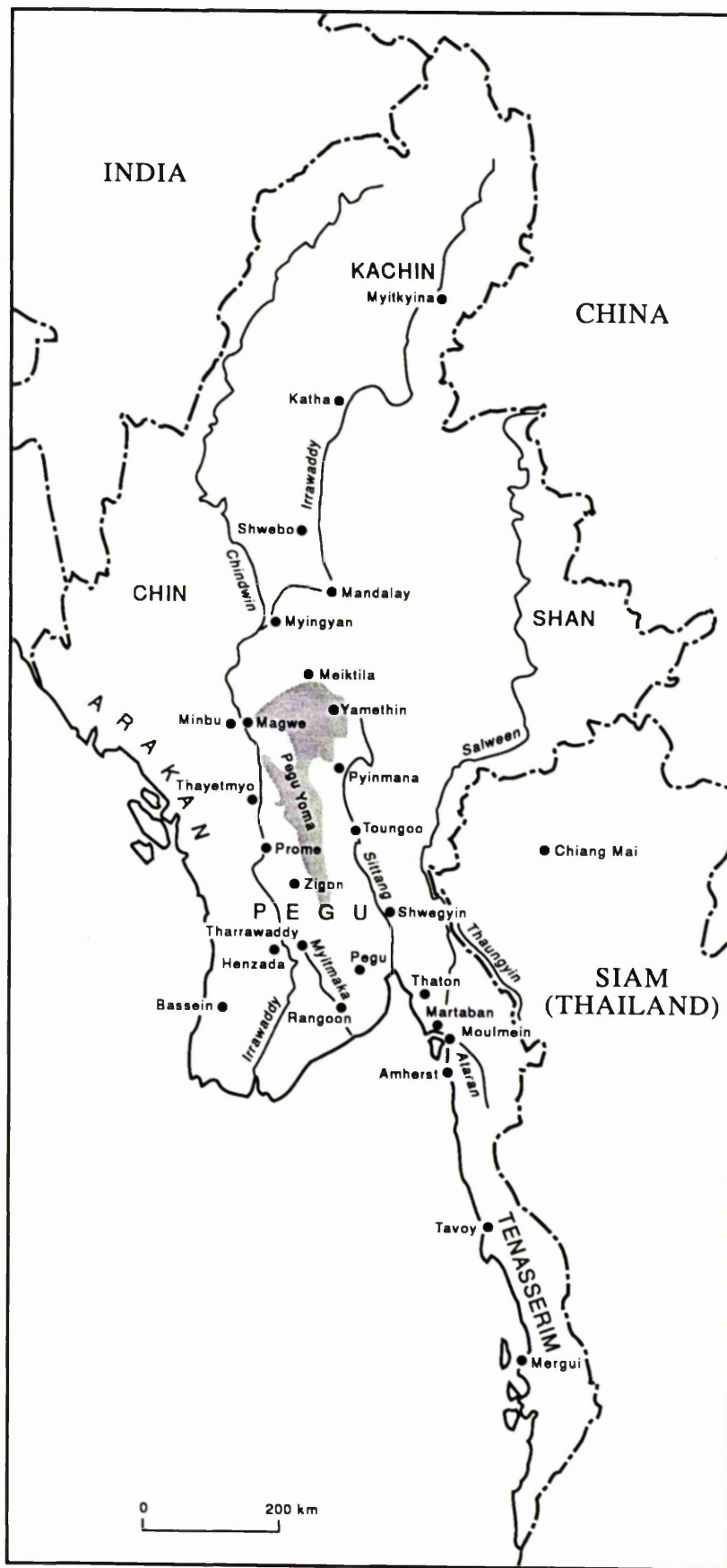


Figure 1. Map of Burma

CHAPTER 1: INTRODUCTION

This thesis is a study of the politics of forest management in colonial Burma. It analyses how the Forest Department sought to control forest activities, and the ways in which others fought such control. In Burma, as elsewhere in the Third World, the state has played a crucial role in shaping forest use. Guided by the tenets of scientific forestry, colonial foresters mapped, enumerated and demarcated the forests in the promotion of long-term commercial timber production. In doing so, they acquired a detailed understanding of how peasants, timber traders and shifting cultivators used those forests. Such knowledge was used to regulate extraction, increase revenue and promote conservation. Prior to the introduction of partial self-rule in 1923, moreover, colonial foresters were able to manage the forest resource without having to take into account the local political implications of their actions - something that their indigenous counterparts in Burma (and elsewhere) have never been in a position to do. The Forest Department thus attempted to rationalize forest use in order to further diverse political, economic and ecological objectives. But it did so in a context of British rule that privileged imperial interests over local concerns.

This process had far-reaching implications for state and society. The creation of reserved forests, and complex rules regarding their access and use, the emergence of a prosperous timber industry, and a sizable forest bureaucracy, heralded major changes in the way that forests were used. These changes encountered widespread popular opposition, and earned

the forest official notoriety. The extent of that notoriety was in itself suggestive of the importance of the changes in the forest sector.

It is therefore remarkable that these changes have received so little attention. Several authors address aspects of the subject but few provide detailed accounts. None adequately treat the politics of forest management.¹ In contrast, general analyses focus on issues such as agrarian development and nationalism to the neglect of forest-related change.²

In thus addressing this lacuna, the thesis examines how the Forest Department transformed forest access and use in the colonial era. However, it is important to indicate what this thesis is not about. First, it is not an economic history of the Burmese teak industry. The teak industry was undoubtedly important, and the role of teak in the determination of forest policy is a central theme of this thesis. But, the politics of forest management in colonial Burma is not synonymous with teak extraction. The Forest

¹ Maria Serena I. Diokno, "British Firms and the Economy of Burma, with Special Reference to the Rice and Teak Industries, 1917-1937" (Ph.D. diss., University of London, 1983); A.W. MacGillivray, "Forest Use and Conflict in Burma 1750-1990" (MSc. diss., University of London, 1990); F.T. Morehead, The Forests of Burma (London: Longmans, Green and Co., 1944); E.P. Stebbing, The Forests of India, 3 vols. (London: John Lane for the Bodley Head, 1922-26).

² G.E. Harvey, British Rule in Burma, 1824-1942 (London: Faber and Faber, 1946); J.S. Furnivall, Colonial Policy and Practice: A Comparative Study of Burma and Netherlands India (1948; reprint, New York: New York University Press, 1956); John F. Cady, A History of Modern Burma (Ithaca: Cornell University Press, 1958). See also Robert H. Taylor, An Undeveloped State: The Study of Modern Burma's Politics, (Melbourne: Monash University Centre of Southeast Asian Studies Working Paper No. 28, 1983) in which an extensive review of the Burma politics literature turns up no mention of forestry issues.

Department also regulated the extraction of non-teak timber and 'minor' forest products (bamboo, gums, resins). These products may have been a relatively insignificant source of revenue, but in political terms were of considerable importance. Thus, although the role of the European timber firms, and notably the Bombay Burmah Trading Corporation Limited (BBTCL), should not be underestimated, an analysis of forest politics must situate that role in a broader context. These firms were only one type of forest user; other users - notably shifting cultivators, peasants and indigenous timber traders - must also be considered. As forest user, manager and custodian, Burma's Forest Department merits particular attention if forest conflict is to be fully appreciated.

Secondly, the thesis does not consider pre-colonial forest politics. In so far as it addresses the monarchical period, it is only to illustrate how colonial management was affected by indigenous forestry. The reverse situation - how Burmese forest management changed as a result of the growing Anglo-Burmese confrontation in the nineteenth century - is therefore beyond the scope of this study.³ When scholars have considered this issue, it has been in order to understand the dispute between the BBTCL and the Burmese government that led to the third Anglo-Burmese war (1885-86).⁴ In this study,

³ But see Myo Myint, "The Politics of Survival in Burma: Diplomacy and Statecraft in the Reign of King Mindon, 1853-1878" (Ph.D. diss., Cornell University, 1987), 232-35.

⁴ Charles Lee Keeton III, King Thebaw and the Ecological Rape of Burma: The Political and Commercial Struggle between British India and French Indo-China in Burma, 1878-1886 (Delhi: Manohar, 1974); A.T.Q. Stewart, The Pagoda War: Lord Dufferin and the Fall of the Kingdom of Ava 1885-6 (London: Faber and Faber, 1972), 72-73.

this episode is considered only in so far as it influenced subsequent colonial forest management.

Finally, the thesis does not consider in detail the forest politics of what the British termed the 'excluded areas' - those remote hill areas that form the periphery of modern Burma. Rather, the focus is on those directly administered areas ('Burma proper') in which most of the population lived, and in which the principal commercial forests were located. It was also in Burma proper that the major developments of colonial forest politics took place, and where the expansion of Forest Department control was most bitterly contested.

In many respects, it would seem logical to begin this study of forest politics in colonial Burma with the events of 1856. In that year, the Forest Department was created - the first in the British-Indian empire. More importantly, the Government of India ordered the scientific management of Burma's forests as part of the promotion of long-term commercial timber production. But, to appreciate the significance of these events, it is first necessary to examine forest practices in early colonial Burma. Chapter 2 suggests that those practices were based on a laissez-faire system that was the antithesis of later scientific management. If unrestricted teak extraction led to widespread over-harvesting, it also illustrated the need for state intervention. In the altered imperial context of the 1850s, such intervention became politically feasible.

Chapter 3 describes the political implications of the new policy by looking at the Forest Department's early efforts to regulate timber traders, shifting cultivators and

peasants. Between 1856 and 1881 (when the first Burma Forest Act was passed), forest officials asserted control over forest use through a mixture of coercion and compromise, exemplified in the development of the taungya (hill cultivation) forestry system. Chapter 4 explores how the elaboration of such control engendered change within the colonial state. The growth of a professional forest service meant not only that the relationship between forest and civil officials had to be clarified, but also that state and societal forest rights needed differentiation.

Chapters 5 and 6 trace the efforts of the Forest Department to rationalize forest use in the late nineteenth and early twentieth century. During the era of expansion (1881-1902), which is the subject of Chapter 5, forest management was extended to new territories (Upper Burma and the Shan States) and activities (cutch production). Above all, it developed through the creation of a network of reserves. Chapter 6 relates that during the era of consolidation (1902-23) these reserves formed the principal focus of Department activity. But, if the concentration of teak extraction in the hands of the European firms eased the task of forest management in one respect, the elaboration of state control encountered popular resistance that was notably expressed through illegal extraction from the plains reserves. After 1923, partial self-rule led to the politicization of forest management, as issues such as the Burmanization of the forest sector and popular access to the plains reserves became prominent. Chapter 7 assesses the

implications of this change for forest management up to the Japanese invasion of 1942.⁵

Chapter 8 situates the politics of forest management in colonial Burma in a wider context. The Burmese experience is summarized, and then compared with that of Dutch-ruled Java, British India and autonomous Siam in order to emphasize the impact of colonialism on Asian forest politics. The chapter concludes by relating colonial developments to contemporary issues.

If the central purpose of this research is to examine the patterns of control and resistance that constitute the forest politics of colonial Burma, it has been greatly assisted by work in the emerging research agenda of Third World political ecology. Broadly speaking, political ecology may be defined as an inquiry into the political sources, conditions and ramifications of environmental change. Specifically, Blaikie and Brookfield note:

The phrase 'political ecology' combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself.⁶

⁵ This thesis does not address the period after 1942. The Japanese occupation (1942-45) and subsequent brief reimposition of British rule (1945-48) marked a new era in Burmese forest politics that is best studied in conjunction with post-colonial developments.

⁶ Piers Blaikie and Harold Brookfield, ed. Land Degradation and Society (London: Methuen, 1987), 17. On the integration of ecology and political economy, see Piers Blaikie, The Political Economy of Soil Erosion in Developing Countries (London: Longman, 1985); Stephen G. Bunker, Underdeveloping the Amazon: Extraction, Unequal Exchange, and the Failure of the Modern State (Urbana: University of Illinois Press, 1985); Marianne Schmink and Charles H. Wood, "The 'Political Ecology' of Amazonia," in Lands at Risk in the Third World: Local-Level Perspectives, ed. Peter D. Little and Michael M. Horowitz (Boulder: Westview Press,

Embracing different social and ecological scales, political ecology addresses several interrelated research areas.⁷ First, research into the contextual sources of environmental change examines the general ecological impacts of the state, interstate relations and global capitalism. In a world of increasing political and economic interdependence, these topics signal the growing social and ecological influence of national and international forces.

A second research area investigates the location-specific aspects of ecological change. By studying conflict over access to environmental resources, scholars gain insights into how contextual actors impinge on specific socio-ecological conditions and relationships. More importantly, such research documents the resistance of the relatively powerless (poor peasants, shifting cultivators), as they fight to protect the environmental basis of their livelihood.

A third research area addresses the political ramifications of environmental change by assessing the effects of such change on socio-economic and political relationships. To what extent are environmental costs borne by socially disadvantaged groups, and how does this unequal burden affect existing socio-economic inequalities? Further, and as the discussion of peasant militancy over the plains reserves in twentieth century colonial Burma will illustrate,

1987), 38-57; Nancy Lee Peluso, "The Political Ecology of Extraction and Extractive Reserves in East Kalimantan, Indonesia," Development and Change 23 (October 1992): 49-74.

⁷ Raymond L. Bryant, "Political Ecology: An Emerging Research Agenda in Third World Studies," Political Geography 11 (January 1992): 12-36.

unequal exposure to environmental change may lead to political confrontation. Examining the vulnerability of the poor to episodic (drought, flooding) and everyday (soil erosion, deforestation) forms of environmental change, this research highlights the important point that the impact of environmental change is rarely neutral, and may well reinforce prevailing inequalities.

By taking these questions seriously, political ecology is to be distinguished from much of the sustainable development literature which tells us very little about the politics of ecological change.⁸ More often than not, the latter makes sweeping assumptions about those political issues that most require investigation - the activities of the state and political-economic elites, for example. Instead, facile arguments about environmental change and human welfare are made; ecological degradation, for instance, is portrayed as a universal evil affecting rich and poor alike. In contrast, political ecology explores how such change is incorporated into concrete political and economic relationships, and the ways that it may then be used to reinforce or challenge those relationships.

One of the most important themes in political ecology concerns the political and ecological consequences of tropical forest change. As scholars note, Third World deforestation has been a ubiquitous phenomenon in the

⁸ Raymond L. Bryant, "Putting Politics First: The Political Ecology of Sustainable Development," Global Ecology and Biogeography Letters 1 (November 1991): 164-66; Michael Redclift, Sustainable Development: Exploring the Contradictions (London: Methuen, 1987); W.M. Adams, Green Development: Environment and Sustainability in the Third World (London: Routledge, 1990).

nineteenth and twentieth centuries as forests have been logged or converted to agriculture.⁹ Inevitably, this trend has transformed the nature of forest access and use. But as the creation of eucalyptus plantations for the wood-chips and paper-pulp industry illustrates, reforestation or afforestation also resonates with political and ecological meaning.¹⁰ In view of their social and ecological significance, this focus on the world's forests is not surprising. As a popular source of timber and non-timber products, forests are an integral part of rural subsistence. In addition, they provide essential ecological services, regulating the hydrological and nutrient cycles, for example.¹¹ However, tropical forests are also the focus of an expanding global timber trade.¹² Moreover, they are often valued by political elites as places to which surplus populations may be exported, thereby obviating the need for

⁹ Richard P. Tucker and J.F. Richards, ed. Global Deforestation and the Nineteenth-Century World Economy (Durham, N.C.: Duke University Press, 1983); John F. Richards and Richard P. Tucker, ed. World Deforestation in the Twentieth Century (Durham, N.C.: Duke University Press, 1988).

¹⁰ Larry Lohmann, "Peasants, Plantations, and Pulp: The Politics of Eucalyptus in Thailand," Bulletin of Concerned Asian Scholars 23 (October-December 1991): 3-17; Caroline Sargent and Stephen Bass ed. Plantation Politics: Forest Plantations in Development (London: Earthscan, 1992).

¹¹ Vandana Shiva, Ecology and the Politics of Survival: Conflicts over Natural Resources in India (London: Sage, 1991), chap. 2.

¹² Jan G. Laarman, "Export of Tropical Hardwoods in the Twentieth Century," in World Deforestation in the Twentieth Century, ed. John F. Richards and Richard P. Tucker (Durham, N.C.: Duke University Press, 1988), 147-63; Ooi Jin Bee, "The Tropical Rain Forest: Patterns of Exploitation and Trade," Singapore Journal of Tropical Geography 11 (December 1990): 117-42; Geoffrey K. Elliott, "Ecology, Economics and the End of Forestry in the Tropics," Asian Affairs 23 (October 1992): 315-21.

land reform in central agricultural areas. The role of forests as a 'political safety-valve' has affected patterns of forest change and conflict in such countries as Thailand, the Philippines, Indonesia and Brazil.¹³

As the literature also illustrates, the state has played a key role in forest change. Although the human ability to manipulate or even destroy the forests predates the development of the modern state, the organizational characteristics that have enabled that institution to flourish have also served to enhance social control over the environment. What are the special characteristics of the state that make it such a powerful source of environmental change? Two characteristics may be briefly noted.

The first characteristic concerns the state's role as the facilitator of development. Although that role has varied historically and spatially, only the state has been in a position to provide the physical, financial and social infrastructure essential to capital accumulation.¹⁴ In effect, the state becomes involved in the provision of public or

¹³ The imagery is from Larry Lohmann, "Land, Power and Forest Colonization in Thailand," in "The Political Ecology of South East Asia's Forests: Transdisciplinary Discourses," ed. Raymond L. Bryant, Philip Stott and Jonathan Rigg, Global Ecology and Biogeography Letters (Special Issue, forthcoming); Philip Hurst, Rainforest Politics: Ecological Destruction in South-East Asia (London: Zed Books, 1990); Anthony L. Hall, Developing Amazonia: Deforestation and Social Conflict in Brazil's Carajas Programme (Manchester: Manchester University Press, 1989).

¹⁴ R.J. Johnston, Environmental Problems: Nature, Economy and State (London: Belhaven Press, 1989), chap. 5; Dietrich Rueschemeyer and Peter B. Evans, "The State and Economic Transformation: Toward an Analysis of the Conditions Underlying Effective Intervention," in Bringing the State Back In, ed. Peter B. Evans, Dietrich Rueschemeyer and Theda Skocpol (Cambridge: Cambridge University Press, 1985), 44-77.

collective goods - common currency, defense, education, health care - which the private sector cannot provide or does so only imperfectly, but which are essential to economic growth. State and capitalist development are thus often intertwined.

A second characteristic centres on the autonomous capabilities of the state. As recent research illustrates, the state is more than simply an agent of capitalism.¹⁵ Rather, it has its own sources of power that derive from the state's unique socio-spatial position at the intersection of the domestic political order and the interstate system. In turn, this distinctive position ensures that the state has its own political, economic and strategic interests that are not always synonymous with capital accumulation.

Both the state's relationship to capital and the development of its own distinctive interests have been increasingly important factors in human-environmental interaction. With colonialism, this type of state came to dominate such interaction in the Third World too. Strengthened in the nineteenth century by such technological advances as the steamboat, machine gun and quinine, the colonial state initiated a process of change that redefined

¹⁵ Theda Skocpol, States and Social Revolutions: A Comparative Analysis of France, Russia, and China (Cambridge: Cambridge University Press, 1979), 24-33; idem, "Bringing the State Back In: Strategies of Analysis in Current Research," in Bringing the State Back In, ed. Peter B. Evans, Dietrich Rueschemeyer and Theda Skocpol (Cambridge: Cambridge University Press, 1985), 3-37; Michael Mann, "The Autonomous Power of the State: Its Origins, Mechanisms and Results," in States in History, ed. John A. Hall (Oxford: Basil Blackwell, 1986), 109-36.

existing practices.¹⁶ In a matter of decades, economies were monetized, communications networks elaborated, international economic linkages expanded, new export crops grown, state-peasant relations regularized and human expectations altered. Social transformation was accompanied by environmental permutation: changes in forest cover and type, the extension of agricultural production, modified soil conditions and increased pollution.

This social and ecological transformation was predicated on the use of new techniques of control and power. The colonial state used such means as the census, map and museum, to imagine "the nature of the human beings it ruled, the geography of its domain, and the legitimacy of its ancestry".¹⁷ This process of imagining was arguably most pervasive in the forests, for it was in these areas that central authority was most tenuous. And, as the colonial state defined those forests, it also transformed them. What was 'progress', after all, if not the steady accumulation of knowledge in aid of more efficient forest land-use?

In pursuit of such progress, the colonial state drew upon scientific forestry practices from Germany and France. Scientific forestry was a management system designed to promote long-term commercial timber production as humankind made the transition from pre-industrial forests to industrial

¹⁶ Daniel R. Headrick, The Tools of Empire: Technology and European Imperialism in the Nineteenth Century (Oxford: Oxford University Press, 1981), 205-6.

¹⁷ Benedict Anderson, Imagined Communities: Reflections on the Origin and Spread of Nationalism, rev. ed. (London: Verso, 1991), 163-64.

tree plantations.¹⁸ As transplanted to Burma (and elsewhere in Asia), scientific forestry was imbued with a strong ecological element. Throughout the colonial period, officials debated the links between the forests and local water supply, stream flow, rainfall and climate change.¹⁹ Although couched in ecological terms, these debates resonated with political meaning. Ecology and politics were often conjoined to discredit indigenous practices while providing a powerful justification for the extension of state forest control.

The interlinked nature of political and ecological issues and problems is thus central to Third World political ecology, as it is to this thesis. Specifically, the study traces the development of state control over Burma's forests in the colonial era. But such development is always related to one or more of three themes that run through the entire study. The argument is that forest politics in colonial Burma needs to be understood in relation to at least three key notions: (1) forests as a contested resource, (2) the Forest Department as a resource manager, and (3) conflicting perceptions of forest use. As they are central to this analysis, each theme is briefly summarized as part of a consideration of the wider literature.

¹⁸ Alexander S. Mather, Global Forest Resources (London: Belhaven Press, 1990); and below.

¹⁹ Richard Grove, "Threatened Islands, Threatened Earth: Early Professional Science and the Historical Origins of Global Environmental Concerns," in Sustaining Earth: Response to the Environmental Threats, ed. David J.R. Angell, Justyn D. Comer and Matthew L.N. Wilkinson (London: Macmillan, 1990), 15-29.

Forests as a Contested Resource

The British transformed but did not create conflict over forest access in Burma. The monarchical state attempted to regulate and tax diverse forest users, not mainly teak traders as often assumed; and, forest users fought such control. In populated and settled areas, forest produce was hardly a 'free gift of nature'.²⁰

If anything, early colonial rule relaxed access restrictions imposed by the monarchical state. Influenced by contemporary principles of economic liberalism, and preoccupied with the need to control a hostile population in an unfamiliar territory, British officials at first had neither the inclination nor the resources to systematically regulate forest use. Moreover, forests were the most problematic area of state control, and were the favoured haunt of insurgents and other opponents of central authority.

The deforestation of the deltaic rainforests in the late nineteenth century is one type of forest transformation prompted by colonial rule.²¹ In this case, the promotion of settled agriculture was designed to maximize revenue as it eliminated whole stretches of low-lying forest altogether. This thesis is predominantly concerned, however, with another type of forest transformation that pertains to modified patterns of access and use in those regions retained as

²⁰ The imagery is from J.S. Furnivall, "Land as a Free Gift of Nature," Economic Journal 19 (1909): 552-62.

²¹ Michael Adas, "Colonization, Commercial Agriculture, and the Destruction of the Deltaic Rainforests of British Burma in the Late Nineteenth Century," in Global Deforestation and the Nineteenth-Century World Economy, ed. Richard P. Tucker and J.F. Richards (Durham, N.C.: Duke University Press, 1983), 95-110.

'forest lands'.²² In these areas, the colonial state increased revenue and control not by eliminating forest, but rather by its systematic investigation and regulation. Inevitably, these two types of forest change were interrelated. The deforestation of much of the Irrawaddy delta affected the nature of conflict in residual forests, while changing conditions of access and use in the latter influenced patterns of deforestation in the former.

As this discussion illustrates, forest conflict was not static. Under the impetus of practices introduced by the British, Burma's forests were modified, as were patterns of forest use and conflict. How forest produce was attained, what was considered legal (and illegal) appropriation, the manner in which 'traditional' practices were invoked to resist or enforce regulation, and the ways in which shifting forest use reflected relative scarcity and a quest to 'outflank' restrictions, varied by time and place, and are the essence of forest politics in colonial Burma. Shifting cultivators, peasants and timber traders challenged the regulation of their activities, and in doing so, ensured that forests remained a contested resource throughout the colonial period.

In pursuing this theme of forests as a contested resource, the study draws upon a burgeoning literature that addresses conflict over access. Diverse as this literature may be, it is premised on the assumption that peasants and others without the means of power nevertheless can and do resist the predations of political and economic elites. The

²² The forest types of Burma are discussed in Appendix B.

literature further assumes that such resistance is analytically significant, and hence integral to an understanding of rural change. By eschewing reductionism, it explores the complexity of human interaction; as Giddens notes, "all power relations, or relations of autonomy and dependence, are reciprocal: however wide the asymmetrical distribution of resources involved, all power relations manifest autonomy and dependence 'in both directions'".²³

It is a function of peasant-elite interaction that much of the conflict integral to such relations is characterized by what Scott terms 'everyday forms of resistance'.²⁴ Everyday resistance is the antithesis of the stereotypical peasant rebellion. Whereas the latter is overt and collective, the former is covert and often individual, and while the peasant rebellion directly challenges prevailing political and economic norms, everyday resistance does so but indirectly, and always on the sly. It is precisely this anonymity which is, paradoxically, its greatest strength, and yet, gravest weakness.²⁵ Everyday resistance may ultimately undermine a detested political-economic order. But, it will only do so in the long-term, if at all. There are no guarantees, moreover, as to the desirability of the order that takes its place.

Everyday resistance thus focuses attention on 'the weapons of the weak'. Originally devised to understand

²³ Anthony Giddens, Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis (London: Macmillan, 1979), 149.

²⁴ James C. Scott, Weapons of the Weak: Everyday Forms of Peasant Resistance (New Haven: Yale University Press, 1985); idem, Domination and the Arts of Resistance: Hidden Transcripts (New Haven: Yale University Press, 1990).

²⁵ Scott, Weapons of the Weak, 29-36.

agrarian politics in contemporary Malaysia, it has since been used in other contexts, notably to explain what colonial and post-colonial states term forest 'crime': theft of produce, arson, trespass and illicit grazing.²⁶ Such resistance was ubiquitous in colonial Burma as peasants attempted to undermine access restrictions.

Resistance in Burma also took other forms. As practised by shifting (and 'settled') cultivators, it involved what Adas calls 'avoidance protest'.²⁷ As an attempt to deny material resources and labour to elites, avoidance protest often took the form of everyday resistance as noted above. Under certain conditions, however, protest was manifested more dramatically through the transfer of peasant services to a new patron, sectarian withdrawal, or flight to a new territory. The decision to adopt these more elaborate and potentially perilous forms of protest was usually an act of desperation, and reflected the failure of everyday resistance "to hold elite exactions at a tolerable level".²⁸ In part, the decision reflected the social structure and economic practices of the oppressed groups - to take an obvious example, shifting cultivators may have been more disposed to

²⁶ Ramachandra Guha, "Saboteurs in the Forest: Colonialism and Peasant Resistance in the Indian Himalaya," in Everyday Forms of Peasant Resistance, ed. Forrest D. Colburn (London: M.E. Sharpe, 1989), 64-92; Ramachandra Guha and Madhav Gadgil, "State Forestry and Social Conflict in British India," Past and Present 123 (May 1989): 141-77.

²⁷ Michael Adas, "From Avoidance to Confrontation: Peasant Protest in Precolonial and Colonial Southeast Asia," Comparative Studies in Society and History 23 (April 1981): 217-47.

²⁸ Michael Adas, "From Footdragging to Flight: The Evasive History of Peasant Avoidance Protest in South and South-east Asia," Journal of Peasant Studies 13 (January 1986): 69.

flight than settled agriculturists in long-established villages. Irrespective of the social and economic conditions of the dissatisfied groups, however, flight was based on certain contextual factors: low population density, a refuge territory or unoccupied lands to which individuals could go, and a relatively weak state.

At least initially, the advent of colonial rule hardly changed these forms of avoidance protest. But, as Scott and Adas emphasize, the gradual transformation of pre-colonial 'contest' states and patron-client relations into new political and economic forms circumscribed the peasant's traditional room for manoeuvre, and encouraged the development of new forms of resistance.²⁹ In colonial Burma, these altered conditions were reflected in novel types of political protest in the twentieth century. Yet the development of state control and new forms of protest must not blind us to the continuation of traditional resistance strategies. Even at the end of British rule in Burma in 1948, for example, flight was an option for some groups. Indeed, it remains a standard form of protest among Burma's ethnic minorities even today.³⁰

In recent years, scholars have used concepts such as everyday resistance and avoidance protest to explain peasant

²⁹ Adas, "From Avoidance to Confrontation," 240-47; James C. Scott, "Patron-Client Politics and Political Change in Southeast Asia," American Political Science Review 66 (March 1972): 91-113; idem, The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia (New Haven: Yale University Press, 1976).

³⁰ Martin Smith, Burma: Insurgency and the Politics of Ethnicity (London: Zed Books, 1991); Jonathan Falla, True Love and Bartholomew: Rebels on the Burmese Border (Cambridge: Cambridge University Press, 1991).

resistance to state forest control. Guha, for example, examines the impact of commercial forestry and British rule on forest politics in colonial and post-colonial Himalayan India.³¹ British intervention in this region disrupted pre-existing practices, and provoked resistance that culminated in an incendiary campaign and labour strike in 1921. Such protest was a potent challenge to state authority, and Guha suggests that the Chipko movement is a modern variant on this tradition of resistance.³²

Peluso documents access restrictions in the teak forests of central Java that have been a feature of Dutch and Indonesian rule.³³ But the assertion of state control over land, labour, species and ideology gave rise to analogous forms of resistance: 'squatting' or clandestine farming in state forests, strikes, migration and slowdowns, counter-appropriation or sabotage of commercial species, and counter-ideologies of communal ownership and resistance. In Peluso's view, this process of state control and peasant resistance has left a legacy of forester-village antagonism, rural poverty and forest degradation.

The studies by Guha and Peluso emphasize everyday forms of peasant resistance over more dramatic types of avoidance protest. In many cases, flight was simply not a realistic option in the more densely populated regions of India and

³¹ Ramachandra Guha, The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya (Delhi: Oxford University Press, 1989).

³² Ibid., 152-53.

³³ Nancy Lee Peluso, Rich Forests, Poor People: Resource Control and Resistance in Java (Berkeley: University of California Press, 1992).

Java in late colonial and post-colonial times.³⁴ In comparison, outside of the central dry zone and Irrawaddy delta, colonial Burma was sparsely populated. As such, even in the twentieth century, a range of avoidance options, including flight, were effective means of resistance.

Concepts such as everyday resistance and avoidance protest help to clarify how peasants fight restrictions on forest access and use. However, what about other forest users - European and indigenous timber traders, for example? How do these groups resist the state or turn official practices to advantage? In what manner did Europeans enjoy an edge over indigenous competitors in the determination of state policy? Did indigenous merchants have compensating advantages - the complicity of villagers in illicit extraction, for example? These questions illustrate an important point that is at the core of the notion of forests as a contested resource: conflict must be understood as a complex phenomenon in which interests are as diverse as the actors involved.

This thesis views forest conflict in colonial Burma in such a manner. It explores how various forest users resisted state regulation, and how that resistance was modified to meet changing political, economic and ecological conditions. But to fully understand forest politics, the role of the state, and specifically the Forest Department, must be evaluated.

³⁴ Peluso, Rich Forests, Poor People, 23; Guha, Unquiet Woods, 143-47.

The Forest Department as a Resource Manager

In 1956 Burma's Forest Department celebrated its centenary, and in a special issue of the Burmese Forester, Burmese and British foresters reflected on their professional experiences in the colonial era.³⁵ If opinions diverged on various matters, there was unanimity on the central importance of the Forest Department as the steward of the country's forests. This ethos of stewardship was an integral part of official attitudes, and must be kept in mind if the actions of foresters are to be understood.

If foresters saw themselves as impartial umpires who balanced short-term public needs with long-term national requirements, critics saw only unnecessary restrictions on popular access or commercial development. And, while the former believed that they promoted efficient forest exploitation, and in the process, contributed revenue for essential social services, the latter alleged that such efficiency only favoured European firms at the expense of Burmese traders. In contrast, whereas European firms in the nineteenth century were highly critical of the Forest Department, by the early twentieth century they were generally supportive of management practices that were to their advantage.

These views dominated forest politics. They illustrate the importance of the Forest Department as a resource manager. They also indicate the need for a careful evaluation of departmental objectives, and how those objectives affected other forest users. In such an analysis, reductionism must be

³⁵ Burmese Forester 6 (June 1956).

avoided. The Forest Department was not an impartial umpire as foresters fondly believed. But it was also not a 'tool' of the European firms or an 'oppressor' of the masses as nationalists often maintained. In a sense, the Forest Department was a forest user like any other, extracting timber and other produce for its own use or sale. What distinguished it from the others was its role as a resource manager. It sustained that role by drawing upon the colonial state's "continuous administrative, legal, bureaucratic and coercive systems" to enforce its will and modify forest activity.³⁶ In the process, the role of the Forest Department came to be contested as much as the forests themselves.

In the literature, the state is noted primarily as the instigator of ecological degradation. In the African context, scholars note that state intervention to enhance water availability in drought-prone areas, or to convert pastoralists to settled agriculture, often exacerbated soil erosion and social conflict.³⁷ Other writers explore the state's contribution to Third World deforestation. Repetto and Gillis, for example, document the credit and other inducements that encourage forest removal in South East Asia and the Brazilian Amazon.³⁸ These studies highlight the

³⁶ Alfred Stephan cited in Skocpol, "Bringing the State Back In," 7.

³⁷ P.E. Peters, "Struggles over Water, Struggles over Meaning: Water and the State in Botswana," Africa 54 (1984): 29-49; Michael M. Horowitz, "Ideology, Policy, and Praxis in Pastoral Livestock Development," in Anthropology and Rural Development in West Africa, ed. Michael M. Horowitz and T.M. Painter (Boulder: Westview Press, 1986), 251-72.

³⁸ Robert Repetto and Malcolm Gillis, ed., Public Policies and the Misuse of Forest Resources (Cambridge: Cambridge University Press, 1988).

ambiguous role of the state as an environmental manager. There is "an inherent, continuing potential for conflict between the state's roles as developer and as protector and steward of the natural environment on which its existence ultimately depends".³⁹

Such ambiguity characterized resource management in colonial Burma. British rule encouraged the deforestation of the deltaic rainforests to promote agriculture. As shown in this study, however, it was also marked by the creation of a forest service that was dedicated to the management of selected forest lands on a long-term commercial basis. The notoriety of forest officials noted earlier did not derive from policies that encouraged deforestation. Rather, such notoriety was due to their efforts to discourage practices that led to deforestation. In this manner, foresters sought to uphold the state's role as steward of the natural environment.

In doing so, however, they came into conflict with civil officials responsible for contiguous or overlapping policy areas. What Furnivall terms 'departmentalism' was an almost inevitable by-product of the way that the colonial state in Burma was structured.⁴⁰ As the British rationalized and expanded state activities, they organized them along functional lines. However, unlike in Dutch-ruled Java, these specialist services were not grouped in large departments

³⁹ K.J. Walker, "The State in Environmental Management: The Ecological Dimension," Political Studies 37 (1989): 32; see also Simon Dalby, "Ecopolitical Discourse: 'Environmental Security' and Political Geography," Progress in Human Geography 16 (October 1992): 503-22.

⁴⁰ Furnivall, Colonial Policy and Practice, 40-41, 72-73, 77, 240.

with the result that "none of these [specialist] officials saw life whole and, by reason of frequent transfers, none of them saw it steadily".⁴¹ The separation of forest management from civil administration in 1856 was thus part of a broader process of bureaucratic growth and differentiation in the nineteenth and twentieth centuries.

Discussion of bureaucratic growth, differentiation and conflict raises the important issue of the 'corporate cohesiveness' of the state.⁴² Earlier, the role of the state was considered as if it was a single actor. Here, it is appropriate to emphasize the internal complexity of the state, and to briefly note the political significance of the fact that although the state may be an 'actor', it is also a 'set of institutions'.

To view the state as a unitary actor is to assume that policy formulation and implementation are, for all intents and purposes, the same. The bureaucracy is seen as the ultimate expression of rationalization and efficiency. Thus, Weber notes that "the fully developed bureaucratic apparatus compares with other organizations exactly as does the machine with the non-mechanical modes of production".⁴³ As Dunleavy and O'Leary observe, in this Weberian ideal-type, "the civil

⁴¹ Ibid., 77.

⁴² Rueschemeyer and Evans, "The State and Economic Transformation," 60.

⁴³ Max Weber, Economy and Society: An Outline of Interpretative Sociology, 3 vols., ed. Guenther Roth and Claus Wittich (New York: Bedminster Press, 1968), 3: 973.

servant is an automaton, an infinitively pliable administrative chameleon".⁴⁴

In practice, of course, this ideal is not attained.⁴⁵ As a result, to understand why a policy is implemented in the manner that it is requires that attention be given to bureaucratic practices. But, if pluralist accounts have traditionally viewed such practices as mere manifestations of societal relations, state-centred accounts tend to minimize the importance of bureaucratic politics in favour of broader state-society interactions.⁴⁶ Recently, however, scholars have begun to re-assess Weberian notions of the 'rational bureaucrat' and the apolitical nature of the bureaucracy.⁴⁷ In part, this has been expressed through an exploration of how contemporary states combine modern rational-legal techniques with pre-modern authority structures.⁴⁸ Research also questions standard assumptions about bureaucratic interests. Dunleavy, for example, questions whether it is always in a bureaucrat's interest to budget-maximize; there may be other, more efficacious forms

⁴⁴ Patrick Dunleavy and Brendan O'Leary, Theories of the State: The Politics of Liberal Democracy (New York: Meredith Press, 1987), 170.

⁴⁵ As even Weber recognized, see Economy and Society, 1: 225; 3: 991. Nevertheless, Weber emphasized the machine-like quality of the bureaucracy, see *Ibid*, 3: 987-90.

⁴⁶ On pluralist accounts, see Skocpol, "Bringing the State Back In," 4. The same article illustrates the point that bureaucratic politics is not a central concern of the state-centred research.

⁴⁷ Mick Moore, "Competition and Pluralism in Public Bureaucracies," IDS Bulletin 23 (October 1992): 67-69.

⁴⁸ Michael Heller, "The Politics of Telecommunications Policy in Mexico" (D.Phil thesis, University of Sussex, 1990).

of individual and collective empowerment.⁴⁹ Such research highlights the complex, and often political nature of bureaucratic interaction and interests.⁵⁰

The point here is not that states should be treated "simply as disconnected collections of competing agencies".⁵¹ Rather, addressing bureaucratic politics as part of a broader analysis of state activities is merely to recognize that power is contested within state structures as it is in other realms of political interaction. The precise nature of bureaucratic politics is of course highly variable, and depends on agency development and structure, the presence or absence of administrative coordinating mechanisms, individual ambitions and perceptions, the definition of formal responsibilities, and so on.

In the Burmese context, the distinction between forest and civil officials, for example, was undoubtedly reinforced by the nature of forest administration. As one observer remarked:

It has been...said that the work of the forest service begins where that of the civil administration ends, on the fringes of the great forests, in which

⁴⁹ Patrick Dunleavy, Democracy, Bureaucracy and Public Choice: Economic Explanations in Political Science (London: Harvester Wheatsheaf, 1991), 174.

⁵⁰ Bill Jenkins and Andrew Gray, "Bureaucratic Politics and Power: Developments in the Study of Bureaucracy," Political Studies 31 (June 1983): 177-93.

⁵¹ Peter B. Evans, Dietrich Rueschemeyer and Theda Skocpol, "On the Road toward a More Adequate Understanding of the State," in Bringing the State Back In, ed. Peter B. Evans, Dietrich Rueschemeyer and Theda Skocpol (Cambridge: Cambridge University Press, 1985), 360.

the forest officer spends many months of the year, usually alone [sic].⁵²

Forestry and agriculture were nevertheless inter-connected, necessitating the cooperation of forest and civil officials. Yet, such cooperation was tempered by programmatic and perceptual differences. Civil administrators feared that the elaboration of forest management (notably through the creation of reserves) would limit their ability to regulate agricultural activities. In turn, foresters complained that the civil administration was pre-disposed to sanction forest clearance. These programmatic differences were reflected in conflicting self-perceptions: forest officials saw themselves as 'stewards' of the forest, while civil administrators considered themselves to be the people's 'guardians' or ma-bap ['sole parent'].⁵³ The need for specialized training reinforced this division by reducing inter-departmental movement and encouraging departmental insularity.

As administration became more complex, bureaucratic politics was a central factor in policy implementation. To understand forest policy, then, this thesis must address the internal politics of the colonial state. In what manner were

⁵² A retinue of indigenous assistants and servants notwithstanding! See Alexander L. Howard, "The Forests and Timbers of Burma," Journal of the East India Association (n.s.) 15 (1924): 142. Karen villagers were equally 'unfit' as company for European foresters. As one official observed, the isolation of these officers was felt all the more because "during their work in the forests they are alone for months together with Nature and the Karens," see G.D. Burgess (Secretary to the Chief Commissioner) to Secretary, Government of India, Home Department, 8 July 1881, India Forest Proceedings (May 1882), 998.

⁵³ B. Ribbentrop, Forestry in British India (Calcutta: Government Printing, 1900), 146; B.H. Baden-Powell, The Forest System of British Burma (Calcutta: Government Printing, 1873), 45.

forest issues related to, and shaped by, other political and economic considerations? What role did civil officials, and notably Commissioners and Deputy Commissioners, play in forest administration, and how did their other duties affect their approach to forest matters? What was the relationship between Burma's Forest Department and the governments of India and Britain? In 1923, partial self-rule (dyarchy) was introduced in Burma, and this process was extended in 1937 through further constitutional changes. How did these changes affect the Forest Department which was one of the original departments transferred to indigenous control? How did the growing politicization of government - particularly after 1937 - alter forest management? These questions indicate that in order to understand the Forest Department's role as a resource manager, it is necessary to be clear about its position within a larger political and institutional context.

It is only when such an approach is adopted that it is possible to fully appreciate the multiple, and at times, contradictory functions of forest administration in Burma. Foresters believed their role to be the promotion of long-term forest development and stewardship. In contrast, senior colonial officials viewed it as being primarily concerned with revenue creation; the Forest Department was "an instrument intended to create and free wealth as efficiently as possible, in the context of a larger set of external imperial, economic, political and strategic interests".⁵⁴ This tension between stewardship and revenue creation,

⁵⁴ Robert H. Taylor, The State in Burma (London: C. Hurst, 1987), 68.

conservation and development, added to the complexity of resource management and conflict.

To understand forest politics in colonial Burma is also to consider how the Forest Department managed, as well as how other forest users resisted such management. But it was more than that. Conflict over forest access was further a struggle of ideas over what constituted appropriate forest use.

Conflicting Perceptions of Forest Use

The conquest of Burma in the nineteenth century is significant not only because it ended indigenous rule, but also because it marked the country's incorporation into the world's largest empire headed (initially at least) by its most industrialized nation. It is often observed that British rule transformed Burma's political-economy. It did so less through the use of force, however, than through the introduction of new ideas of social practice: laissez-faire, rationalization, the bureaucratic state, and nationalism. Scientific forestry was one of many catalysts for all of these.

Burma's forests bore witness to the power of these new ideas. Indeed, one way of classifying forest politics in colonial Burma is by the ideas that characterized a period - laissez-faire forestry in the early years, and scientific forestry after 1856, for example. More importantly, these ideas altered perceptions of forest use, often with dramatic effect. Under the influence of laissez-faire ideas, colonial officials nurtured a thriving timber industry in Tenasserim, but at the cost of extensive over-harvesting. From 1856, new

ideas (and personnel) were imported from Europe in order to prevent similar degradation in Pegu's teak forests. The means chosen to promote scientific forestry, the functionally-defined Forest Department, itself manifested this new way of thinking.

The idea of laissez-faire was associated with the doctrine of economic liberalism. Popular with Britain's leaders and intellectuals in the nineteenth century, economic liberalism promoted free trade, comparative advantage and a limited state. As proposed by Adam Smith, and subsequently refined by such British writers as Ricardo, Torrens, and Mill, economic liberalism promised a simple path to 'the wealth of all nations'.⁵⁵ If states removed barriers to trade, economic growth would result through an international division of labour that placed a premium on the optimal allocation of human and natural resources. Through the timely provision of public goods, the state would play an essential, if clearly supportive role.

Such views shaped early colonial forest management in Burma. But laissez-faire forestry never went unchallenged. After 1856, moreover, an alternative 'scientific' approach based on state intervention was adopted. Scientific forestry first developed in Germany and France, countries with long traditions of forest regulation.⁵⁶ In essence, it called for

⁵⁵ Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations, 2 vols., ed. R.H. Campbell and A.S. Skinner (1776; reprint, Oxford: Clarendon Press, 1976).

⁵⁶ Franz Heske, German Forestry (New Haven: Yale University Press, 1938); Dietrich Brandis, Indian Forestry (Woking: Oriental University Institute, 1897), 6-7; Robert K. Winters, The Forest and Man (New York: Vantage Press, 1974), 275-77.

selective harvesting and planting so as to ensure future timber supplies. Under this system, the future of the forest was not entrusted to what Smith termed 'the unseen hand of the market'. Rather, it was guaranteed through strict rules - the highly 'visible' hand of the government official. But those rules also tended to undermine pre-existing patterns of popular access and use. As foresters promoted commercial woods, they sought to eliminate 'worthless' species that were often of considerable local use-value. Scientific forestry was thus a system premised on long-term commercial timber production that was "designed to reorder both nature and customary use in its own image".⁵⁷

In colonial Burma, the growing influence of scientific forestry coincided with the rise of the bureaucratic state. With its emphasis on regulation, enumeration and calculation, it is not difficult to see why scientific forestry was so well suited to the outlook of the country's new 'Leviathan'.⁵⁸ Both were predicated on the principle of rationalization, understood here in the Weberian sense of 'formal rationalization'.⁵⁹ The latter may simply be considered as a

⁵⁷ Guha, Unquiet Woods, 59. For a critique of scientific forestry, see Madhav Gadgil and Ramachandra Guha, This Fissured Land: An Ecological History of India (Delhi: Oxford University Press, 1992), 207-14.

⁵⁸ John S. Furnivall, "The Fashioning of Leviathan: The Beginnings of British Rule in Burma," Journal of the Burma Research Society 29 (April 1939); reprint, ed. Gehan Wijeyewardene (Canberra: Department of Anthropology Occasional Paper, Research School of Pacific Studies, Australian National University, 1991).

⁵⁹ Weber distinguishes between formal ('means-oriented') rationality and substantive ('ends-oriented') rationality. The former is notably expressed through bureaucratic development, but refers generally to the calculability of means and procedures, see Weber, Economy and Society, 1: 85-86, 223-26; 3: 973-75, 987-89; see also, Raymond Murphy,

dynamic process whose "implicit ultimate value" is one of control: "control over nature through scientific and technological rationalization," and "control over humans through rational-legal domination".⁶⁰ Formal rationalization is not about revolutionary change, but rather consists of "controlled change" in order to strengthen mastery, and "render it deeper, more comprehensive, more subtle, and more legitimate".⁶¹ Such was the ultimate goal of scientific forest management in colonial Burma.

With its adoption, foresters became more critical of unscientific indigenous practices. Peasants and timber traders were criticized for being 'wasteful', but shifting cultivators were condemned even more vigorously. The latter stood accused of perpetrating massive deforestation and other ecological crimes.⁶² British assessments of the superiority of scientific forestry over indigenous methods were decidedly paternalistic, if not racist. As one official remarked: "the paternity of the State in the welfare of its children is surely manifested by restricting the unthrifty methods of a few for the benefit of the many".⁶³ Modern, abstract

Social Closure: The Theory of Monopolization and Exclusion (Oxford: Clarendon Press, 1988), 196-99.

⁶⁰ Murphy, Social Closure, 218.

⁶¹ Ibid., 218-19.

⁶² Shifting cultivation is attacked even today, see Evelyne Hong, Natives of Sarawak: Survival in Borneo's Vanishing Forests (Penang: Institut Masyarakat, 1987); Harold Brookfield, "The New Great Age of Clearance and Beyond," in People of the Tropical Rain Forest, ed. Julie S. Denslow and Christine Padoch (Berkeley: University of California Press, 1988), 218-24.

⁶³ Burma Forest Proceedings (March 1902), 5. On science and ideologies of Western control, see Michael Adas, Machines as the Measure of Men: Science, Technology, and Ideologies of

(mathematical) and industrial, scientific forestry was seen as yet another example of how European skill and ingenuity would save the natives from themselves. Given the importance of Burma's forests, this burden was a 'White Man's Burden' indeed.⁶⁴

Ecological thinking was integral to this critique of indigenous practices. Whereas the British considered themselves to be 'good' ecologists, the Burmese were viewed as being ecologically disruptive. As the literature illustrates, this perceptual dichotomy was not unique to colonial Burma, or for that matter, to forestry. Throughout Africa and Asia, indigenous land-use practices were criticized by colonial scientists and administrators.⁶⁵ Such criticism was then used to justify state intervention through agricultural improvement and soil conservation programmes. In Burma, a similar procedure was followed by the Forest Department as it asserted control over a widening territory and range of activities. Indeed, the whole stewardship ethos noted earlier was based on the claim to superior ecological credentials.

Western Dominance (Ithaca: Cornell University Press, 1989).

⁶⁴ On the ethos of the White Man's Burden, and of the British Empire generally, see Jan Morris, The Spectacle of Empire: Style, Effect and Pax Britannica (London: Faber and Faber, 1982); for a critique in the Burmese context, see George Orwell, Burmese Days (1935; reprint, Harmondsworth, Middlesex: Penguin, 1987).

⁶⁵ Paul Richards, Indigenous Agricultural Revolution (London: Hutchinson, 1985), chap. 1; Blaikie, Political Economy of Soil Erosion, 53-60; Jenny Elliott, "Environmental Degradation, Soil Conservation and the Colonial and Post-colonial State in Rhodesia/Zimbabwe," in Colonialism and Development in the Contemporary World, ed. Chris Dixon and Michael J. Hefferman (London: Mansell, 1991), 78-81.

The Burmese challenged that claim.⁶⁶ 'Traditional' forest practices were asserted through everyday forms of resistance and avoidance protest. After the First World War, the rise of nationalism in Burma provided another means of attacking scientific forestry. In a context of partial self-rule, the combination of peasant resistance and nationalist agitation was to prove a formidable challenge to the Forest Department's efforts to administer forest activity in the imperial interest. A central objective of the thesis is to assess that challenge as it explores those links between perceptions, interests, access and conflict that are the essence of forest politics in colonial Burma.

Contesting the Resource

As the title of the study indicates, colonial forest management was not peaceable. Adopting conflict as a central theme takes issue with traditional accounts that extol the virtues of forest 'progress', and which imply that Burma's forests were above politics.⁶⁷ Forest management was indeed political, as forest users, including the state, contested resource access and use.

Three themes in this thesis address the problem of forest politics in colonial Burma. The first theme concerns the contested nature of the forest resource, and explores how

⁶⁶ For the purposes of this thesis, 'Burmese' and 'Burman' are used interchangeably.

⁶⁷ E.P. Stebbing, "The Teak Forests of Burma," Nature 160 (13 December 1947): 818-20; idem, The Forests of India vols. 1-3; J. Nisbet, Burma under British Rule and Before, vol.2 (Westminster: Archibald Constable, 1901), chap. 3; C.W. Scott, "Forestry in Burma," Journal Oxford University Forest Society, 3rd. series 1 (1946): 24-34.

diverse forest users resisted the imposition of state forest control. The second theme examines the complexities of such control through an evaluation of the Forest Department's role as a resource manager, and how that role was conditioned by broader political and institutional forces. The third theme, which is about conflicting perceptions of forest use, describes how state forest control changed as new ideas of social practice and political order were introduced, and how popular resistance was in turn based on the assertion of 'traditional' practices that were often articulated as modern nationalist demands. Forest politics was thus a dynamic of control and resistance that was rooted in profoundly different perceptions of what was considered appropriate use of the forest resource.

But, as the choice of the term 'resource' highlights, Burma's forests were generally conceived of in a particular way. Rarely, for example, were the forests valued for themselves. Rather, they were valued for how they could be used to promote human welfare, and in the case of certain ecological arguments, overall well-being. Their utility lay precisely in their incorporation in human activity.

It fell to the Forest Department to regulate this process of incorporation. As a resource manager, it was in the business of making choices - where, when, how, or even if, the forests were to be exploited. In making these decisions, the Forest Department was inevitably engaging in politics. The next chapter will show how forest management in the early colonial period helped determine the nature of forest politics in Burma well into the twentieth century.



CHAPTER 2

FOREST MANAGEMENT IN EARLY COLONIAL BURMA 1826-55

After the first Anglo-Burmese war (1824-26), the British transformed the newly acquired territory of Tenasserim from an economic backwater into a major regional centre. A prosperous timber and ship-building industry developed at the principal town of Moulmein based on the exploitation of the region's teak forests. Yet, despite the fact that such exploitation was characterized by widespread over-harvesting and conflict, colonial officials were slow to intervene to regulate the trade.

The present chapter describes this situation. But these same laissez-faire practices in Tenasserim's forests ultimately led to state intervention in the 1850s. Such intervention, and its implications for forest users, is the subject of later chapters, but here the concern is to elaborate the bases of such intervention.

Between 1829 and 1857, private firms in Tenasserim were essentially free to extract teak as they wished. Forest rules were few in number, and limited in scope. In any case, they were ineffectual in the absence of a forest service entrusted with their enforcement. But this state of affairs, which is here termed laissez-faire forestry, never went unchallenged. Throughout this period, government officials and scientists warned of the consequences of unfettered timber extraction. By the 1850s, the depletion of Tenasserim's teak forests made state intervention seem the only realistic option if the teak forests of Pegu, annexed after the second Anglo-Burmese war (1852), were to avoid a similar fate. More importantly, in an

altered imperial context, the assertion of state forest control at last became politically feasible.

Laissez-faire Forestry in Tenasserim

The depletion of Tenasserim's teak forests had a major impact on the development of forest policy in colonial Burma. Among forest officials, this event was a reminder of the dangers inherent in any abdication of the state's stewardship role. As with any event that is mythicized, however, early colonial forest practice was deprived of much of its original complexity. That laissez-faire forestry resulted in extensive over-harvesting is well-known. Less well understood are the political and economic conditions that produced this outcome, and the reasons why an alternative system was not adopted.

The Tenasserim forests were an important, and timely addition to the British empire's rapidly diminishing teak supplies. A versatile timber, teak was especially sought after for the construction of naval vessels. Having exhausted British timber supplies around the turn of the nineteenth century, the government discovered a useful substitute for oak in the form of teak. Indeed, teak proved superior for shipbuilding, for unlike oak, it contained an oil which prevented metal corrosion.¹ At first, teak was supplied from the Malabar forests of southern India, but by the 1820s that

¹ John Nisbet, Burma under British Rule and Before, vol. 2 (Westminster: Archibald Constable, 1901), 47; Robert Greenhalgh Albion, Forests and Sea Power: The Timber Problem of the Royal Navy 1652-1862 (Cambridge, Mass.: Harvard University Press, 1926), 35-36, 365-68. On naval shipbuilding in Great Britain during this era, see N.D.G. James, A History of English Forestry (Oxford: Basil Blackwell, 1981), 139-60.

supply was being rapidly exhausted.² Moreover, teak from the other major source, monarchical Burma, was in erratic supply.³

When the British annexed Tenasserim, they sent Dr. Nathaniel Wallich, the Superintendent of the Botanical Gardens at Calcutta, to report on Tenasserim's teak forests in the belief that those resources were "not only ample but of very superior quality".⁴ In 1827, Wallich confirmed that belief. Not only were the forests extensive, but they were also largely untouched. And, he predicted that under British rule, they would rise to an importance "to which their wonderful natural capabilities so fully entitle them...in point of timber forests they stand altogether unrivalled".⁵ In light of this report, the Government of India ordered the Province's first Commissioner, Mr. Anthony D. Maingy, to retain the forests on the government's behalf.

For the next two years, those forests were worked by government monopoly. In December 1827, Maingy reported that

² B. Ribbentrop, Forestry in British India (Calcutta: Government Printing, 1900), 64-66.

³ The point here is not that Burma's rulers discouraged the export of teak and teak ships. In the late eighteenth and early nineteenth centuries, such exports appeared to be on the rise, see Victor Lieberman, "Secular Trends in Burmese Economic History, c. 1350-1830, and their Implications for State Formation," Modern Asian Studies 25 (February 1991): 14-15; B.R. Pearn, A History of Rangoon (Rangoon: American Baptist Mission Press, 1939), 70-72. Rather, political and economic conditions in Burma were such that the annual teak supply was not reliable or predictable, see Oliver B. Pollack, Empires in Collision: Anglo-Burmese Relations in the Mid-Nineteenth Century (Wesport, Conn.: Greenwood Press, 1979), 54-55.

⁴ E.P. Stebbing, The Forests of India, vol. 1 (London: John Lane for the Bodley Head, 1922), 125.

⁵ Cited in *Ibid.*, 135.

a supply of timber had been collected at Tavoy and Mergui "equal to load a vessel of 6 or 700 tons burthen" that required shipment to Bengal.⁶ Five months later, 511 teak logs valued at six thousand rupees were shipped from Tavoy to Calcutta to meet military, and other public purposes, as well as to test the Calcutta market. However, this experiment flopped as the consignment sold at a loss of 250 rupees.⁷

In 1829 the government ended its teak monopoly. Powerful timber merchants pressured senior officials in Calcutta and London, and may even have colluded to defraud government of revenue at the sale of state timber just noted.⁸ With the annexation of Tenasserim, these merchants had anticipated less regulation under British rule than they had experienced under the Burmese state. They were consequently furious that state intervention was to continue.⁹

But government was itself divided on the issue of the monopoly, and the timber merchants found a powerful ally in Commissioner Maingy. A tireless advocate of private enterprise, Maingy argued that the Government of India could

⁶ Selected Correspondence of Letters Issued from and Received in the Office of the Commissioner, Tenasserim Division for the Years 1825-26 to 1842-43 (Rangoon: Government Printing, 1916), 71.

⁷ W.R. Baillie, "Summary of Papers Relating to the Tenasserim Forests," Selections from the Records of the Bengal Government 9 (1852), 81.

⁸ Stebbing, Forests of India, 1: 141.

⁹ John S. Furnivall, "The Fashioning of Leviathan: The Beginnings of British Rule in Burma," Journal of the Burma Research Society 29 (April 1939); reprint, ed. Gehan Wijeyewardene (Canberra: Department of Anthropology Occasional Paper, Research School of Pacific Studies, Australian National University, 1991), 71.

best promote its interests under a system of quasi-regulated private extraction.

Instead of incurring the expense of establishments for preserving [the teak forests] for the sole use of Government the most advisable plan will be to issue licenses to private individuals to cut timber upon condition of paying to Government a duty of 10 or 15 per cent upon the value of the timber when brought down for exportation the value to be fixed by arbitration and it being always optional with Government to take any portion of the timber at such valuation. A general and equal duty of a certain sum upon each tree cut would be a good mode of preventing the smaller and less valuable trees from being cut down. A regulation also confiscating all timber cut under specified dimensions would tend to preserve the young trees.¹⁰

Undoubtedly the Commissioner saw this plan as a reasonable compromise between the legitimate claims of the state and the demands of the timber industry. The former would be remunerated for the use of its forests, the latter would be allowed to extract timber, and the teak forests would be safeguarded from over-exploitation by simple rules.

Maingy was not the only colonial official who believed in private enterprise. As a representative of the British empire, he was influenced, as were many others, by the intellectual trends of the day. In 1829, the year Tenasserim's teak forests were thrown open to free enterprise, Adam Smith's An Inquiry into the Nature and Causes of the Wealth of Nations had been published just fifty-three years, and David Ricardo's The Principles of Political Economy and Taxation, a mere twelve years.¹¹ If, as

¹⁰ Selected Correspondence, 71-72.

¹¹ Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations, 2 vols., ed. R.H. Campbell and A.S. Skinner (1776; reprint, Oxford: Clarendon Press, 1976); David Ricardo, The Principles of Political Economy and Taxation (1817; reprint, London: John Murray, 1821).

Smith argued, the sovereign had only three essential duties - defense, justice, and certain public works and institutions for "facilitating the commerce of society and...the instruction of the peoples" - then as the Crown's representative in Tenasserim, and with support from Calcutta and London, Maingy's task was to put into practice this vision of a rational but limited state.¹²

The decision to end the monopoly was thus not, as Stebbing implies, largely the work of Maingy.¹³ It is highly improbable that senior officials in Calcutta and London would have agreed to the abandonment of a potentially lucrative monopoly simply as a result of a minor loss at a first timber sale. Rather, the loss was more likely a convenient pretext for the government to extricate itself from a politically difficult situation. As in the case of the Malabar forests, it was under pressure from a timber industry that could associate its unimpeded access to the forests with a broader campaign for free trade and limited government involvement in the economy. In an empire that produced the likes of Smith and Ricardo, those who promoted a teak monopoly were fighting an uphill battle in the early nineteenth century.

This point is an important one. It is only when the political and economic temper of the times is recognized that it is then possible to understand why laissez-faire forestry persisted in Tenasserim long after Maingy had left the province, and despite the best efforts of a succession of opponents to have it ended. It was only after 1850, and in an

¹² Smith, Wealth of Nations, 723; Robert H. Taylor, The State in Burma (London: C. Hurst, 1987), 83, 108.

¹³ Stebbing, Forests of India, 1: 140-42.

altered political and economic context, that other ideas became influential.

As introduced in 1829, laissez-faire practices transformed Tenasserim's teak forests. Private traders flocked to the Province, and Moulmein became an important timber and ship-building town. By 1833, 7,309 tons of converted teak had been exported to India, three large vessels built, and three more were under construction; to encourage this development, Maingy urged his superiors to impose a duty on teak imported from monarchical Burma to Calcutta.¹⁴ As Table 2.1 highlights, extraction increased in the main teak forests that were located to the south and east of Moulmein along the Ataran river. By the late 1840s, however, the best tracts had been exploited, and activity moved into adjoining territories under the rule of Shan and Karenni chieftains.

TABLE 2.1

TEAK TIMBER BROUGHT FROM THE ATARAN FORESTS,
1829 TO 1857-58

Years	No. Harvested Trees	% of Total
1829-April 1841	77,704	56.3
May 1841-April 1847	44,269	32.1
May 1847-April 1853	11,682	8.5
May 1853-April 1858	4,292	3.1
Total	137,947	100.0

Source: Calculated from D. Brandis, "Report on the Attaran Forests for the Year 1860," Selections from the Records of the Government of India (Foreign Department) 32 (1861), 139.

As noted later in this chapter, the number of harvested trees was actually much greater than suggested by the data in this

¹⁴ Selected Correspondence, 98-99.

table. The figure of 137,947 trees is an estimate derived from the total amount of timber officially reported at Moulmein. As a result, it does not include the substantial amount of timber illicitly logged and exported from Tenasserim.

Be that as it may, Table 2.1 is primarily of interest here for another reason. By charting the cycle of extraction in the Ataran forests, it gives some indication of the movement of the timber 'frontier'. Thus, between 1829 and 1841 forest work was on the increase, with annual extraction averaging 6,500 trees. During the period 1841-47, production peaked at about 7,400 trees, before dropping to under 2,000 trees per annum in 1847-53. After 1853, fewer than 1,000 trees per year were being removed, indicating that, under laissez-faire conditions, the Ataran forests had been all but cleared of marketable teak in under thirty years.

Much of that timber was exported to Europe and India to be used for ship-building or other purposes. But a considerable proportion was also used locally. Thus, by 1852 more than one hundred ships with a tonnage of thirty thousand had been built at Moulmein. Not surprisingly, many timber merchants prospered. Moreover, they were "closely connected" to the large Calcutta firms, and entertained "some influence in government circles".¹⁵

The success of the Moulmein timber industry appeared to vindicate economic liberals such as Maingy. A small and nondescript village had been replaced by a prosperous lumber

¹⁵ Pollack, Empires in Collision, 46; J.S. Furnivall, Colonial Policy and Practice: A Comparative Study of Burma and Netherlands India (1948; reprint, New York: New York University Press, 1956), 45.

town, and Tenasserim's forests had become a valuable economic resource. It seemed a textbook example of the benefits of comparative advantage, free trade and a limited state.

In theory, the government controlled forest exploitation. Licenses could be revoked if traders failed to abide by the rules. Those rules stipulated that traders were to keep government informed of their operations, and that trees below a girth of four feet were not to be felled.¹⁶ Timber was also subject to a 15 per cent duty, and could be requisitioned by government. In this manner, it was hoped to meet the government's financial and military needs while permitting the freest possible exploitation. But as Stebbing observes:

With an adequate supervising staff these rules might have been effective and a check to ruthless exploitation. When the size of the country is taken into account, the absence of a trained staff and the ignorance appertaining to the forests themselves, which were unsurveyed, the above rules were counsels of perfection quite unrealisable.¹⁷

The addition of a small native establishment in 1833 to see that the wood cutters "fell the teak trees fairly and do no unnecessary damage to the Forests" did not alter the situation.¹⁸

Government policy had a disastrous effect on the forests. It sanctioned unfettered teak extraction by private traders, but at the same time, a system of leases which could be revoked at any time discouraged those traders from building

¹⁶ License holders were also theoretically liable for the activities of their workers. For example, see the license of Shoay Byee, 4 June 1833, reprinted in Conservator Leeds to Secretary to the Chief Commissioner, 10 May 1865, India Forest Proceedings (henceforth IFP), (November 1866), 350.

¹⁷ Stebbing, Forests of India, 1: 142.

¹⁸ Selected Correspondence, 99; Baillie, "Summary of Papers", 83.

a long-term interest in the forests. As the value of teak increased, traders maximized profits and yields by adopting a cut-and-run strategy.¹⁹ Unlike in later years, many of these traders were men of little substance.

TABLE 2.2

TEAK BROUGHT FROM TENASSERIM'S FORESTS BY EXTRACTION
AGENCY, 12 APRIL-12 NOVEMBER 1841

Name of Agent	No. of Trees	% of Total
Cockerell and Co.	2,156	23.8
Shaik Abdullah	398	4.4
Captain Clarke	194	2.1
Mr Darwood	135	1.5
Mr Fox	322	3.6
Mr Richardson	301	3.3
Thoung Yeen	1,641	18.1
Weingo	412	4.6
Mr Murrell	66	0.7
Gyne Lyne Boey	675	7.4
Pandon Salween	824	9.1
Native Grants	1,945	21.4
Total	9,079	100.0

Source: Selected Correspondence of Letters Issued from and Received in the Office of the Commissioner, Tenasserim Division for the Years 1825-26 to 1842-43 (Rangoon: Government Printing, 1916), 280.

Note: 'Thoung Yeen' refers to timber extraction in the Thaungyin valley by Karens.

Table 2.2 gives only a partial glimpse of the extraction business. Moreover, given extensive illegal extraction, the data is inevitably imprecise. Nevertheless, it highlights the important point that in the early colonial period Europeans played a secondary role in teak extraction: in 1841, non-Europeans were responsible for at least 65 per cent

¹⁹ B.O. Binns, Amherst District Gazetteer (Rangoon: Government Printing, 1935), 49. The East India Company acknowledged this problem in 1842, see Archibald Bogle (Commissioner of Tenasserim) to Cecil Beadon (Secretary, Government of India, Foreign Department), 30 November 1855, in Brandis, "Attaran Forests," 9.

of the timber harvest. Contemporary records typically fail to note the specific circumstances and backgrounds of these non-European traders. However, 18 per cent of the total was extracted from the 'Thoung Yeen' (Thaungyin) valley by Karens who were considered to have "the first right to the produce of their own Forests" in return for the payment of taxes.²⁰ Karen participation in the teak trade extended well beyond the Thaungyin valley, however. They were particularly in demand as elephant mahouts (or managers).²¹

If non-Europeans were largely responsible for teak extraction, European timber merchants controlled the marketing end of the business. The relationship between these merchants who "sat in Moulmein counting profits" and indigenous traders varied.²² In certain cases, Europeans contracted 'natives' to bring down from the forest a specified number of trees. In return, the latter were paid in kind, being allowed to retain for their own use or sale one-half of the timber consignment. In other instances,

²⁰ D. Brandis, "Progress Report of the Forests of the Tenasserim and Martaban Provinces for 1858-59 and 1859-60," Selections from the Records of the Government of India (Foreign Department) 29 (1861), 20. Karen worked the Lower Thaungyin forests until 1904 and the Upper Thaungyin forests until 1911 as government contractors. Thereafter, the forests were transferred to Steel Brothers, see A.E. Ross, Working Plan for Lower Thaungyin Working Circle (Rangoon: Government Printing, 1909), 14; W. Lawton, Working Plan for Upper Thaungyin Working Circle (Rangoon: Government Printing, 1918), 11.

²¹ Baillie, "Summary of Papers", 129-31; Charles F. Keyes, "The Karen in Thai History and the History of the Karen in Thailand," in Ethnic Adaptation and Identity: The Karen on the Thai Frontier with Burma, ed. Charles F. Keyes (Philadelphia: Institute for the Study of Human Issues, 1979), 46.

²² Pollack, Empires in Collision, 46; see also Furnivall, Colonial Policy and Practice, 45.

advances were paid to Burmese workers to bring down trees at a specified rate for each, it being left to the discretion of those workers as to how many trees were actually extracted.²³

Whatever their nationality, timber traders were scarcely troubled by government supervision. Preoccupied with other matters, Commissioner Maingy and other colonial officials took little action to determine whether license holders were obeying the rules. In certain cases, such inaction had a more ominous meaning:

sharp practices in private enterprise and government abounded ... some British merchants had arrangements with Martaban officials to obtain stolen teak from competitors. British officers dealt in private trade in direct violation of the East India Company charter of 1833.²⁴

In general, local officials considered selective deforestation to be a small price to pay for economic development. Thus, the first two Commissioners of Tenasserim, Maingy (1827-33) and Mr. Edmund A. Blundell (1833-43) both requested that the timber duty be lowered to facilitate increased teak extraction and ship-building. In rejecting these requests, the Government of India noted that the "thriving condition of the trade" was the "best evidence" that the duty was not too high.²⁵

As the trade thrived, revenue stagnated. Although teak represented as much as 50 per cent of total exports by value, between 1829 and 1841 it yielded 192,590 rupees, or just

²³ Selected Correspondence, 198.

²⁴ Pollack, Empires in Collision, 46; see also Binns, Amherst District Gazetteer, 50.

²⁵ Selected Correspondence, 103, 246-47. Blundell subsequently changed his position on the duty question.

16,049 rupees per year.²⁶ In 1839 more revenue was earned from the hire of Indian convicts than from the forests, and as much as three-quarters of the timber may have escaped duty.²⁷ Taking the economy of Tenasserim as a whole, the British may have been "more effective in taxing the land and people than the precolonial state had been," but this was probably not so in the case of the teak trade.²⁸

As the extent of over-harvesting became known, the Government of India introduced stricter rules. In 1841, the minimum girth of harvestable trees was increased from four to six feet, and licensees were required to plant five trees for every one extracted. The Executive Engineer of Moulmein, Captain Tremenheere, was deputed as the Province's first Superintendent of Forests. Under the new system, timber revenue also increased, netting 133,481 rupees in the first three years, or nearly 45,000 rupees per year.²⁹

These measures acknowledged the problem, but did not provide the political and economic resources needed to resolve it. With only a small establishment, and burdened with other duties, the new Superintendent was unable to effectively supervise forest work. As a result, forest rules continued to be subject to what Commissioner Henry M. Durand called in 1846 "the most gross neglect and the most barefaced violation".³⁰ One indication of the government's continued

²⁶ Brandis, "Attaran Forests," 140.

²⁷ Furnivall, Colonial Policy and Practice, 45-46.

²⁸ Taylor, State in Burma, 90.

²⁹ Baillie, "Summary of Papers," 128.

³⁰ Cited in Pollack, Empires in Collision, 49.

reluctance to intervene was its treatment of the 'revocable' timber license. Between 1829 and 1846, not one license was revoked, and in 1846, when Captain Guthrie (Tremenheere's successor as Superintendent) resorted to the clause, business outrage prompted the Government of Bengal to discountenance the move. Indeed, "large sums were paid for the transfer of the licenses, showing the feeling of security that was placed in them".³¹

If the government was reluctant to intervene in the teak trade, it was largely powerless to regulate the non-teak forest sector. With only a small staff to control a large and mountainous territory, the British were forced to rely on village headmen (thu-gyi) to collect revenue.³² Inevitably, the latter under-reported the resources of their village, thereby depriving the colonial state of revenue.³³ In 1840, Commissioner Blundell acknowledged the difficulties associated with the taxation of a natural resource that was only nominally state property when he noted that forest products

do not belong to any individuals in particular and are collected by those who choose to resort to the forests for them and who are supposed to give in an account of the quantity so collected, on which the duty is levied, but as we have no means of checking

³¹ H. Falconer, "Report on the Teak Forests of the Tenasserim Provinces," Selections from the Records of the Bengal Government 9 (1852), 36. Two Calcutta firms (Cockerell and Company and Mackay and Company) affected by Guthrie's actions led the campaign against the Superintendent. One of these firms was supplying the government with timber for naval purposes. Upon the orders of Deputy Governor of Bengal Herbert Maddock, the leases were restored; Guthrie then resigned in protest, see Stebbing, Forests of India, 1: 177-86.

³² Furnivall, Colonial Policy and Practice, 37-39.

³³ Taylor, State in Burma, 90.

such statements, most of the duty is of course avoided and the amount collected small.³⁴

Blundell also drew attention to the reason why most forest produce was inherently more difficult to tax than teak.

This duty [on forest produce] is of precisely the same nature as that levied on [teak] timber...in the case of [the latter] however, it being a bulky article and obliged to be brought openly down the rivers, we possess effectual means of realizing the duty, but such is not the case with the other articles which are easily transportable by land without cognizance. For this reason I think the duty may well be remitted altogether, at [sic] it falls unequally on a few who may be too honest or too lazy to endeavour to avoid payment.³⁵

In lieu of posting officials in the forest to enforce the duty, Blundell had little option but to remit this unworkable tax.

For similar reasons, colonial officials were ill-placed to regulate the activities of Tenasserim's shifting cultivators. Predominantly of Karen origin, these cultivators cut an annual hill clearing (taungya) in which they grew subsistence and cash crops. The Karen were long-standing participants in the regional economy, and paid tribute in kind to the local Burmese Governor.³⁶ Under the British, that tribute was converted into a money payment which was "much more convenient" to the government "if not to the Karens".³⁷ First levied at the rate of fifteen rupees a year per family, it was subsequently reduced by 50 per cent or more. In reducing the tax, Blundell rejected its total abolition, arguing that

³⁴ Selected Correspondence, 193.

³⁵ Ibid., 193-94.

³⁶ Ibid., 18-19; Brandis, "Attaran Forests," 119-20.

³⁷ Furnivall, "Fashioning of Leviathan," 138.

by so doing we should rather afford a premium to their continuance in their wild and unsettled habits than encourage their settlement into regular villages when they would come under the operation of other taxes. A judicious reduction... would, I think, have a better tendency to encourage settled habits among them, while to encourage immigration, new arrivals among them may be declared free of tax for periods of 3 or 5 years.³⁸

As with his predecessor, Commissioner Blundell wanted to convert shifting cultivators into settled agriculturists. In doing so, he revealed the concerns of a civil administrator - shifting cultivators were condemned primarily because they were difficult to tax and control. Shifting cultivators were also being criticized for allegedly destroying vast areas of forest. However, such criticism formed part of a broader critique of laissez-faire forestry.

Challenging Laissez-Faire

From the beginning of British rule in Tenasserim, a succession of officials questioned the merits of laissez-faire forestry. Unfettered free enterprise, it was suggested, would only lead to the depletion of the teak forests. In this regard, shifting cultivation was also seen to be a problem. The logical corollary of such criticism was that state intervention was required if the forests were to be protected.

As early as 1827, Dr. Wallich advocated such intervention. As a government botanist, he held different views from Commissioner Maingy. With other scientists and surgeons in India, he was opposed to the destruction of the

³⁸ Selected Correspondence, 193.

Empire's largely unexplored tropical forests.³⁹ Whereas Maingy saw only an under-utilised resource, Wallich noted the biotic diversity; and, while the Commissioner enthused about apparently limitless forests, the Superintendent warned of a timber famine.

In a letter to the government's local Political Agent, Sir Archibald Campbell, Wallich proposed a system quite different from that which ultimately came to pass under Maingy.

No forest exists which can with propriety be called inexhaustible - at least none that is liable to constant and extensive demands for timber. The quantity of teak used for public purposes...is so great...that the Martaban Forests, ample as they are, would soon be impoverished, unless they were placed under a vigilant and strict superintendence, their supplies regulated with economy, and their extent gradually augmented. I hope I take a correct view of the case, if I consider all the teak forests which grow in these Provinces as the exclusive property of the State, applicable only to public use, and not to be interfered with by any private individual whatever. Unless this principle be acted upon from the very outset, I will venture to predict that private enterprise will very soon render fruitless all endeavours to perpetuate the supplies for the public service, and one of the principal and most certain sources of revenue will thus be irrecoverably lost.⁴⁰

In this important, and frequently-cited passage,⁴¹ Wallich suggests that Tenasserim's teak forests were too valuable to

³⁹ Richard Grove, "Threatened Islands, Threatened Earth: Early Professional Science and the Historical Origins of Global Environmental Concerns," in Sustaining Earth: Response to the Environmental Threats, ed. David J.R. Angell, Justyn D. Comer and Matthew L.N. Wilkinson (London: Macmillan, 1990), 15-29.

⁴⁰ Baillie, "Summary of Papers," 76-77.

⁴¹ Brandis, "Attaran Forests," 73; Stebbing, Forests of India, 1: 136; Ribbentrop, Forestry in British India, 69-70; F.T. Morehead, The Forests of Burma (London: Longmans, Green and Co., 1944), 21.

be left to free enterprise. Without state intervention, they would be inexorably destroyed.

Events in Tenasserim soon confirmed Wallich's warning. After less than a decade of laissez-faire, evidence of widespread over-harvesting led the Government of Bengal to send another scientist, Dr. John Helfer, to investigate the situation. In 1837-38, Helfer reported that the development of Tenasserim's timber trade was leading to the extermination of the teak forests. Agreeing with Wallich, he called for state intervention to stop the destruction. But Helfer also condemned shifting cultivators.

I saw extensive tracts utterly destroyed, because it was the pleasure of some wild Karean [sic] to fix his abode in the vicinity, and for this purpose to clear the jungle by burning all down.⁴²

In Helfer's view, this "extraordinary custom" was proof of the hill Karen's primitive stature in what could otherwise be a highly productive country.⁴³ The implications of such criticism were obvious. The colonial state should curtail a practice that offered only a meagre living in return for widespread forest 'destruction'.

Helfer's findings convinced Blundell of the need for intervention. An erstwhile supporter of laissez-faire, the Commissioner now urged his superiors in India to introduce tough new measures to halt over-harvesting.⁴⁴ Blundell's representations led the Government of India to appoint

⁴² Cited in Baillie, "Summary of Papers," 90.

⁴³ John William Helfer, "Third Report on Tenasserim," Journal of the Bengal Asiatic Society 8 (December 1839): 985.

⁴⁴ Selected Correspondence, 163; Stebbing, Forests of India, 1: 148.

Captain Tremenheere as Tenasserim's first Superintendent of Forests in 1841.

This appointment was an important first step in the promotion of a colonial forest policy. But its importance did not lie in any immediate effect on harvesting operations. As noted, laissez-faire practices in Tenasserim persisted until 1857. Rather, Tremenheere's appointment was important because it provided an institutional basis within the colonial administration for an ongoing critique of unfettered private extraction. If Tremenheere and his successors lacked the requisite training and staff, they nevertheless had a mandate to uphold the forest rules. That mandate was used to publicize the rule-breaking and over-harvesting that was an integral part of laissez-faire forestry.

As colonial officials became more knowledgeable about the forests, they were also increasingly critical of shifting cultivators. Conflict with the hill Karen thus derived from the expansion of scientific knowledge and the rationalization of forest use that began in the early colonial period. Above all, it was the tendency of these cultivators to clear fields in teak forest that earned them official displeasure: "they prefer spots where young Teak abounds to any other, the soil being generally richer and well elevated".⁴⁵ In 1848 Superintendent T. Latter went so far as to claim that shifting cultivators, and not timber traders, were the "greatest cause" of teak destruction in Tenasserim.⁴⁶

⁴⁵ Deputy Superintendent Maling, cited in Baillie, "Summary of Papers," 131.

⁴⁶ Ibid., 154.

In contrast, others believed that the Karen could be reformed. Commissioner Durand, for example, suspected that their lifestyle was due to persecution by other ethnic groups. British rule, however, would make them "the best conservators of forests which the British Government could employ"; it was also suggested that the Karen in the Thaungyin valley should receive legal entitlement to the forests that they worked.⁴⁷ As Superintendent Guthrie reported, such a move would "fix and increase the Karen population" at the same time encouraging them to protect teak tracts; moreover, timber "could be purchased from them at as low a rate as it could be worked by hired labour".⁴⁸ This idea was rejected, however, in 1849 by the East India Company's Court of Directors who opposed the recognition of non-state rights to the teak forests. In doing so, they affirmed the status quo; the colonial state owned the forests, the timber merchants exploited them, and the forests continued to be degraded.

In the same year, however, the government once more solicited scientific advice, and deputed Dr. H. Falconer of Calcutta's Botanical Gardens to inspect Tenasserim's forests. Not surprisingly, Falconer's report documented what Wallich, Helfer and successive Superintendents had long predicted: laissez-faire practices had ruined the forests. License holders were not establishing plantations as required by law even though "fully aware of the impending exhaustion of their grants,"; and he mused that

⁴⁷ Ibid., 127-28, 132.

⁴⁸ Ibid., 135.

if such have been the results of the past, when the forests were covered with abundance of valuable Teak timber, what reasonable grounds are there for expecting adequate measures of renewal from the grantees, now that they are bared?⁴⁹

Yet, Falconer did not recommend that the government reimpose its teak monopoly. Perhaps in recognition of the power of the timber lobby, he urged that license holders be given one last chance under a system of strictly enforced licenses. If that strategy failed, then government was justified in resuming direct control of the forests.

But even these moderate recommendations were not heeded by government. When Tenasserim's forests were finally brought under a regular system of forest management in 1857-58, only the most inaccessible areas remained untouched, and annual extraction from the Ataran forests was under one thousand trees.⁵⁰ Table 2.3 gives some idea of the extent of over-harvesting in these forests during the laissez-faire era.

TABLE 2.3

TEAK OVER-HARVESTING IN THE ATARAN FORESTS 1827-58
(First-Class Trees Only)

	Avg. Annual No.	Total No.
Trees actually removed	5,529	171,400a
Sustainable amount	3,270	101,370b
Difference (Over-harvest)	2,259	70,030

Source: D. Brandis, "Report on the Attaran Forests for the Year 1860," Selections from the Records of the Government of India (Foreign Department), 32 (1861), 97-99.

Note: First-class trees are defined as six feet in girth or larger.

a. Based on the estimated number of stumps found in the forest in 1858.

b. As calculated by Brandis.

⁴⁹ Falconer, "Teak Forests," 36-37.

⁵⁰ Brandis, "Attaran Forests," 100.

If no complete record exists of over-harvesting in Tenasserim, then data collected by Brandis in 1858 nevertheless indicates the scale of the problem. By counting the number of stumps in a sample area, Brandis was able to extrapolate that, for the Ataran forests as a whole, a total of 171,400 first-class trees had been harvested between 1827 and 1858, or 70,030 trees more than the estimated 'sustainable' amount. In practice, of course, the harvest was even less sustainable than this discrepancy would indicate. Brandis only counted the stumps of first-class trees, that is, trees six feet in girth and larger. But, as noted, the official minimum girth until 1841 was only four feet - a rule which was, in any event, ignored by traders anxious to maximize their financial return by extracting all marketable trees in a given area.

However, the most telling indication of the depletion of Tenasserim's forests was to be seen in the gradual shift in logging out of the Province.⁵¹ By the mid nineteenth century, teak extraction centred on two regions: the vast and mountainous Salween watershed that separated Burma from Siam, and which was controlled by autonomous local rulers (Chao); and the low hills known as the Pegu Yoma that separate the Irrawaddy and Sittang valleys of south-central Burma.⁵² In the

⁵¹ Commissioner Bogle noted in 1855 that many Ataran leases had been abandoned by traders, see Bogle to Beadon, in *Ibid.*, 25.

⁵² On teak extraction along the Burma-Siam border in the nineteenth century, see Banasopit Mekvichai, "The Teak Industry in North Thailand: The Role of a Natural-Resource-Based Export Economy in Regional Development" (Ph.D. diss., Cornell University, 1988), chap. 3. From 1842, the British imposed a duty of 15 per cent on timber from this region that was exported via Moulmein, see Dietrich Brandis, "Memo. on the Subject of Duties levied on Foreign Timber imported into

latter, the timber industry anticipated a new commercial boom as the British victory in the second Anglo-Burmese war (1852) liberated still more of Burma's great teak wealth from monarchical rule. European merchants foresaw little difficulty from the new colonial regime in Rangoon.

When Legacies Meet: Forestry in Pegu 1852-55

Significantly, however, the development of Pegu's teak forests followed a different course from that of the Tenasserim forests, and was marked by state intervention. The Tenasserim experience, the growing influence of the scientific lobby, and the consolidation of empire contributed to a political context conducive to change.

Pegu's annexation coincided with the publication of two documents critical of laissez-faire forestry. As noted, Dr. Falconer's report recorded the depletion of Tenasserim's teak forests. Submitted in 1851, it was published by the Government of Bengal along with other papers pertaining to that issue.⁵³

If these papers documented the perils of laissez-faire forestry in Tenasserim, a report published in 1852 by leading surgeons of the East India Company offered a broader critique.⁵⁴ Warning that unregulated timber extraction in India (and elsewhere) was leading to social and ecological disaster, it urged government to intervene before it was too late, and establish a system of forest conservancy. As Grove

Moulmein," IFP (August 1870).

⁵³ See above n. 7 and 31.

⁵⁴ Grove, "Threatened Islands," 23-24; Stebbing, Forests of India, 1: 214-18.

observes, this report was published at a time when anxiety over artificially-induced ecological change gave scientists a measure of public influence.⁵⁵

Broader political and economic trends reinforced the impact of these reports. Specifically, by the middle of the nineteenth century, the British-Indian empire was beginning to coalesce, and colonialism entered a new, and more aggressive phase. This was well-illustrated in the changing British attitude toward Burma. Following the first Anglo-Burmese war, British officials briefly considered returning 'unprofitable' Tenasserim to the Burmese; but after the second Anglo-Burmese war, such considerations apparently did not occur to colonial administrators preoccupied with the annexation of Pegu and its teak forests.⁵⁶

Attention now turned to the systematic development of that empire. There was perhaps no more vigorous an exponent of such development than the Marquis of Dalhousie, Governor-General of India in the early 1850s. Dalhousie is noted for promoting the railway, telegraph and a unified postal system on the Indian subcontinent.⁵⁷ Equally important, however, was his promotion of forest management. As Chapter 3 shows, it was Dalhousie who appointed Dietrich Brandis as Pegu's Superintendent of Forests in 1856, and who wrote the Minute

⁵⁵ Grove, "Threatened Islands," 15-16, 23; see also C.A. Bayly, Indian Society and the Making of the British Empire, The New Cambridge History of India, vol. 2, part 1 (Cambridge: Cambridge University Press, 1988), 140.

⁵⁶ Pollack, Empires in Collision, 41-42; D.G.E. Hall, A History of South-East Asia, 4th ed. (London: Macmillan, 1981), 644-46.

⁵⁷ Michael Adas, Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance (Ithaca: Cornell University Press, 1989), 225.

that signalled "the dawn of scientific forestry" in the British-Indian empire.⁵⁸ Unlike many of his predecessors, Dalhousie saw the utility of state intervention, and it was in Pegu that an organized system of imperial forest management was first developed.

If altered imperial circumstances facilitated a new approach to forest issues, that approach had to be modified to fit Burma's unique social and ecological conditions. It is by now commonplace to observe that in drawing the border at the conclusion of the second Anglo-Burmese war, the British included as much of the teak-bearing Pegu Yoma as possible.⁵⁹ Less well known, however, is the fact that in doing so, colonial officials also inherited a complex tradition of indigenous forest regulation. At a practical level, that tradition was an important, if subsequently under-rated, influence on forest policy in colonial Burma.

Indigenous forest practices were largely unknown as the British began to survey Pegu's teak forests. Yet, on 26 September 1853, those forests were declared state property in keeping with pre-colonial precedent. The status of teak as a royal tree was thereby affirmed, and residents were warned that "any person who shall cut, mark or fell any Teak timber in any of those Forests, without authority, will be liable to be apprehended and prosecuted according to law".⁶⁰

⁵⁸ Stebbing, Forests of India, 1: 256-60.

⁵⁹ Pollack, Empires in Collision, 109; Hall, History of South-East Asia, 652; David Joel Steinberg et al., In Search of Southeast Asia: A Modern History, rev. ed. (Sydney: Allen and Unwin, 1987), 107.

⁶⁰ Government proclamation, cited in J. McClelland, "Report on the Sitang and other Teak Forests of Pegu," Selections from the Records of the Government of India

Shortly thereafter, Pegu's first Superintendent of Forests, Dr. J. McClelland, examined the teak forests of the Pegu Yoma. In two reports published in 1855, he provided a first account of those forests.⁶¹ In many respects, these reports were similar to Wallich's report on the Tenasserim forests. Both men documented the general nature of the teak forests; and, both officials warned of the perils of unregulated extraction. Fearing that Pegu's forests would meet the same fate as those in Tenasserim, McClelland predicted that "if we fail in the comparatively simple duty of preserving the old forests, we can scarcely hope to succeed in the more difficult task of creating new ones".⁶²

McClelland's warning was designed to draw the government's attention to the destruction already wrought in Pegu's forests. He noted that many of the most accessible forests had been cut, and traders were killing undersized trees. Faced with such evidence, it is perhaps not surprising that McClelland concluded that there was no system of indigenous forest control in Pegu. Large landlords in conjunction with Rangoon timber merchants employed men seasonally to drag timber from the forests to the streams. When supplies in one area were exhausted, loggers moved to a new forest. In McClelland's view, this business was not part of the regular industry or trade of the country. There was no

(Foreign Department) 9 (1855), 114.

⁶¹ J. McClelland, "Report on the Southern Forests of Pegu" and "Report on the Sitang and other Teak Forests of Pegu," in *ibid.*

⁶² McClelland, "Southern Forests," 21.

such thing as a class of foresters or professional woodcutters in Pegu

who have been accustomed to earn their bread by forest work, or who can be thrown out of accustomed employment or be in any way injuriously affected by any alterations in the forest laws or rules.⁶³

Thus, the British were as free in Pegu as they were in Tenasserim to manage the forests as they saw fit without disrupting indigenous practices.

McClelland's denial of pre-colonial forest regulation in Pegu formed part of a broader colonial conviction that the Burmese were incapable of managing their own forests. Whereas in Tenasserim they had 'under-exploited' a valuable asset, in Pegu the Burmese were guilty of over-harvesting the teak forests. To later generations of British foresters, Burmese incompetence was axiomatic.

Yet, not all colonial officials shared this view. Indeed, at the same time as McClelland was denying the existence of pre-colonial forestry, his assistant was describing aspects of such regulation. Thus, Robert Abreu observed that since teak was a royal tree, wood-cutters or contractors had to pay an annual 'axe tax' for the privilege of working the forest.⁶⁴ At the end of each year, all timber left in the forest reverted to the state.

Pegu's first Commissioner, Arthur P. Phayre, noted that in pre-colonial times the thu-gyi had authorized teak extraction in return for a fee paid on each tree felled.

⁶³ Cited in Stebbing, Forests of India, 1: 249.

⁶⁴ Robert Abreu, "Report on the Lhine, Phoungyee, and Zamayee Teak Forests," Selections from the Records of the Government of India (Foreign Department) 9 (1855), 43-44.

Teak trees were to them in fact a property held in virtue of their offices, and a number of the inhabitants of each circle were generally interested in the killing of the trees and sometimes in the dragging of them. This consideration will show at once the great obstacles which have to be overcome in preserving the forest, since an important privilege of the Thoogyees has, under the British Government, been abrogated.⁶⁵

Phayre is not, of course, suggesting that pre-colonial practices were sustainable. Rather, he is simply acknowledging what McClelland preferred to overlook: the existence of a system of forest regulation and control in monarchical Burma.

But such a system not only existed, it was also an important, if under-rated, influence on colonial forest policy. Patterns of forest control established in monarchical times were often perpetuated under British rule. Technology 'flowed in reverse' as techniques of timber extraction and regulation were passed on from the Burmese to European traders and officials.⁶⁶

It is not at all surprising that this was so. Burmese involvement in the teak trade predated that of the Europeans, and from at least the seventeenth century, southern Burma exported locally-built teak ships.⁶⁷ The role of the pre-

⁶⁵ A.P. Phayre to J. McClelland, 20 March 1855, in *ibid*, 182.

⁶⁶ Khin Maung Kyi, "Western Enterprise and Economic Development in Burma," Journal of the Burma Research Society 53 (June 1970): 44.

⁶⁷ Victor B. Lieberman, Burmese Administrative Cycles: Anarchy and Conquest, c.1580-1760 (Princeton: Princeton University Press, 1984), 119-20; Morehead, Forests of Burma, 19. Between 1786 and 1824, 111 vessels representing a tonnage of thirty-five thousand were constructed in Rangoon, see Pearn, History of Rangoon, 71. In the late eighteenth century, labourers earned twenty kyats for every hundred teak logs which they sawed into planks, see Htin Aung, Epistles Written on the Eve of the Anglo-Burmese War (The Hague:

colonial state in this trade was crucial. Sensitive to the political and economic benefits to be derived from regulating teak extraction, Burma's rulers developed a complex system designed to maximize revenue and control.

The pre-colonial state apparently controlled the teak trade in two ways.⁶⁸ First and foremost, a series of revenue and customs posts along the principal river and cart routes were used to regulate and tax commercial goods (including teak) as they were transported to market. For internal commerce, land (te) and water (hseik) toll stations served this purpose, whereas customs posts (kin) enabled Burmese rulers to control capital-district, inter-district and international trade.⁶⁹ These posts were "a means of monitoring centrally the flow of manpower and other resources in a way no other institution could in such a diffuse administrative system".⁷⁰ As teak was most easily transported by river, revenue and customs posts were an effective method of control.

To a lesser extent, the pre-colonial state controlled the teak trade by regulating extraction from the forest itself. It did so under a system of 'girdling'.

Girdling consists in cutting through the bark and sapwood till the darker-coloured heartwood is entered

Martinus Nijhoff, 1968), 10-11.

⁶⁸ The subject of pre-colonial forestry has yet to be systematically researched. As such, this discussion is necessarily tentative.

⁶⁹ William J. Koenig, The Burmese Polity, 1752-1819: Politics, Administration, and Social Organization in the Early Kon-baung Period, Michigan Papers on South and Southeast Asia, no. 34 (Ann Arbor: University of Michigan, 1990), 56.

⁷⁰ Taylor, State in Burma, 44.

about an inch below the surface. The effect of this operation is...to check the possibility of sap rising from the root system. Deprived of food supplies the leaves wither...and the tree dies. A process of natural seasoning on the stock then follows...the seasoned stem being ready for felling and extraction in two years or more.⁷¹

This process facilitated dragging and floating operations such that girdled teak was easier to extract than green teak. More importantly, teak girdling was a means of state control.⁷² By funnelling timber into the river network, it limited the number of routes by which teak could be transported to market, and thereby eased the task of control and taxation. Timber arriving at revenue stations could be checked to see if, when, and where it had been girdled. In the case of the more valuable forests, specially-appointed forest guards made dry season inspections of the forest.⁷³ This system did not, of course, prevent illicit extraction. Burma's forests were too large, and the administrative capacity too small, to achieve complete control. Moreover, teak used locally was habitually extracted by land with the aid of buffaloes which further complicated surveillance. Yet, as colonial officials later noted, it was generally an effective defence against illegal extraction.⁷⁴

⁷¹ Nisbet, Burma under British Rule, 2: 52.

⁷² The origins of girdling in monarchical Burma are unclear. Brandis suggests that the practice was "in force...ever since Teak has been exported on a large scale," see Government of India, Seasoning of Timber by Girdling previous to Felling (London: H.M.S.O., 1868), 29.

⁷³ J.S. Vorley and C.H. Thompson, Working Plan for Magwe Forest Division, 1927-28 to 1957-58, vol. 1 (Rangoon: Government Printing, 1928), 24.

⁷⁴ Nisbet, Burma under British Rule, 2: 52; Progress Report on Forest Administration in British Burma, 1863-64, 60-61.

As a wood in domestic and foreign demand, it is not surprising that Burma's leaders sought to control teak extraction. Less well known, but also important, were rules governing the use of other forest products. Pre-colonial revenue records (sit-tans), for example, reveal that a range of timber and non-timber forest products were taxed.⁷⁵ Thu-gyis and other local officials were often responsible for tax collection, and retained a percentage of the revenue for their services. Inevitably, these forest-related taxes varied depending on local forest use, patron-client relations, and the relative power of the central state.⁷⁶ In an administratively diffuse system, the revenue actually received by the Burmese monarchy was much less than that collected at the village level. As with other forms of surplus, forest revenue was subject to competing local, regional and central claims. In addition, a low population density, unoccupied lands, and the relatively weak coercive capacity of the state, ensured that peasants could flee or otherwise avoid what was felt to be excessive taxation.

Pre-colonial forest regulation thus developed over centuries as a means to tax and control forest use. The British continued, or later revived, many of these indigenous forms of control. Colonial foresters affirmed the royal monopoly on teak, and regulated extraction through the technique of girdling. They monitored and taxed the flow of timber at revenue stations located along the main river

⁷⁵ Frank N. Trager and William J. Koenig, Burmese Sit-tans 1764-1826: Records of Rural Life and Administration (Tucson: University of Arizona Press, 1979).

⁷⁶ This variability is illustrated in the Hanthawadi and Taungngo land records, see *Ibid.*

routes. Other forest products were also taxed as the administrative capacity of the Forest Department increased. But, diverse forest users resisted the exactions of the colonial state as they had denied the demands of its predecessor. A central objective of this thesis, then, is to examine how control over forest activities grew under the British, and the manner in which resistance was modified to meet a more powerful state presence in the forest.

If the British borrowed techniques of resource control from the Burmese, the impetus for state intervention nevertheless derived from the early colonial experience with forest management in Burma. The depletion of Tenasserim's teak forests illustrated the pitfalls of laissez-faire forestry, and in an altered imperial context, it became possible to experiment with new management techniques premised on state intervention.

The Tenasserim experience demonstrated, above all, the need for a forest department empowered to manage the forest resource on a long-term basis. The appointment of a part-time Superintendent notwithstanding, forest management in Tenasserim was characterized by the absence of state authority in the forests. Not surprisingly, forest rules were ignored, on occasion even by officials. Conflict in the teak forests was thus not about resistance to these rules. Rather, it reflected a struggle between timber traders for control of a rapidly diminishing resource under anarchic conditions. Under a system of unfettered private enterprise, such conflict, and attendant forest depletion, was almost inevitable.

The colonial state's response to the events in Tenasserim is the subject of the remainder of this thesis. In 1856, the Burma Forest Department was created under the direction of Dietrich Brandis. More importantly, that Department was given far-reaching powers to regulate forest activities so as to promote long-term commercial timber production. But, as the next chapter shows, the transition from laissez-faire to scientific forestry in the mid-nineteenth century was opposed by diverse forest users. Timber traders, peasants and shifting cultivators resisted the imposition of state forest control. In the process, a dynamic of control and resistance was established that was to characterize colonial forest politics in Burma well into the twentieth century.

CHAPTER 3

ASSERTING CONTROL: THE CREATION OF A FOREST SERVICE 1856-81

The basic pattern of forest administration in colonial Burma was established during the twenty-five year period that began with Brandis' arrival in Pegu in 1856, and ended with the passage of the Burma Forest Act in 1881. The previous chapter explained how laissez-faire forestry in Tenasserim was predicated on unfettered private enterprise. In contrast, the period discussed in this chapter is characterized by state intervention. The Forest Department was established in 1856 to assert control over forest users as part of an attempt to manage scientifically Burma's teak forests. But if such management was predicated on the systematic regulation of popular forest practices, European timber merchants, as well as Burmese peasants, shifting cultivators and timber traders resisted the imposition of state forest control.

Chapter 4 examines how the assertion of such control was conditioned by bureaucratic and legal changes that were designed to clarify the nature of state intervention. In this chapter, the focus is on the Forest Department's attempt to assert control over forest users in mid-nineteenth-century British Burma. It examines the forest service's efforts to introduce scientific management, and how various groups resisted the new restrictions. By focusing on the introduction of a reforestation scheme known as taungya forestry, it also illustrates one way in which the Forest Department attempted to overcome such resistance.

Dietrich Brandis and Forest Policy 1856-62

It is conventional to associate the creation of the Forest Department with Brandis' arrival in Pegu in January 1856. Yet, the lineage of the Department goes back at least to 1841 when Tenasserim's first Superintendent of Forests was appointed. Before examining developments after 1856, it is worth briefly considering why this later date was adopted.

Personality is undeniably a factor. If Commissioner Maingy is associated with the introduction of laissez-faire forestry in Tenasserim, then Brandis was instrumental in the advent of scientific forestry in Burma, and later India. Brandis received untold honours for his life's work, and even today, Burmese foresters speak of him reverentially as the 'Einstein' of Burmese forestry.¹ Who was this pivotal figure in colonial forest management?

Dietrich Brandis was born in Bonn in what is now Germany on 1 April 1824, son of a Professor of Philosophy at the University of Bonn. Educated at the Universities of Copenhagen, Gottingen, and Bonn, he was appointed Lecturer in Botany at the latter in 1849 upon completion of his doctorate. Keen to do research in the botanically-diverse forests of India, Brandis obtained the assistance of his English wife's family to intercede on his behalf with the Governor-General of India, the Marquis of Dalhousie. Reaching

¹ Personal communication from Richard Gayer, London, 1991. The following discussion of Brandis is drawn from Herbert Hesmer, "Dietrich Brandis and Forestry in Burma," trans. E. and D. von Bendemann, Guardian (Rangoon) 25, no.4 (April 1978): 33-34; India Forest Research Institute, 100 Years of Indian Forestry, 1861-1961, vol.1 (Dehra Dun: India Forest Research Institute, 1961), 66-68; S. Eardley Wilmot, "Sir Dietrich Brandis," Indian Forester 33 (July 1907): 305-8; Gifford Pinchot, "Sir Dietrich Brandis," Indian Forester 35 (August 1909): 468-80.

India in 1855, Brandis' application could not have been better timed. In that year, Dalhousie sought a replacement for Pegu's Superintendent of Forests, Dr. J. McClelland, who had resigned after differences with Commissioner Arthur P. Phayre over the issue of timber duties. Upon being offered the post, Brandis obtained a two-year leave of absence from the University of Bonn to go to India. With a recommendation from a friend of his father, the renowned scientist Alexander von Humboldt, Brandis set sail for Calcutta.

He never returned to his lecturing post in Germany. Spending two weeks in Calcutta in December 1855, Brandis met with McClelland and Dalhousie before sailing to Rangoon. Six years later, he was transferred to India to advise on the establishment of an imperial forest policy, and in 1864, was appointed the first Inspector-General of Forests to the Government of India. Created a Companion of the Indian Empire in 1878, Brandis was knighted in 1887, and, although he retired in 1883, remained active in the world of forestry until his death in 1907. In these years of 'retirement', Brandis' influence was at its peak as he helped in the education of British and American forestry students. Indeed, it was Gifford Pinchot (the founder of the U.S. Forest Service) who drew attention to Brandis' role as "the chief figure in the forest movement in the world" during the late nineteenth and early twentieth centuries.²

This biographical sketch scarcely does justice to Brandis' achievements, but it does illustrate the drive and determination of this botanist turned forester who first

² Pinchot, "Brandis," 469.

established a name for himself in Burma.³ It also highlights the important point that Brandis' influence on Burmese forestry did not end with his transfer to India in 1862. As Inspector-General of Forests, he paid careful attention to the evolution of forest policy in Burma.

If it is hard to imagine forestry in colonial Burma without thinking of the role played by this remarkable individual, it is also important to remember the context in which Brandis assumed his official duties. Chapter 2 noted the factors that facilitated the introduction of a new forest policy in the 1850s. It is useful here to elaborate the circumstances surrounding Dalhousie's Minute of 1855, for its origin was due to a policy dispute within the Pegu administration that threatened to establish practices in Pegu that had already ruined the teak forests of Tenasserim.

The notification of teak as a reserved tree in 1853 had little immediate effect on timber extraction. With only a small staff to control unexplored forests, McClelland was unable to control the illegal practices which flourished in the unsettled conditions that followed the second Anglo-Burmese war. Timber traders illicitly girdled teak which they then attempted to pass off as private timber from pre-colonial times.⁴ Moreover, the Tenasserim legacy notwithstanding, a number of colonial officials still

³ Brandis' reputation was great even among the Burmese, see R.S. Troup, "Forestry in India," Calcutta Review 273 (July 1913): 308.

⁴ Dietrich Brandis, "Memorandum on the Teak in the Tharawadie District, June 1856," Selections from the Records of the Government of India (Foreign Department) 28 (1860): 69; D.G.E. Hall (ed.), The Dalhousie-Phayre Correspondence 1852-1856 (London: Oxford University Press, 1932), 318.

promoted laissez-faire, albeit subject to greater control than in the past. The struggle between interventionists and economic liberals found expression in a dispute between the Superintendent and the Commissioner over the issue of timber duties. Rejecting the rates proposed by McClelland as being too high, Phayre recommended that the duty at Rangoon be fixed at approximately that level obtaining at Moulmein. Otherwise, he believed, private enterprise would not work Pegu's forests. McClelland bitterly contested Phayre's recommendation, and warned that

by your striking the tariff at so low a rate...it would seem that you looked to the immediate commercial interests of the Rangoon port and the Export trade in timber, whilst I look to the Forests from whence the trade is to be supplied, and give it as my opinion, that if your tariff were adopted, the trade of the port would eventually suffer with the ruin of the Forests, which would assuredly follow, though not perhaps in your time or in mine.⁵

Not for the last time, civil and forest officials differed over important policy questions. Phayre's primary concern was to encourage economic development, while McClelland's main interest was the promotion of such development commensurate with forest renewal.

Dalhousie addressed the issue of the timber duties in a Minute that was communicated to Pegu's Commissioner in August 1855.⁶ In it, the Governor General criticized Phayre and McClelland for not appreciating the 'full force' of the principle that teak was to be retained as state property.

⁵ J. McClelland to A.P. Phayre, 29 May 1854, Selections from the Records of the Government of India (Foreign Department) 9 (1855): 66.

⁶ Cecil Beadon (Secretary, Government of India, Foreign Department) to Commissioner of Pegu, 3 August 1855, Selections from the Records of the Government of India (Foreign Department) 9 (1855), 73-78.

Dalhousie was particularly scathing of Phayre's encouragement of private enterprise. Such an approach would deprive the government of "the full value" of its forests, and would not "ensure those traders a supply of timber who want it most, unless they happen to be great capitalists and speculators in timber."⁷ Noting the adverse impact of the latter on Tenasserim's forests, Dalhousie urged the Superintendent to bypass the big timber merchants, and instead sign contracts with local men, marketing the teak so extracted at public auction in Rangoon.

Following McClelland's resignation in 1855, Dalhousie entrusted Brandis with the difficult task of putting into practice this policy. But, the new Superintendent started work in a context of political, economic and ecological uncertainty. Little was known about Pegu's forests, and the characteristics of the teak tree, making the estimation of the annual allowable cut at first largely guesswork. Politically, the annexation of Pegu had left Britain in control of a Burmese population whose allegiance was suspect.⁸ Moreover, the colonial state shared a border with a truncated but still independent Burma in turmoil after its second British defeat. While the threat of a Burmese invasion was remote, the border area was nevertheless subject to unrest, mirroring the vicissitudes of Anglo-Burmese

⁷ Ibid., 76.

⁸ Robert H. Taylor, The State in Burma (London: C. Hurst, 1987), 116-17, 156-57; John F. Cady, A History of Modern Burma (Ithaca: Cornell University Press, 1958), 89-90, 94; J.A. Mills, "Burmese Peasant Response to British Provincial Rule 1852-1885," in Peasants and Politics: Grass Roots Reaction to Change in Asia, ed. D.B. Miller (London: Edward Arnold, 1979), 77-104.

relations, and Burmese court politics.⁹ To forest officials, such uncertainty was particularly troubling as most of Pegu's valuable forests were near the frontier. Indeed, the border bisected the teak-bearing Pegu Yoma. Finally, Brandis faced the economic uncertainties associated with the creation of a new department in an imperial context of change and crisis. Preoccupied with the Indian Mutiny (1857-58), the Government of India devoted only limited resources to the Burma Forest Department. Yet, the latter was expected to generate an economic surplus for the imperial treasury. Inevitably, timber merchants were quick to point out the limited nature of that initial surplus, and pressed government to relinquish control of the forests.

Despite such uncertainty, Brandis initiated a system in which Burmese contractors extracted timber on the Forest Department's behalf. He defended this policy by noting that

government must...be the pioneers of an improved working system and introduce into the country, as well as raise in it, a class of able foresters, with the means of working the forests properly...taking the forest work out of the hands of the mercantile community has been [therefore] no arbitrary measure.¹⁰

Brandis thus sought to develop a class of indigenous foresters. In doing so, he may have been motivated by the belief that the Burmese would be better foresters than non-

⁹ R.R. Langham-Carter, "Burmese Rule on the Toungoo Frontier," Journal of the Burma Research Society 27 (1937): 15-32; Albert Fytche, "Narrative of the Mission to Mandalay in 1867," Selections from the Records of the Government of India (Foreign Department) 63 (1868): 21-22; Cady, History of Modern Burma, 93.

¹⁰ D. Brandis, "Report on the Teak Forests of Pegu for 1856," Selections from the Records of the Government of India (Foreign Department) 28 (1860): 34.

Burmese who had no attachment to the land.¹¹ Instead of encountering such men, however, Brandis was besieged by 'a host of rogues' who absconded with advances or perpetuated wasteful cutting practices. Forced to improvise, the Superintendent relied on officials and traders (Table 3.1).

TABLE 3.1

TEAK CONTRACTORS BY REGULAR OCCUPATION 1856

Occupation	No. of Contractors
Myo-ok	1
Taik-thu-gyi	2
Forest Department subordinates	11
Burmese timber merchants	4
General traders	1
Moulmein foresters	5
Total	24

Source: D. Brandis, "Report on the Teak Forests of Pegu for 1856," Selections from the Records of the Government of India (Foreign Department) 28 (1860): 23.

Brandis relied primarily on two groups: Moulmein foresters (skilled Karen mahouts) and Forest Department subordinates. As the most experienced workers in the business, the former were particularly esteemed. But these men were already in heavy demand in the forests of the Salween watershed. At first only partly successful in his bid to bring them to Pegu, Brandis relied on his own employees to get the contract system started.

The pitfalls of this arrangement soon became evident. In the Tharrawaddy district, subordinates in league with independent contractors defrauded the government by substituting inferior timber for first-class logs, selling

¹¹ However, the European firm of E. Fowle and Company was employed in 1856 to remove seasoned timber, see *Ibid.*, 8.

the latter to private parties. In the Sittang forests, timber was dragged into Burmese territory, and then reintroduced to Pegu as foreign timber.¹² Subsequently, however, the system was established on a more regular basis. As an increasing number of Moulmein foresters worked the forests, local Burmans and Karens also acquired timber elephants and signed contracts.

In part, this interest reflected the system of advances introduced to encourage local participation. The cost of loans at Rangoon being so dear, the amount of teak extracted by a contractor was almost proportional to the amount of the advance granted.¹³ It is likely that such participation also reflected the relatively greater stability of British rule by the late 1850s. If colonial rule continued to be contested, particularly by pre-colonial officials, there were also local notables who cooperated with the British. It was from amongst the latter that Brandis gained converts to the new system. As a general rule, myo-oks and taik-thu-gyis did not personally engage in forest work, but their sons and nephews frequently did.¹⁴ In this manner, Brandis' efforts to develop a class of indigenous foresters through a system of advances and contracts formed part of a larger effort to make "life under British rule...appear as attractive as possible".¹⁵

¹² Ibid., 26-27.

¹³ Dietrich Brandis, "Report on the Pegu Teak Forests for 1857-58," Selections from the Records of the Government of India (Foreign Department) 31 (1861): 3.

¹⁴ Ibid; D. Brandis, "Memorandum on the Revision of Forest Establishment," India Forest Proceedings (henceforth IFP), (January 1870), 92.

¹⁵ Mills, "Burmese Peasant Response," 83.

As the contract system coalesced, it came under attack from the European timber traders in Rangoon. Taking advantage of the government's political and economic vulnerability during the Indian Mutiny (1857-58), they pressured Brandis to sell to them all the mature timber in the forests in order to ease the government's financial problems.¹⁶ By not giving in to such blandishments, he earned their enmity, and set the stage for a confrontation that would long preoccupy forest officials.

To promote long-term teak production, Brandis not only controlled teak extraction under the contract system. He also devised a simple but effective method by which a forest official could estimate the number of teak trees in a given area. As Stebbing relates, the 'linear valuation survey' excelled by its simplicity.

The trees along certain lines, roads, ridges, streams, or lines chosen across country, are counted, classified according to their girth, and ticked off on small pieces of bamboo, split into thin strips, each of which is again notched into ten pieces, which can be turned down one by one. Different pieces are carried for the different classes of trees. This device is extremely useful in a country like Burma, where on account of rain or dew it is often difficult to use a pocket-book.¹⁷

When combined with calculations as to the growth rate of teak, moreover, the linear valuation survey formed the basis of the first scientific working plans.¹⁸ These plans, in turn, enhanced the ability of the Department to control teak extraction.

¹⁶ Dietrich Brandis, Indian Forestry (Woking: Oriental University Institute, 1897), 33.

¹⁷ E.P. Stebbing, The Forests of India, vol. 1 (London: John Lane for the Bodley Head, 1922), 368.

¹⁸ *Ibid.*, 368-70; Brandis, "Report for 1856," 2-7.

However, working plans formed part of a broader attempt to regulate all social and ecological processes that impinged on teak tracts. In part, this involved the repetitious clearance of jungle in order to promote optimal growing conditions for young teak. But indigenous practices were also regulated; and, shifting cultivators were the focus of particular concern.¹⁹ If, as Furnivall argues, the coming of Leviathan to British Burma was all about the enshrinement of law at the heart of political practice, then the Province's teak forests after 1856 were not exempt from that process.²⁰ Drawing on a legacy going back to Helfer, Brandis was critical of indigenous practices; but he actively sought to modify or end such practices by law. In this manner, the development of Leviathan and forest management went hand in hand.

In October 1856, the first Forest Rules were proclaimed, to be subsequently revised in 1859, extended to Tenasserim (but not Arakan), and finally incorporated in the India-wide legislation of 1865.²¹ In effect, forest rules were a

¹⁹ Brandis, "Report for 1856," 43-45.

²⁰ John S. Furnivall, "The Fashioning of Leviathan: The Beginnings of British Rule in Burma", Journal of the Burma Research Society 29 (April 1939); reprint, ed. Gehan Wijeyewardene (Canberra: Department of Anthropology Occasional Paper, Research School of Pacific Studies, Australian National University, 1991).

²¹ The following discussion of forest rules refers to the "Rules for Preserving the Forests in Pegu (1856)," in Brandis, "Report for 1856," 62-65. See also idem, Rules for the Administration of Forests in the Province of Pegu (Rangoon: Pegu Press, 1859); "British Burma Forest Rules of 1865," in idem, Memorandum on the Forest Legislation proposed for British India other than the Presidencies of Madras and Bombay (Simla: Government Central Branch Press, 1875), 53-57. The forests of Arakan were of limited commercial importance, and were administered by civil officials until the end of the nineteenth century, see A.H.M. Barrington,

mechanism to transform the state's nominal ownership of the teak forests into an actively exercised proprietorial right. Those rules prohibited the unauthorized felling of teak (III-IV), and also constrained non-teak timber extraction in teak areas (VI). Shifting cultivators were subject to special control (VIII-XI). They were prohibited from cutting taungyas in areas containing more than fifty teak trees without Department approval. The infringement of these rules could result in a two hundred rupee fine or six months imprisonment (XX-XXI). Ironically, the rule with the greatest long-term impact, the provision for the creation of reserved forests, was not used before 1870 (XIII).²²

At first, the forest rules had a minimal impact. In theory, forest administration was based on a three-tiered structure in which subordinates patrolled districts, Assistants managed divisions, and the Superintendent was responsible for general matters. In practice, Brandis experienced great difficulty in finding recruits for the superior staff and had to rely on civil officials in several divisions.²³ However, with their regular duties, these officials had little opportunity to attend to forest matters. Indeed, they were not expected to visit the forests, but only

Forest Administration in the Arakan Forest Division (Rangoon: Government Printing, 1918).

²² During the 1860s several reserves were provisionally demarcated but never formally sanctioned as a result of divisions within the colonial state, see D. Brandis, "Suggestions regarding Forest Administration in British Burma, 1881," IFP (February 1881), 263; and below.

²³ Dietrich Brandis, "Report on the Pegu Teak Forests for 1858-59," Selections from the Records of the Government of India (Foreign Department) 31 (1861): 14; idem, "Report on the Pegu Teak Forests for 1859-60," in *Ibid.*, 90-91.

to provide a general supervision from the towns. Moreover, such supervision was subject to the vicissitudes of civil administration. In Prome division, for example, between March 1857 and April 1859 forest matters were the responsibility of no less than six Assistant and Deputy Commissioners.²⁴ As a result of this high turnover, forest administration devolved largely upon the subordinate staff, subject only to the occasional visits of the Superintendent.

In many areas, forest administration was virtually synonymous with the actions of these mostly untrained and poorly paid subordinates. In 1858-59, the subordinate staff in Pegu consisted of 56 individuals, 8 of whom earned between 15 and 40 rupees per month, but with the rest on 10 rupees per month.²⁵ Under these conditions, it is not surprising that fraud and indolence were rife. Typically local men, subordinates were well-placed to profit from their posts - through the illegal sale of timber, for example. Yet, subordinates also did much useful work. If anything, the principal difficulty was sickness. In 1859-60, no less than four out of eight subordinates in the eastern Prome forests died while on duty.²⁶

Brandis tried various means to remedy this situation. In 1858, he proposed to obtain foresters from Germany but without success.²⁷ To better supervise forest work, Brandis moved the Department's headquarters from Rangoon to the town

²⁴ Brandis, "Report for 1859-60," 91.

²⁵ Brandis, "Report for 1858-59," 15.

²⁶ Brandis, "Report for 1859-60," 90.

²⁷ Ibid., 91.

of Myodwin, strategically located in the Tharrawaddy forests near the old royal highroad from Rangoon to Ava.²⁸

The addition of the Tenasserim forests to Brandis' charge in 1857 was a new burden. However, by 1861 he was ably assisted in Pegu by Mr. Henry Leeds and Mr. William Seaton. It was a measure of the times that both men, although succeeding to the top post of Superintendent (or Conservator), were new to forestry. Leeds was formerly the Executive Assistant Commissioner of Prome, and Seaton was originally a member of the 23rd Madras Native Infantry.²⁹ It would not be until the 1870s that trained foresters began to fill the ranks of the superior service.

Even with reliable assistants, Brandis was unable to do much more than regulate extraction and enforce the rules. Forest officials had little time to undertake reforestation work, for example, and a teak plantation started near Prome in 1857 was plagued by insufficient supervision and high costs.³⁰

Ultimately, the Forest Department's future rested on its ability to create an economic surplus. Yet, to generate that surplus required time and resources. Between 1856 and 1862, revenue fluctuated wildly in a general context of increasing expenditure. As a result, the financial results were highly variable, with a deficit of 174,492 rupees in 1857-58 turning

²⁸ Brandis, "Report for 1859-60," 76-78. The headquarters was moved back to Rangoon in the early 1860s.

²⁹ Ibid., 91; D. Brandis, "Report on the Teak Forests in Pegu and the Tenasserim and Martaban Provinces, 1860-61," Selections from the Records of the Government of India (Public Works Department) 35 (1862): 31.

³⁰ Brandis, "Report for 1859-60," 89.

into a surplus of 241,925 rupees in the following year (Appendix D). In part, this fluctuation reflected climatic factors. Good rains, for example, facilitated the transport of logs to market. When this coincided with high prices at auction sales - as happened in 1858-59 - revenue was dramatically boosted. These fluctuations also reflected the shifting balance between private harvesting and government extraction in the 1850s and 1860s which affected the rate of return on felled timber. Overall, in these early years the negligible surplus was "in no way adequate to the toil and anxiety the work has entailed".³¹

Gradually, though, additional assistants from civil and military service were hired, and by the time of his departure for India in 1862, Brandis had created a viable Forest Department. Forest rules were in place and increasingly being enforced. Teak extraction was under greater control than had been the case in Tenasserim, and a small (but growing) surplus was being produced. A start had even been made on teak regeneration. In aggregate, these measures signalled the advent of a new regime in the teak forests of colonial Burma.

Patterns of Control and Resistance

Following Brandis' departure, the Forest Department continued to extend its control over Burma's forests using the administrative procedures introduced between 1856 and 1862. Working plans and forest rules were refined and strengthened, plantation work increased as the taungya

³¹ Ibid., 68.

forestry system was developed, and after 1870, reserved forests were created.

The best indication of the growing power of the Forest Department was the increasing scope and intensity of resistance to its activities. Reflecting the vicissitudes of Department control, resistance was quite complex, and reflected the techniques of everyday resistance and avoidance protest discussed in Chapter 1. For the purposes of this study, it is most convenient to link resistance to specific patterns of control. The attempt to control teak extraction earned the open opposition of the European timber merchants, but efforts to curtail shifting cultivation prompted an altogether different response. As the Forest Department began to regulate the non-teak forest sector, conflict erupted with Burmese peasants and timber traders.

Controlling Teak Extraction

The European timber traders were the earliest, and most vocal opponents of the Forest Department. As noted, the contract system was designed to exclude them. Instead, it promoted a class of indigenous foresters - "a kind of aristocracy" - instilled with the virtues of scientific forestry.³² Denied direct access to Pegu's forests, the European traders could only purchase teak at government auctions in Rangoon.

The European timber-trading community in mid-nineteenth century Burma was relatively unstructured and small-scale in

³² D. Brandis to A.P. Phayre, 9 November 1859, Selections from the Records of the Government of India (Foreign Department) 31 (1861): 149.

comparison with the teak industry in the early twentieth century.³³ It was nonetheless a powerful opponent of the Forest Department. In certain cases, firms prominent at this time ceased operations in the 1870s with the end of the permit system. Gladstone Wyllie and Company and Bulloch Brothers, for example, were two Rangoon-based firms with important extraction permits in the Prome division in the 1860s.³⁴ The Burmah Company worked the Sittang forests, and was also engaged in ship building. However, the firm went into liquidation in the 1870s following revelations of extensive illegal logging by its employees.³⁵ In contrast, other firms founded at this time later became the mainstays of the business.³⁶ Steel Brothers, for example, was founded in 1870 by William Strang Steel who purchased teak extracted from the Salween and Prome forests. The Romanian entrepreneur, John Goldenburg, founded a business in association with John Darwood in 1860 that worked forests on

³³ The timber trade was also "highly speculative" when compared with the rice trade, see J.S. Furnivall, "Safety First: A Study in the Economic History of Burma," Journal of the Burma Research Society 40 (June 1957): 29.

³⁴ Ernest Andrews, The Bombay Burmah Trading Corporation Limited in Burmah, Siam and Java, vol. 1, Teak: The Cutting and Marketing (n.p., 1930-31), 8; Conservator Leeds to Secretary to the Chief Commissioner, 11 December 1865, IFP (February 1866), 31.

³⁵ B.R. Pearn, A History of Rangoon (Rangoon: American Baptist Mission Press, 1939), 211; Government of India (Department of Revenue, Agriculture and Commerce) to the Marquis of Salisbury (Secretary of State for India), 22 January 1875, India Forest Letters (henceforth IFL), no. 4 of 1875; A. Mackenzie (Secretary, Government of India, Home Department) to Messrs. Gillanders, Arbuthnot and Company, 15 August 1884, IFP (August 1884), 1331-33.

³⁶ F.T. Morehead, The Forests of Burma (London: Longmans, Green and Company, 1944), 44-47; Alister McCrae, Scots in Burma: Golden Times in a Golden Land (Edinburgh: Kiscadale, 1990).

either side of the Anglo-Burmese border, and which later became known as Macgregor and Company. Foucar and Company was founded in 1878 by the French Huguenot businessman, Ferdinand Foucar, and was based in Moulmein, as was T.D. Findlay and Son, which acquired a teak shipping firm about 1850.

But the most important European trader was William Wallace. Born in Scotland, Wallace first became involved in the Burmese teak trade during the 1850s when he visited Moulmein as part of a contract to supply the Indian railways with fifteen hundred tons of timber.³⁷ Soon thereafter, he began to work the Ataran and Pegu forests, and with the assistance of Commissioner Phayre, won a lucrative contract with King Mindon of Burma to work the Ningyan [Pyinmana] forests north of the Anglo-Burmese border in 1862. On the basis of this contract, Wallace in conjunction with other family members, as well as Indian financiers, started the Bombay Burmah Trading Corporation Limited (BBTCL) in the following year.

It was Wallace who led the campaign by the European timber traders to dismantle the government contract system. In a vintage exposition of economic liberalism, he condemned the Forest Department's entrepreneurial role as 'unnatural', and not in keeping with the economic principles that had brought Great Britain international fame and power.

Suffice it to say that the powers of nature so far transcend the powers of Government, that all such matters can be much more safely left to the operation of natural laws entirely, and that only very

³⁷ A.C. Pointon, The Bombay Burmah Trading Corporation Ltd., 1863-1963 (Southampton: Millbrook Press, 1964), 3-6.

primitive and unenlightened communities ever attempt to prescribe limits to their operation.³⁸

If Wallace could hardly deny the role of private enterprise in the depletion of Tenasserim's forests, he was nevertheless quick to point out the failings of the new system. The poor financial performance of the 1850s was adduced to Department incompetence and over-regulation which unnecessarily diminished both the quantity and quality of timber supplies. In establishing the contract system, Brandis attempted to exclude from the forests the capitalists that, in his view, were unnecessary and destructive middlemen. Turning that argument around, Wallace suggested that it was government that was the unnecessary intermediary in the teak trade.

In advocating an end to government intervention, Wallace promoted a permit system under which private enterprise would girdle, fell and extract the trees of its choice subject to a minimum set of rules, as in Tenasserim. For those not convinced of the superiority of free enterprise, he observed that teak exports could be easily monitored and taxed; logs could be floated out, after all, by only a couple of routes. Moreover, the assurance that offenders would be severely punished if caught would keep permit holders within the law. By giving up the contract system, and responsibility for girdling every teak tree to be extracted, the Forest Department would promote efficiency in the forests, and save the taxpayer money.

In a clever twist, Wallace also argued that by dismantling the contract system, forest officials would then

³⁸ W. Wallace to Conservator Leeds, 19 July 1864, Progress Report of Forest Administration in British Burma (hereafter RFA) for 1863-64, 53.

be able to attend to their primary duty of forest conservation. By interfering in what was properly a business concern, Wallace alleged that the Department had been failing at that duty.

Conservancy has been hitherto merely a name - none of its duties have been performed...the forests have neither been conserved nor improved - whilst the Department has presented the lamentable [sic] spectacle of a Government trading institution, eminently unsuccessful and disastrously obstructive to the prosperity of the Provinces.³⁹

In this manner, a return to laissez-faire practices was reconciled with forest conservancy in the form of the permit system.

These arguments found favour with officials in India and Burma who were opposed to the exclusion of the European timber traders from Pegu's forests. It is a measure of the shrewdness of Wallace's argument that it even gained the support of certain forest officials, notably Conservator Leeds. This support reflected a growing frustration with the amount of time that was being devoted to business arising from the contract system. Advances had to be made in order that contractors could buy or rent elephants, and hire labourers, but in the process, forest officials assumed the risks and concerns associated with the lending business.⁴⁰ Concomitantly, those officials devoted less time to forest conservancy. It was in order to return to what they believed

³⁹ Ibid., 56.

⁴⁰ In 1864, the government had to write-off 6,113 rupees advanced to contractors. Leeds linked this loss to the failure of the contract system to develop a class of self-supporting capitalists, see Conservator Leeds to Secretary to the Chief Commissioner, 17 March 1864, IFP (June 1864), 124-25.

the Forest Department was all about that officials such as Leeds promoted the permit system.

This system...certainly offers every advantage to Government...one of its great advantages is that it relieves the forest department of all money advances and their concomitant evils which by it devolve upon the permit-holder. Every thing which relieves the department of work which may and can be legitimately performed by others, is so much gained in the cause of conservancy.⁴¹

With the contract system under attack even from within the Forest Department, a change in policy was inevitable.

As the campaign to re-open the forests to private enterprise gained momentum, Brandis was forced onto the defensive.⁴² In February 1861, the Government of India ordered Phayre to open the Pegu teak forests to the European timber traders. With the support of the Chief Commissioner and the Secretary of State for India in London, however, Brandis was able to retain the key elements of the original system in the most valuable forests. Whereas a large area of less important forests (west of the Irrawaddy river) were let out on twelve-year leases with permission to girdle, in more valuable forests (such as the Sittang forests) permits of three or six years were issued, but with forest officials responsible for tree selection and girdling. In the best teak tracts of the Tharrawaddy district, the Forest Department continued to control all aspects of extraction through the contract system.

⁴¹ Leeds in RFA for 1863-64, 12. Leeds also recommended that girdling and even reforestation work be done by private firms, see *Ibid.*, 72-81; H. Leeds, "Memorandum," IFP (September 1870), Appendix.

⁴² Brandis, Indian Forestry, 33-35; "Correspondence Regarding the Opening of the Pegu Forests to Private Enterprise," Selections from the Records of the Government of India (Public Works Department) 35 (1862).

Subsequent efforts by Wallace to extend the permit system were rejected by the Government of India.⁴³ Indeed, by 1867, senior officials in India were beginning to question the merits of the permit system itself.

Since 1862-63 the contract system has yielded a considerably larger net revenue per ton of timber than the permit system. Thus, with regard to financial results, the permit system does not appear to be preferable...as regards the interests of conservancy also, the permit system does not appear to be preferable to the contract system in British Burmah.⁴⁴

However, it was the discovery of illegal extraction in the Sittang valley in 1871 that led to the demise of the permit system. An official enquiry revealed that lease holders had illegally girdled or felled 9,707 teak trees.⁴⁵ In some cases, they had done so in connivance with local forest officials.⁴⁶ At the behest of Chief Commissioner Ashley Eden, the

⁴³ Government of India to Secretary of State for India, 26 July 1864, IFP (July 1864), 204. This decision was confirmed by London, see Secretary of State for India to the Governor-General of India, 25 January 1865, Selections from Despatches to India (henceforth SDI), (1865), 43.

⁴⁴ C.H. Dickens (Secretary, Government of India, Public Works Department) to Chief Commissioner, 8 May 1867, IFP (May 1867), 204-5. Between 1862-63 and 1865-66, the government received 10.9 rupees per ton for contractor's timber as compared with only 6.8 rupees per ton for permit-holder's timber, see Conservator Leeds to Secretary to the Chief Commissioner, 11 February 1867, IFP (May 1867), 200.

⁴⁵ The principal lease holder involved in this controversy was the Burmah Company. However, the BBTCL was also implicated, and its permit in the region was cancelled in 1872, see H. Carter, Working Plan of the Kabaung Reserve (Rangoon: Government Printing, 1895), 4; see also Annual Report of the Bombay Burmah Trading Corporation Limited for 1872-73, 5.

⁴⁶ Including the European forester W.C. Graham who was subsequently dismissed, see RFA for 1872-73, 9-18; B.H. Baden-Powell, The Forest System of British Burma (Calcutta: Government Printing, 1873), 67-69; W.S. Oliphant (Secretary to the Chief Commissioner) to Secretary, Government of India (Public Works Department), 19 June 1872, IFP (September 1872), 631-42.

Government of India ordered the discontinuance of the permit system in August 1874; and, with the expiry of the last lease in 1877, virtually all of British Burma was once more under the contract system.⁴⁷ Concomitantly, total extraction declined from a peak of 57,086 tons in 1870-71, to only 17,585 tons in 1879-80, before once more resuming an upward climb in the 1880s (Table 3.2). Private enterprise was readmitted to Pegu's teak forests during the 1880s, but only on a limited scale, and subject to strict supervision.

TABLE 3.2
TEAK PRODUCTION BY EXTRACTION AGENCY, 1858-84
(Selected Years; Amounts in Tons)

Year	Forest Dept	License Holder	Total
1858-59	20,462	-	20,462
1862-63	16,369	19,530	35,899
1866-67	9,793	21,756	31,549
1870-71	22,765	34,321	57,086
1874-75	16,393	21,517	37,910
1879-80	16,240	1,345	17,585
1883-84	34,404	3,200	37,604

Source: RFA (selected years).

If the events of the 1870s led to the end of the permit system, developments after 1886 in relation to the BBTCL Upper Burma leases restored the basic pattern of the 1860s at an all-Burma level. Private harvesting occurred in certain areas (albeit subject to much greater supervision), and

⁴⁷ Government of India (Department of Revenue, Agriculture and Commerce) to the Marquis of Salisbury (Secretary of State for India), 4 August 1874, IFL, no. 14 of 1874; Secretary of State for India to the Governor-General of India, 19 November 1874, SDI (1874), 91; H.R. Spearman, The British Burma Gazetteer, vol.1 (Rangoon: Government Press, 1880), 118; Resolution of the Chief Commissioner (hereafter Resolution), RFA for 1877-78, 3.

Department extraction was the norm in other forests. This arrangement was a feature of forest administration during the remainder of the colonial era.

Curtailing Shifting Cultivation

As the Forest Department asserted control over the teak forests, it also came into conflict with shifting cultivators who made hill clearings in these areas. In many respects, these cultivators were a greater obstacle to scientific forest management than were the European timber traders. Ostensibly weak, they resorted to covert resistance that was none the less effective for all its surreptitiousness.

To understand why shifting cultivators were opposed to the Forest Department is to appreciate the social and ecological conditions of taungya cultivation. In essence, such cultivation is a type of dry agriculture that combines various techniques - partial forest clearance, shallow cultivation, multiple cropping, and field rotation - to produce food and cash crops.⁴⁸ With an extensive network of hills, Burma has been home to an array of groups practising diverse forms of shifting cultivation; but in the formulation of colonial forest policy, there was a tendency to simplify

⁴⁸ J.E. Spencer, Shifting Cultivation in Southeastern Asia (Berkeley: University of California Press, 1966); Karl J. Pelzer, "Swidden Cultivation in Southeast Asia: Historical, Ecological, and Economic Perspectives," in Farmers in the Forest: Economic Development and Marginal Agriculture in Northern Thailand, ed. Peter Kunstadter, E.C. Chapman and Sanga Sabhasri (Honolulu: University Press of Hawaii, 1978), 271-86.

this complexity by lumping together disparate practices under the all-encompassing term, 'taungya'.⁴⁹

As forest officials sought to protect Pegu's forests, they were scarcely concerned with the ecological and ethnic nuances of shifting cultivation. Attention centred on the teak-bearing Pegu Yoma where a sparse, and predominantly Karen population cleared fields on an annual basis.⁵⁰ As fields were rotated to make maximum use of the soil's nutrients, temporary villages were built and then relocated in accordance with the taungya cycle. More than the itinerant nature of this lifestyle, what amazed colonial observers the most was the Karen's complete disregard for the teak tree. Although living amidst one of the world's richest teak tracts, the hill Karen made little use of the wood, building their homes entirely of bamboo; and their occupations were "altogether unconnected with an article which is the source of wealth and industry everywhere, but in the place where it is produced".⁵¹ Scattered in small settlements throughout the hills, they were only partly integrated into the political economy of the valley peoples.

As colonial officials discovered, the hill Karen refused to trade their lifestyle for a more settled life on the

⁴⁹ Tao Hai, "Some Notes on the Taungya Problem in the Shan States," Indian Forester 39 (August 1913): 364.

⁵⁰ In 1876, Karen in the Tharrawaddy and Prome hills numbered about five thousand individuals, D. Brandis, Suggestions Regarding Forest Administration in British Burma (Calcutta: Government Printing, 1876), 10-11.

⁵¹ J. McClelland, "Report on the Southern Forests of Pegu," Selections from the Records of the Government of India (Foreign Department) 9 (1855): 13.

plains.⁵² In part, cultivators may have feared increased vulnerability to the predations of powerful political and economic groups which such a move might have implied. At the time, the British were still newcomers to Pegu and a relatively unknown quantity. There were no guarantees, moreover, that the British would stay, or that Burmese rule might not be reimposed at a later date. From this perspective, relative financial deprivation was a small price to pay for the greater security provided by the hills to which they were accustomed.

Hill Karen resistance was also linked to religious and cultural issues. In keeping with their animist faith, cultivators submitted to a carefully codified personal and communal regime designed to propitiate the divine nats (spirits) that were deemed to control most aspects of human life. Indeed, so strong was the fear of these nats, that fields were cleared and houses built only under auspicious circumstances, and special ceremonies marked by the beating of great bronze drums were held in their honour.⁵³ In a world populated by mostly malevolent spirits, the tenacity with which Karen resisted changes to their lifestyle must be seen in part as a quest for spiritual redemption.

Forest officials knew or cared little about this spiritually sanctioned way of life. If hill Karen were

⁵² RFA for 1863-64, 9.

⁵³ Harry I. Marshall, The Karen People of Burma: A Study in Anthropology and Ethnology (Columbus: Ohio State University, 1922), 63-64, 76-78, 115-26; idem, "Karen Bronze Drums," Journal of the Burma Research Society 19 (April 1929): 1-14; Donald Mackenzie Smeaton, The Loyal Karens of Burma (London: Kegan, Paul, Trench and Co., 1887), 88; J. Nisbet, Burma under British Rule and Before, 2 vols. (Westminster: Archibald Constable, 1901), 1: 323-24.

haunted by the belief that virtually every natural object was inhabited by a divinity in need of propitiation, the Forest Department feared an altogether more secular phenomenon: the destruction of the teak forests through unchecked shifting cultivation.

Chapter 2 noted that criticism of shifting cultivation was already becoming prevalent in early colonial Burma. In later years, that criticism grew as forest officials became better acquainted with the extent of taungya practices. Although it was periodically acknowledged that hill clearings did not inevitably lead to the elimination of teak, it was nevertheless a tenet of forest officials that they were a threat to forest conservancy.⁵⁴ Given that the commercial maturation of teak (up to 150 years) took much longer than a typical taungya rotation (10-20 years), unrestricted shifting cultivation was seen to threaten Pegu's forests as surely as unfettered free enterprise had done in Tenasserim. It was also believed that such cultivation resulted in soil erosion, flooding and localized drought.⁵⁵ For many, taungya practices were a great evil to be stamped out.

The Forest Department used various means to restrict shifting cultivation in teak tracts. Financial inducements to leave those tracts proved ineffective, but systematic interference in hill Karen society obtained better results. In pre-colonial times, cultivators paid annual imposts to

⁵⁴ Brandis, "Report for 1856," 31-34; Baden-Powell, Forest System, 11; Nisbet, Burma under British Rule, 2: 60; H.W.A. Watson, "Taungya Cutting," Indian Forester 34 (May 1908): 265.

⁵⁵ RFA for 1870-71, 5; RFA for 1874-75, 17; Nisbet, Burma under British Rule, 2: 60, 63-64.

specially-appointed Burman myo-wun (governors).⁵⁶ Under the British, these imposts continued in the form of capitation and taungya taxes, but were collected with greater efficiency.⁵⁷ An even greater source of anxiety to the hill Karen was the prospect of prosecution for the breach of forest rules. As noted, cultivators found guilty of the destruction of teak could be fined or imprisoned. Since teak was scattered throughout those areas in which fields were cleared, forest officials could safely assume that wherever taungyas were located, so too would be evidence of teak destruction.

Moreover, the hill Karen had no recourse to the law for protection as shifting cultivation was not considered by the colonial state to confer a prescriptive right to the soil. To have acknowledged taungya practices in such a manner would have jeopardized state forest control.

If anything of the kind were recognised, there would hardly be a square mile of forest in these Yoma hills, which could not be claimed by some Karen family or other...the theory of any occupancy rights being acquired by these erratic and temporary clearings of the forest is quite untenable.⁵⁸

As a result, shifting cultivators were no longer as safe from the exactions of the state under the British as they had been under monarchical rule.

Hill Karen resistance to the Forest Department took many forms. For those in close proximity to the Burmese or Siamese frontiers, there was always the option of flight. In the

⁵⁶ Cady, History of Modern Burma, 31, 42-43.

⁵⁷ These taxes were six rupees per individual per year, see Conservator Seaton to Chief Commissioner, 27 September 1869, RFA for 1869-70.

⁵⁸ Brandis, Suggestions, 11.

1860s, Karen reportedly moved from Tenasserim into Siam for this reason.⁵⁹ In certain cases, cultivators cleared fields and girdled teak trees along the border, only to slip into Siamese territory at the approach of a forest official.⁶⁰ Groups that were unable or unwilling to flee resisted in other ways:

cases have occurred where through fear of punishment for breaches of rules, a whole village have gone off and cleared every teak seedling on a neighbouring Toungyah when they heard a Forest Officer was approaching.⁶¹

Cultivators in the Tharrawaddy district in 1859 circumvented the intent of the fifty trees rule by clearing a series of adjoining fields, none of which were found to contain fifty or more trees.⁶² When forest officials investigated such cases, hill Karen typically refused to cooperate. In Prome, such obstructiveness thwarted the course of justice; out of 76 cases involving teak destruction in 1869-70, 67 could not be prosecuted for want of evidence, and in only 6 cases were convictions obtained.⁶³ Non-cooperation extended to other aspects of forest administration. Topographical survey parties, for example, encountered passive resistance from Karen who were "adverse to rendering any assistance".⁶⁴ In

⁵⁹ RFA for 1865-66, 6. Although such protest is difficult to document, many civil officials were convinced that 'stringent' forest rules were to blame, for example see Resolution, RFA for 1868-69, 1.

⁶⁰ RFA for 1879-80, 45-46; RFA (Tenasserim) for 1881-82, 4.

⁶¹ RFA for 1866-67, 24.

⁶² Brandis, "Report for 1860-61," 26-27.

⁶³ RFA for 1869-70, 7.

⁶⁴ RFA (Pegu) for 1884-85, 7.

many areas, cultivators pleaded ignorance of the forest rules. This tactic was initially quite successful as it played on the Forest Department's reluctance to unnecessarily alienate these forest dwellers.

This resistance nevertheless had its limits. As forest officials increased their presence in teak areas in the 1860s, taungya-related offenses became the most commonly reported breach of the forest rules.⁶⁵ The colonial state was able to intervene in the hills as the pre-colonial state was never able to do, and the threat of prosecution for violations of the forest law was a perennial reminder of that power.

Regulating Non-Teak Forest Use

If the assertion of state forest control engendered an early reaction from European timber traders and shifting cultivators, this simply reflected their close association with the teak forests. For groups that used the forests for other purposes, the advent of British rule initially decreased regulation as forest officials focused on teak management.

Chapter 2 noted that the pre-colonial state taxed various forest products in addition to teak, including timber and non-timber produce. If teak was probably a less important source of revenue to the Burmese kings (prior to the 1860s at least) than it was to the British, the taxation of forest

⁶⁵ RFA for 1863-64, 2; RFA for 1867-68, 27; RFA for 1868-69, 15.

produce other than teak was of greater importance to the Burmese state than it ever was to colonial officials.⁶⁶

For this reason, colonial forest policy was initially of little concern to Burmese peasants and timber traders. With the exception of teak, no restrictions were placed on the subsistence or commercial use of forest produce. Rejecting a proposal made by Conservator Leeds in 1866 to regulate non-teak timber extraction, Chief Commissioner Phayre warned that such a move would only "produce general alarm and discontent".⁶⁷ In part, Phayre's response reflected a misconception, popular among colonial officials at the time, that villagers traditionally enjoyed free access to non-teak forest produce. More importantly, in a context of ongoing political unrest, the government was reluctant to introduce unpopular measures that would complicate the consolidation of colonial rule in Pegu.

With only a limited staff, the Burma administration was, in any case, in no position in the 1850s and 1860s to enforce such measures. If the Forest Department had difficulty controlling the teak trade, it could scarcely be expected to manage the larger, and more complex non-teak forest sector.

⁶⁶ Prior to 1880, colonial forest revenue derived almost entirely from teak sales. In the 1920s, teak still accounted for 70 per cent of the total receipts, see Dietrich Brandis, "The Burma Teak Forests," Garden and Forest 9 [1895]: 12; Great Britain, Indian Statutory Commission, Memorandum submitted by the Government of Burma to the Indian Statutory Commission 11 (London: H.M.S.O., 1930), 55.

⁶⁷ Resolution, RFA for 1865-66, 2. In rejecting Leed's plan, C.H. Dickens reiterated the need for caution, see C.H. Dickens (Secretary, Government of India, Public Works Department) to Chief Commissioner, 25 August 1868, IFP (September 1868), 255; see also Secretary of State for India to the Governor-General of India, 15 November 1867, SDI (1867), 127.

By the 1870s, however, that situation had begun to change. An expanded, and increasingly professional forest service was better equipped than before to restrict popular forest access. Gradually, forest policy became more than simply the control of teak extraction.

To appreciate the impact of this change, it is necessary to take a closer look at the non-teak forest sector in mid-nineteenth-century British Burma.⁶⁸ As a durable and long-lasting wood, teak or kyun (Tectona grandis) was used for construction (monasteries, houses, boats) and other purposes. But the utility of teak must not obscure the value of other species. Indeed, by the 1860s, the relative scarcity and high price of teak was "everyday bringing other kinds of timber more prominently into general local use".⁶⁹ Multi-purpose timbers such as padauk (Pterocarpus macrocarpus), in (Dipterocarpus tuberculatus), thingan (Hopea odorata), thitkado (Cedrela toona), pyinma (Lagerstroemia flos-reginae), kanyin (Dipterocarpus alatus/turbinatus) and pyinkado (Xylia dolabriformis) were used in the construction of houses, carts and boats (Appendix B). Bamboo was in great demand for conversion into mats, umbrellas, fences, lacquer ware, fishing traps, and in the case of poor villagers, houses. The forests were also the source of firewood, charcoal, rope, resins, dyes, fruit and intoxicants.

The use of forest produce was conditioned by religious and cultural practice. As with the animist hill Karen, many

⁶⁸ Nisbet, Burma under British Rule, 2: 205-304; Shway Yoe [J. George Scott], The Burman: His Life and Notions (1882; reprint, Edinburgh: Kiscadale, 1989).

⁶⁹ RFA for 1865-66, 26.

Burmese Buddhists only built houses under auspicious astrological conditions. Even the selection of timber to be used in the construction of houses was carefully considered:

Posts are masculine, feminine, and neuter. Male posts are of equal size at both ends; females are larger at the base; those which swell out in the middle are a-thet ma-shi - without life; taing bilu, ogre's posts are largest at the top. As a general rule it may be taken for granted that if a house is built with neuter posts, its inmates will always be miserable and unlucky; if the posts are ogres, death and disaster will attend; male posts are easy-going and harmless; females, on the contrary, are fortunate and leading to honour... [moreover] the presence or absence of knots, and if the former, their position, determines the luck of the householder.⁷⁰

Such considerations affected the nature and extent of timber extraction. The quest for 'auspicious' timber may even partly explain the wasteful practices of Burmese wood-cutters so often decried by colonial officials.

Forest use was also influenced by market conditions. Even before the economic changes of the late nineteenth century, the non-teak forest sector was becoming commercialized. Thus, traders were already extensively employed in the 1860s collecting forest produce for plains villagers.⁷¹ These traders extracted timber and bamboo from accessible low-lying forests, but also worked the Pegu Yoma forests.⁷² Transported by river and cart road to the plains villages, forest produce was often then sold to artisans for the

⁷⁰ Shway Yoe, The Burman, 76-77.

⁷¹ RFA for 1865-66, 26-27; RFA for 1866-67, 17-18; RFA for 1868-69, 2.

⁷² RFA for 1868-69, 2. Wood-oil (used in torches) was collected from as far afield as Mergui, see J. Butler, Gazetteer of the Mergui District (Rangoon: Government Press, 1884), 32-33.

manufacture of everything from boats and carts to umbrellas and lacquerware.

Social and economic changes under British rule spurred the commercialization of forest use. As forests were cleared for agriculture, and as the population of Lower Burma expanded, the non-teak forest sector was affected in various ways. Forest clearance reduced or even eliminated local supplies, which then had to be obtained from further afield, increasing the dependence of peasants on traders. Migration from various parts of Burma and India boosted the demand for agricultural implements, carts and boats. Conservator Leeds noted in 1866 that the value of boats had trebled within two years "owing chiefly to the increased cultivation of rice," even as the number built had jumped: in Toungoo alone, from 200 boats in 1862-63, to 400 boats three years later.⁷³

If the colonial state facilitated such development, it also restricted popular forest access in two ways. With the creation of the first reserved forest in May 1870, the Forest Department began an enclosure campaign that reduced popular access in teak and other areas. Free access to meet local subsistence needs was usually provided for in forest settlements, but reservation was nonetheless a highly divisive process. Enjoined to reduce "general claims to something definite and tangible," Forest Settlement Officers encountered much opposition.⁷⁴ Whereas peasants permitted to obtain produce from the reserves objected to the detailed restrictions associated with such access, timber traders and

⁷³ RFA for 1865-66, 26-27.

⁷⁴ B.H. Baden-Powell, A Manual of Jurisprudence for Forest Officers (Calcutta: Government Printing, 1882), 190.

those whose claims were rejected protested their exclusion from these forests. If the reserved area increased only gradually at first, reserves still covered 1,410 square miles in 1878-79 (Appendix C).

The Forest Department also limited popular access to selected species even outside reserves. In 1873, thitkado and thitka (Pentace burmanica) were proclaimed reserved trees, and three years later, another twelve species were added to the list.⁷⁵ These trees could only be cut with the appropriate permit, but once again, an attempt was made to differentiate between subsistence needs and commercial extraction. Whereas the former was dealt with through free permits, the latter required the purchase of trade permits.

The new restrictions were vigorously opposed by peasants and traders alike. Everyday resistance to species reservation encompassed the illicit felling of reserved trees, and the emergence of a black market in free permits.⁷⁶ As one official noted, "the practical result of giving people, living in the vicinity of the forests, their wood free, is to allow the timber merchants to extract a certain proportion of their season's wood free of tax".⁷⁷ Alternatively, access restrictions were avoided altogether through the use of unreserved species. In certain districts this practice was so widespread that trade in reserved species virtually ceased; in general, peasants preferred "to utilize trees of other

⁷⁵ Brandis, Suggestions, 25-26; B. Ribbentrop, "Special Report on the Working of the Revenue Notifications Nos. 33 and 34 of 8 March 1876," RFA for 1876-77.

⁷⁶ Ribbentrop, "Special Report," 6-8.

⁷⁷ Ibid., 28.

kinds rather than go to the myooke to obtain a free permit".⁷⁸ Resistance to the creation of reserved forests, as Chapter 5 shows, included illegal extraction and grazing, the use of fire in prohibited areas or seasons, and incendiarism.

If the reservation of forest land was primarily designed to promote long-term teak production, the reservation of non-teak species was guided by diverse considerations. Forest officials were often as critical of the practices of Burmese traders and peasants, as they were of shifting cultivators. Such criticism partly reflected a concern that these groups were eliminating species of considerable export potential.⁷⁹ There was also the question of foregone revenue. In 1866, Leeds suggested that taxing the non-teak trade would "add considerably to the revenue of the Department without any increase of expenditure".⁸⁰ As Conservator Berthold Ribbentrop noted, such a move would "only give the state a legitimate revenue, which at present enriches individuals who have no particular claim whatever to it".⁸¹ In the 1870s, the assertion of state forest control was expressed in new ways. In the process, it provoked popular resistance that would dominate forest politics in later years.

⁷⁸ RFA (Pegu) for 1880-81, 19; see also RFA (Tenasserim) for 1876-77, 11; RFA for 1879-80, 5; Nisbet, Burma under British Rule, 2: 57.

⁷⁹ Baden-Powell, Forest System, 13-14; Brandis, Suggestions, 20; Ribbentrop, "Special Report," 25, 38; Nisbet, Burma under British Rule, 2: 56.

⁸⁰ RFA for 1865-66, 26.

⁸¹ RFA for 1874-75, 25.

Toward Cooperation: The Case of Taungya Forestry

If the Forest Department restricted popular forest access, it also promoted new patterns of cooperation. Earlier, it was noted that Brandis sought to create an indigenous class of foresters. However, the most concerted attempt to win the support of forest users concerned the hill Karen. Control of the teak forests may have required the restriction of taungya practices, but it also convinced Brandis that shifting cultivation might be turned to advantage.

In 1856, Brandis had encouraged cultivators to sow teak with their rice and cotton crops after noting the beneficial effect of taungyas on young teak in the Prome district. He predicted that

the teak, as it generally germinates after several months, will not impede the growth of their crops, and will greatly profit, both by the fertilizing effect of the ashes, and also by the clear ground during the first year after the harvest has been removed, which may permit it to make such progress as to enable it to compete successfully with other trees and bushes. This system, if it should succeed, may perhaps even be extended to Toungyas in other districts.⁸²

After the experiment succeeded, the Department sought to introduce taungya forestry on a systematic basis. As noted, however, the hill Karen refused to alter their lifestyle; and, it was this stance that was the source of their initial refusal to participate in the reforestation scheme. Karen in Tharrawaddy district approached by Lieutenant (later Conservator) William Seaton in 1863 were strongly opposed to a system that would gradually undermine their relatively

⁸² Brandis, "Report for 1856," 45-46.

independent lifestyle by converting cultivable areas into reserved forests from which they would be excluded.

[Karen headmen] openly admit that they look upon the sowing of teak in their 'yas' as taking the bread from the child's mouth. All that they urge to prove this is true enough. Every one is aware of the fact of their returning to the same localities to cut yas after a lapse of from 10 to 15 years.⁸³

To overcome such opposition, forest officials alternatively enticed and compelled Karen compliance. In lieu of a fine for violation of the forest rules, cultivators were required to plant teak in their clearings.⁸⁴ At the same time, forest officials rewarded voluntary participation. Benefits included tax exemption, payment of ten rupees per planted acre, and the provision of designated lands for the Karen's own use. In 1868-69, a Karen village in the Mokka-Beeling reserve (Tharrawaddy division) agreed to plant teak in their taungyas, and more soon followed, attracted primarily by the promise of land.⁸⁵ Table 3.3 shows the growth of taungya plantations in comparison with conventional Department plantations.

⁸³ RFA for 1863-64, 9.

⁸⁴ RFA for 1869-70, 16-17; RFA for 1872-73, 7; RFA (Pegu) for 1884-85, 15; RFA (Pegu) for 1887-88, 3.

⁸⁵ W. Seaton, "Report on the Conservancy and Management of the Forests of British Burma," Government of India, Copy of Enclosures of Forests Despatch from the Government of India, no. 14 (Calcutta: Government Printing, 1874), 31; RFA for 1872-73, 7; Secretary of State for India to the Governor-General of India, 26 October 1876, SDI (1876), 112.

TABLE 3.3

GROWTH OF TAUNGYA VERSUS DEPARTMENT PLANTATIONS 1868-86
(Selected Years; Amounts in Acres)

Year	Taungya Plantations	Dept Plantations
1868-69	>100	717
1873-74	500	2,287
1875-76	1,050	2,743
1878-79	2,194	3,339
1880-81	3,587	3,544
1882-83	5,131	3,585
1885-86	10,318	3,746

Source: RFA (selected years).

There were two phases to reforestation efforts during the years 1868-86. Prior to 1878, the Forest Department divided its resources fairly evenly between taungya and departmental plantations. If the former expanded more rapidly, the latter still covered a larger area in 1878. After 1878, the situation changed dramatically. Whereas departmental planting came to a virtual halt, taungya plantations increased nearly five-fold in area between 1878 and 1886. Moreover, this trend continued until after the turn of the century.

Such dramatic growth was partly a question of cost. Whereas taungya plantations cost 12 rupees per acre in 1874-75, Department cultivation using coolie labour came to 21 rupees per acre.⁸⁶ By 1880, the total outlay on the latter had reached 300,689 rupees, while expenditure on the former was only 24,932 rupees, leading the Government of India to recommend the wholesale extension of the taungya forestry system.⁸⁷

⁸⁶ Resolution, RFA for 1874-75, 4.

⁸⁷ C. Grant (Secretary, Government of India, Home, Revenue and Agriculture Department) to Chief Commissioner, 9 November 1880, RFA for 1879-80, 2.

However, the advantages of cheap Karen labour extended far beyond planting work. As taungya plantations and Karen areas were situated within reserves (after 1877), cultivators were available for other tasks such as tree girdling and fire protection. In their role as fire fighters, for example, the hill Karen helped to prevent fires from entering the reserves. Although the cultivators themselves could be a source of conflagration, particularly when they cleared their fields in the dry season, they were nevertheless adept in the art of fire prevention and control.⁸⁸

The development of taungya forestry was also conditioned by political considerations. Specifically, forest officials sought to win over potentially hostile hill Karen at a time of general political unrest. Torn between a desire to enforce the forest rules, and a concern to establish control of the forests, these officials had to tread a fine line in their relations with shifting cultivators. As Conservator Leeds warned in 1867:

discretion and management will do more than all the terror which can be spread in the country. No one can judge of the mischief which people inimical to a Department which must, in a manner, be an unpopular one, can effect without being discovered.⁸⁹

The Forest Department was thus anxious to eliminate areas of conflict that threatened to turn "useful coadjutors into powerful enemies".⁹⁰

Taungya forestry was politically important in another sense too. To understand why, its promotion must be situated

⁸⁸ RFA for 1874-75, 11.

⁸⁹ RFA for 1866-67, 24.

⁹⁰ RFA for 1867-68, 28.

in the broader context of British efforts to obtain the allegiance of Burma's ethnic minorities, and particularly the Karen. Although economically and culturally differentiated, many of the Karen in southern Burma shared a long-standing antipathy toward the numerically more populous Burmans. Serving as guides for the British army in the first and second Anglo-Burmese wars, Karen went on to play a significant role in the administration of colonial Burma.⁹¹

They were particularly important in the forest sector. As noted, Karen were prominent in the teak industry as government contractors and mahouts. Members of this ethnic group also joined the Forest Department; in Tenasserim they formed the backbone of the subordinate staff.⁹² By incorporating disparate cultivators into an organized system of forest conservancy, taungya forestry encouraged such cooperation, transforming the Karen "from an antagonistic nuisance to forest conservancy into the most loyal servants of the Department".⁹³

The example of taungya forestry illustrates that the Forest Department was not insensitive to the importance of local support in its efforts to manage the forest resource. Yet, as this chapter has shown, such support was rarely forthcoming. The transition from laissez-faire to scientific

⁹¹ The ethnic implications of colonialism in Burma are discussed in Robert H. Taylor, "Perceptions of Ethnicity in the Politics of Burma," Southeast Asian Journal of Social Science 10 (1982): 7-22; see also idem, State in Burma, 100-102; Cady, History of Modern Burma, 140-41, 317.

⁹² RFA (Tenasserim) for 1882-83, 4-5; RFA (Tenasserim) for 1884-85, 4.

⁹³ B. Ribbentrop, Forestry in British India (Calcutta: Government Printing, 1900), 193.

forestry was opposed by European timber merchants. But it was also resisted by Burmese peasants, shifting cultivators and timber traders.

The reasons for such opposition are not hard to find. As introduced by Brandis in 1856, scientific forestry was based on the assertion of state forest control primarily (but not exclusively) in order to promote long-term teak production. Such control was not new in Burma - the pre-colonial state had regulated a range of activities. What was new, however, was the comprehensiveness of the control attempted, as well as the actual ability of the state to pursue its objectives.

During the years 1856-81, the Forest Department asserted control over diverse forest users. In the process, it became a resource manager. But its ability to manage the forests was still relatively limited in 1881. It would not be until the early twentieth century that forest officials would have the requisite resources to attempt a comprehensive rationalization of forest activities. Yet, the developments discussed in this chapter set the future course of colonial forest politics. Patterns of control and resistance were established that hardly changed in subsequent decades.⁹⁴

⁹⁴ Of the transformation of British Burma between 1861-85, Furnivall writes: "It is hardly too much to say that everything that happened after 1885 up to the introduction of constitutional reforms in 1923, or even up to the time of the Japanese invasion, was merely a development of conditions already in existence in 1885." Until 1923 (but not thereafter), this statement is generally correct with regard to the forest sector. Furnivall is mistaken, however, in thinking that "the working of the forests passed from Burmans and Karens to foreign firms," during these years. If anything, the demise of the permit system in the 1870s was an opportunity for enhanced forest work by indigenous traders under the contract system. Teak extraction was only concentrated in the hands of the European firms at the turn of the century. See Furnivall, "Safety First," 35.

Later the thesis returns to this question of control and resistance in describing colonial forest politics in the late nineteenth and early twentieth centuries. However, in the next chapter, the concern is to delineate the administrative changes and bureaucratic politics that defined the nature and objectives of state forest control.

CHAPTER 4

DEFINING STATE FOREST CONTROL: COLONIAL DEBATES AND BUREAUCRATIC POLITICS

As the Forest Department asserted control over the forests, the delineation of rights and responsibilities became imperative. Chapter 3 suggested that patterns of control provoked widespread resistance as European timber merchants, as well as Burmese peasants, shifting cultivators and timber traders, challenged state forest control. This chapter describes the administrative changes and bureaucratic politics that shaped the development of such control.

There were three distinct, but interrelated components to this process. First, the Forest Department was differentiated from the other branches of government. This was achieved by the requirement that new recruits have a forestry training as a prerequisite for entry to the superior service. Secondly, the relationship between civil and forest officials was clarified in an attempt to eliminate inter-departmental conflict. Finally, the parameters of state forest control were established through a comprehensive definition of forest rights that was embodied in a revised legal code.

These changes did not occur without conflict as differing departmental interests were promoted. The consultations and debates of the 1870s did not completely resolve these differences. However, they did establish a modus vivendi between civil and forest officials that permitted the elaboration of forest administration in the late nineteenth and early twentieth century.

Recruitment and Change in the Forest Department

The change that had the most profound impact on forest management was also the most gradual. The conversion of the Forest Department into a specialized branch of government with unique recruitment practices did not occur overnight. But the emergence of a professional forest service was nonetheless crucial to subsequent forest politics in Burma. If forest officials were at first drawn from civil and military ranks, by the end of the nineteenth century such inter-departmental mobility had ended. Later recruits were the product of a rigorous education based on the tenets of scientific forestry. In the twentieth century, forestry had become an established vocation, and career mobility was synonymous with promotion through department ranks.

Yet, the Forest Department owed its origin to a group of non-foresters. As noted, Brandis was a botanist (albeit, with a working knowledge of forestry), and his first assistants were civil and military officials. But as forest administration became more complex, the need for trained foresters grew. Developments in India only confirmed that need. With the creation of the Indian Forest Department (1864), and the passage of the India Forest Act (1865), the Government of India devoted greater attention to forest issues. It thus became imperative that policy be implemented by professionals.¹ To this end, Brandis obtained the approval of Lord Cranborne, the Secretary of State for India in 1865, to recruit two German foresters, and while on European

¹ Government of India (Public Works Department) to the Secretary of State for India, 19 September 1868, India Forest Letters (henceforth IFL), no. 10 of 1868.

furlough, he selected Dr. William Schlich and Mr. Berthold Ribbentrop.² Respectively of the Hesse-Darmstadt and Hanover forest services, these two men succeeded Brandis to the post of Inspector-General of Forests during the last two decades of the nineteenth century. In the process, they strengthened the German influence on forest policy in the British-Indian empire. As in Dutch-ruled Java, British officials in India were hindered by the backwardness of forestry in their native country, and had little choice but to turn to Germany (and France) for assistance.³

This backwardness had other implications for recruitment policy. When he hired Schlich and Ribbentrop, Brandis also arranged for the training of English candidates for the Indian forest service in the forest schools of France and Germany. At the time, there were no such facilities in Britain. In 1867, seven candidates commenced study in Europe, and in December 1869, the first graduates arrived in India.⁴ By 1886, ninety-five men had been trained in this manner, a

² Secretary of State for India to the Governor-General of India, 14 September 1866, Selections from Despatches to India (henceforth SDI), (1866), 56; D. Brandis to H. Merivale (Under Secretary of State for India), 23 October 1866, India Forest Proceedings (henceforth IFP), March 1867, 81; Government of India (Public Works Department) to the Secretary of State for India, 11 April 1867, IFL no. 10 of 1867; Dietrich Brandis, Indian Forestry (Woking: Oriental University Institute, 1897), 48-49.

³ Brandis, Indian Forestry, 6-11, 21; R.S. Troup, "Forestry in India," Calcutta Review 273 (July 1913): 305, 312; Peter Boomgaard, "Forest Management and Exploitation in Colonial Java, 1677-1897," Forest and Conservation History 36 (January 1992): 11; Nancy Lee Peluso, "The History of State Forest Management in Colonial Java," Forest and Conservation History 35 (April 1991): 69.

⁴ W.F. Perree, "Indian Forest Administration," Asiatic Review 23 (April 1927): 251; Robert K. Winters, The Forest and Man (New York: Vantage Press, 1974), 281.

number of whom later became prominent in Burmese forestry.⁵ But, in a context of growing European rivalry, this dependence on France and Germany could not be sustained for long. Indeed, the Franco-Prussian war (1870-71) disrupted training, and led to its centralization in France in 1874.⁶ Ten years later, a national forest school was opened at Coopers Hill in Surrey where students undertook a three-year course of study in scientific forestry.⁷ As part of that programme, they were also required to spend several months attached to a forest division in Germany in order to gain practical experience. By the early twentieth century, forestry was taught at Oxford (1905), Cambridge (1913) and Edinburgh (1915). In aggregate, these developments represented a recognition by the British government of the necessity of employing trained men so as "to guard against the ruin of one of the most important sources of national wealth, if the care of the forests were left to ignorant persons".⁸

⁵ B. Ribbentrop, Forestry in British India (Calcutta: Government Printing, 1900), 227.

⁶ H. Cleghorn, "Memorandum on the Continental Training of Indian Forest Officers," IFP (April 1884), 999-1000.

⁷ The School was directed throughout its twenty year existence by Schlich who gave up the Inspector-Generalship in 1885 for this purpose. Following the School's closure in 1905, Sir William was appointed Professor of Forestry at Oxford (1905-19), and continued to influence forestry in Britain until his death in 1925.

⁸ Parliamentary Return on Forest Conservancy, Part I, India, 1871, 404, cited in Brandis, Indian Forestry, 49; see also Secretary of State for India to the Governor-General of India, 15 November 1867, SDI (1867), 126-27; Secretary of State for India to the Governor-General of India, 6 October 1869, SDI (1869), 152.

If the full impact of these changes was not immediately felt in Burma, the addition of Schlich and Ribbentrop presaged future developments. Both men served in the country, and as Pegu's Conservator in the 1870s, the latter was particularly influential in the introduction of a system of reserved forests. Combining scientific rigour with attention to local botanical conditions, Schlich and Ribbentrop were in many respects the prototype of the new forest official.

However, these officials arrived in Burma to find an administration beset by instability. As the following table shows, the turnover of forest officials prior to 1870 was very high.

TABLE 4.1
 TURNOVER OF FOREST OFFICIALS IN BRITISH BURMA,
 1841-70

Status	No. of Officials
Transferred to India	10
To another Department	3
Died	9
Resigned	6
Dismissed	3
Retired	3
Remained in service	2
Not Given	6
Total	42

Source: "Papers Relating to the History of Forest Administration in Burma from 1827-1870," Burma Forest Proceedings (June 1891), 6-7.

Note: Forest officials here include Conservators, Deputy and Assistant Conservators, and Sub-Assistant Conservators.

This instability was partly due to the routine practice of moving foresters between provinces as part of the promotion

process. About one-quarter of the staff was affected in this manner.

But other factors were also important. If foresters who obtained a transfer to another department, resigned, or were dismissed, contributed significantly to departmental turnover (29 per cent), it is the death rate which nonetheless stands out. As a result of a generally unhealthy climate, Burma earned a well-deserved reputation among foresters as a dangerous posting. As Table 4.1 indicates, 9 men out of 42 - or more than 21 per cent of the total staff - died while in service.⁹ Exposure to malaria, and other tropical diseases accounted for this relatively high rate.¹⁰ Moreover, for every forester that died, there were many more incapacitated. As Conservator Leeds noted in 1866:

the absence and sickness among the Officers is becoming very much felt in operations where experience is required, for the details of the working of the Department are not at once easily mastered by strangers who have to be employed for a time.¹¹

⁹ In 1881, it was noted that sixteen forest officials had died in the previous eighteen years during or shortly after leaving Burma. Assuming an annual average staff of 12 forest officials during this period, the death rate was 7.4 per cent per annum. See G.D. Burgess (Secretary to the Chief Commissioner) to Secretary, Government of India (Home Department), 8 July 1881, IFP (May 1882), 998.

¹⁰ Cf. Michael Adas, "Colonization, Commercial Agriculture, and the Destruction of the Deltaic Rainforests of British Burma in the Late Nineteenth Century," in Global Deforestation and the Nineteenth-Century World Economy, ed. Richard P. Tucker and J.F. Richards (Durham, N.C.: Duke University Press, 1983), 107; Philip D. Curtin, Death by Migration: Europe's Encounter with the Tropical World in the Nineteenth Century (Cambridge: Cambridge University Press, 1989), 95.

¹¹ Progress Report of Forest Administration in British Burma (hereafter RFA) for 1865-66, 28.

Understandably, many men sought a transfer to more congenial areas of the empire.

Poor pay and inadequate staffing levels were additional reasons to leave the Burma forest service. Notwithstanding a rising forest surplus (Appendix D), the Department was denied what it felt was the minimum increase in staff and pay that was required to keep up with its expanding activities. In May 1876, the Government of India refused to transfer additional staff to Burma, and suggested instead that the Conservator "contract his operations".¹² Three years later, the Chief Commissioner rejected a fresh proposal from Ribbentrop on the grounds that he recommended an increase in pay and staff "for which there was no necessity".¹³ Reviewing this situation, Brandis noted that forest officials in Burma were payed less than their counterparts in the police, even though only the former required special training. Not surprisingly, morale was low, and many foresters shared a "strong desire...either to be transferred to India, or to another Department in the province".¹⁴

However, the arrival of an increasing number of recruits from Europe in the late nineteenth century contributed to a

¹² A.O. Hume (Secretary, Government of India, Department of Revenue, Agriculture and Commerce) to Chief Commissioner, 23 May 1876, IFP (July 1876), 236.

¹³ Resolution of the Chief Commissioner (henceforth Resolution), RFA for 1878-79, 8.

¹⁴ D. Brandis, Suggestions Regarding Forest Administration in British Burma (Calcutta: Government Printing, 1876), 22; see also G.D. Burgess (Secretary to the Chief Commissioner) to Secretary, Government of India (Home Department), 8 July 1881, IFP (May 1882), 999; Government of India (Department of Finance and Commerce) to the Earl of Kimberley (Secretary of State for India), 10 November 1884, IFP (November 1884), 1753.

new esprit de corps. Moreover, as forest administration was elaborated, additional posts were sanctioned on an incremental basis (Table 4.2).

TABLE 4.2
GROWTH OF THE SUPERIOR SERVICE,
1861-85

Position	1861	1874	1885a
Conservator	1	1	2
Deputy Conservator	3	3	12
Assistant Conservator	3	11	7
Total	7	15	21

Sources: W. Seaton, "Report on the Conservancy and Management of the Forests of British Burma," Government of India, Copy of Enclosures of Forests Despatch from the Government of India 14 (1874), 4, 6; B. Ribbentrop, Forestry in British India (Calcutta: Government Printing, 1900), 81.

a. Burma and the Andaman Islands

Between 1861 and 1885, the superior service trebled in size, thereby permitting an extension of state forest control. To facilitate such control, moreover, European recruits were now also expected to undergo Burmese language training. Proficiency in Burmese was first examined in 1876, and successful candidates were awarded either a higher or lower standard; in 1878, although no officials had passed in the higher standard, 5 Assistant Conservators and 1 Sub-Assistant Conservator were awarded the lower standard.¹⁵ If, in the past, forest officials had often through sheer necessity learned the rudiments of Burmese, the new system formalized

¹⁵ Resolution of the Government of India (Department of Revenue, Agriculture and Commerce), 6 February 1877, IFP (February 1877), 31; Indian Forester 4 (January 1879): 298-315.

that process, and made minimal proficiency a prerequisite for promotion and bonuses.¹⁶

The new recruitment procedures also effectively barred Burmese from entering the superior service. A racial division of labour was thus instituted that would only begin to break down in the late colonial period. If the 'superior' staff included several German and Dutch officials, Burmese foresters were confined to the 'subordinate' service.¹⁷

To be sure, an Imperial Forest School for the training of indigenous students as Rangers and Sub-Assistant Conservators was created at Dehra Dun in India in 1878. However, there was virtually no prospect of promotion from these positions. A parallel education system was thereby established: British candidates were educated in Europe for the senior posts, and Indian and Burmese recruits were trained at Dehra Dun for the subordinate positions. As E.C. Buck, Secretary to the Government of India, noted in 1888: "At present, there does not exist in India the means of

¹⁶ Government of India, Code of Instructions for the Conduct of Office Business and for the Regulation of Accounts in the Forest Department (Calcutta: Government Printing, 1886), 16, 20.

¹⁷ In theory, subordinates could be appointed Assistant Conservator. But only foresters who had completed five year's service as a Sub-Assistant Conservator were eligible. Moreover, those officials would only be promoted if trained (ie. European) recruits were unavailable. See Government of India, Code of Instructions, 8. Burmese promotion to the senior echelons was thus effectively ruled out. This change was regressive in so far as one Burmese forester (Maung Poh Oh) had attained the rank of Assistant Conservator by 1870 upon instructions from the Government of India. See Government of India (Public Works Department) to Chief Commissioner, 14 June 1869, IFP (August 1869), 201; RFA for 1872-73, 12, 48.

training men so as to qualify them for direct appointment to the Upper Controlling [ie. Superior] Staff".¹⁸

From a Burmese perspective, the location of the School in India was an added deterrent to further education. Men were typically reluctant to leave family and friends behind in Burma for the duration of the two-year course. It was not until 1899 that a vernacular forest school was established in the country for the training of Rangers and Foresters. At first located in the Tharrawaddy district, it was moved in 1910 to the Pyinmana forests on the north-eastern edge of the Pegu Yoma. As in India, however, the objective was to provide a practical education for subordinates not destined for senior posts.¹⁹

If the superior service was separated from the subordinate staff by virtue of training and race, a de facto division also developed among Burmese foresters based on training and class. Comprised of Rangers and Sub-Assistant Conservators, the 'executive' service supervised the work of Foresters and Forest Guards (the 'local' service). Although men were promoted from the local to the executive service, particularly in the early years, the expansion of the Forest Department in the late nineteenth century led to a hardening of the boundaries between these two services. Whereas Foresters and Forest Guards were generally illiterate local

¹⁸ E.C. Buck to Revenue and Agriculture Department, Circular 9F, 2 June 1888, Burma Forest Proceedings (henceforth BFP), (June 1888), 7.

¹⁹ J. Nisbet, Burma under British Rule and Before, 2 vols. (Westminster: Archibald Constable, 1901), 1: 247; 'E.B.', "The New Burma Forest School at Pyinmana," Indian Forester 37 (August 1911): 421-24; R.S. Wilkie, Yamethin District Gazetteer (Rangoon: Government Printing, 1934), 87-88.

men, Rangers and Sub-Assistant Conservators were literate, and required special training. The latter were predominantly townfolk - the sons of merchants and government officials - but the better-educated youth of the large country villages were also represented in executive ranks.²⁰

In this manner, forest officials were differentiated by education, experience, class and race. Whereas Foresters and Forest Guards protected the forests in their local watershed or 'beat', Rangers and Sub-Assistant Conservators undertook the more complex tasks of reservation, extraction and regeneration. The superior staff supervised the work of subordinates. In reality, the chain of command was not always so straightforward, and varied depending on illness, unfilled positions and the relative economic importance of a forest division. In general, the less important the division, the greater the delegation of responsibility.

The Forest Department continued to grow in size and complexity after the turn of the century. However, by the 1880s, its basic structure was established. More than anything else, that structure was premised on the distinction between European and Burmese foresters. Barred from the senior posts, the latter earned a reputation for dishonesty and indolence. Conservators noted that subordinates failed to perform assigned duties, fabricated reports, defrauded the government of revenue and extorted money from forest offenders.²¹ Even long-standing employees would "suddenly submit to the temptation to misappropriate revenue or accept

²⁰ 'E.B.', "Burma Forest School," 421.

²¹ RFA (Pegu) for 1876-77, 10; RFA (Pegu) for 1882-83, 8; RFA (Pegu) for 1883-84, 47-48.

bribes".²² If such conduct was often attributed to the 'inferior' class of person employed by the Department, it was also acknowledged that work conditions left much to be desired. As Conservator Seaton noted in 1873:

fever is generally so prevalent that natives rarely enjoy immunity from its attacks for two seasons successively, a matter which is not to be wondered at...with the distances to be traversed through heavy Forest, poor diet, and difficulty of obtaining good shelter at every point visited.²³

Poor pay exacerbated the plight of subordinates. In 1873, Foresters often earned less than an ordinary coolie.²⁴ Subsequently, their pay was increased: from 10 rupees per month to 15-20 rupees per month in 1875-76. Concurrently, Forest Guards were established on a scale of 12-14 rupees per month.²⁵ Notwithstanding these changes, the subordinate staff, and particularly the lowest paid local service, remained a perennial source of trouble for colonial officials.

In a sense, the development of the Forest Department in the nineteenth century was about adapting bureaucratic growth to the requirements of a specialist agency. In itself, this growth was unremarkable in a general context of state

²² RFA (Pegu) for 1880-81, 24. The senior Burmese forester Assistant Conservator Poh Oh, was a case in point. Appointed to that post in 1869 after eleven years of 'exemplary' service, he was dismissed in 1875 because of an involvement in illicit girdling operations in the Thauogyin forests, see Conservator Ribbentrop to Secretary to the Chief Commissioner, 6 September 1875, IFP (December 1875); A. Fraser (Secretary to the Chief Commissioner) to Secretary, Government of India (Public Works Department), 5 June 1869, IFP (September 1869), 334.

²³ RFA for 1872-73, 48.

²⁴ B.H. Baden-Powell, The Forest System of British Burma (Calcutta: Government Printing, 1873), 44.

²⁵ Brandis, Suggestions, 20.

expansion.²⁶ What was noteworthy, however, was the nature of that growth, as recruitment was geared to the creation of a senior cadre of professionals versed in scientific forestry.

At the same time, that development was subject to the vagaries of colonial administration and finance. Classified as a 'quasi-commercial' department, the Forest Department was a lucrative source of revenue that was the source of inter-governmental bargaining. At first, that revenue accrued entirely to the Government of India, and the budget of the Forest Department was framed in India.²⁷ Concomitantly, forest administration was directed from Calcutta under the successive control of the Foreign, Public Works, Revenue and Agriculture, and Home Departments.²⁸ It was in this context of central control that the Indian Forest Department was created, and Brandis appointed the first Inspector-General of Forests in 1864.

Beginning in the 1870s, financial and administrative power was decentralized as an incentive to provincial governments to increase revenue and curb expenditures. Under the provincial contract system, the Government of Burma was granted a share in selected heads of revenue. In terms of forest revenue, that share was set at one-sixth in 1878, but

²⁶ Robert H. Taylor, The State in Burma (London: C. Hurst, 1987), chap. 2.

²⁷ Shein, Myint Myint Thant and Tin Tin Sein, "'Provincial Contract System' of British Indian Empire, in Relation to Burma - A Case of Fiscal Exploitation," Journal of the Burma Research Society 52 (December 1969): 3; Ribbentrop, Forestry in British India, 135.

²⁸ If routine administration was left to the Chief Commissioner, the Government of India reserved the right to "intervene generally," see Government of India (Public Works Department), Circular no. 4, 22 March 1864, IFP (May 1864), 125-27.

four years later, was raised to one-half - a ratio that remained unchanged until the early twentieth century.²⁹ As the Government of Burma gained a direct financial interest in forest revenue, the Burma Forest Act (1881) delegated immediate control of the Department to the Chief Commissioner.³⁰ If operational control rested in Burma, the broad parameters of forest administration, including the appointment and pay of the superior staff, continued to be determined in India and England.³¹

One effect of these new arrangements was to encourage greater continuity in Burma's superior service. As part of the devolution of powers, a separate Burma List was established on which promotions were henceforth based, and transfers to other provinces below the rank of Conservator were discouraged.³² If Burma continued to serve as a 'nursery' for India's Conservators and Inspector-Generals,³³ it nevertheless became standard for forest officials to spend

²⁹ Shein, Burma's Transport and Foreign Trade 1885-1914 (Rangoon: Department of Economics, University of Rangoon, 1964), 201. The Government of Burma assumed full control over forest revenue in 1911.

³⁰ Burma Forest Act 1881 (Rangoon: Government Press, 1884), nos. 5, 29, 31, 35, 37; Brandis, Indian Forestry, 46.

³¹ Government of India, Code of Instructions, 2-6; B.H. Baden-Powell, A Manual of Jurisprudence for Forest Officers (Calcutta: Government Printing, 1882), 409; Ribbentrop, Forestry in British India, 137.

³² The separate Burma List was needed partly in order to give forest officials serving in 'unhealthy' Burma "better prospects of promotion," see Government of India (Department of Revenue, Agriculture and Commerce) to the Marquis of Salisbury (Secretary of State for India), 19 October 1876, IFL no. 32 of 1876.

³³ Anonymous, "Promotion in the Forest Department," Indian Forester 15 (January 1889): 9-10. Of the first ten Inspector-Generals, seven had first served in Burma.

most, if not all, of their professional lives in the Province. By the turn of the century, the Forest Department had been transformed from a small group of untrained civil and military officials into a large professional organization.³⁴ But, as the Forest Department grew, it came into conflict with civil officials apprehensive of its increasing power.

Reconciling Forest and Civil Administration

If forest administration in colonial Burma was a process of bureaucratic growth and professional development, it must also be situated in a broader context of efforts to reconcile forest conservancy with other objectives, notably agricultural development. Forest policy was never devised in isolation from other political and economic objectives. Rather, the social and economic importance of the forests ensured that civil officials took an active hand in their management. Subsequent chapters examine the implications of this situation for specific policy issues. Here, the concern is to describe the general relationship between civil and forest administration as it developed in the latter half of the nineteenth century.

When Brandis established the Forest Department in 1856, he set in motion a process in which forest and civil matters came to be considered as distinct (if still interrelated) policy areas. Prior to that date, forest issues had been a

³⁴ One indication of this change is to be found in the increasingly detailed and standardized procedure which forest officials were required to follow in their work regime, see Burma Forest Department, Departmental Instructions for Forest Officers in Burma (Rangoon: Government Printing, 1919).

concern of civil officials. As noted, Captain Tremenheere introduced rules to halt the depletion of Tenasserim's teak forests in 1841. In the economically peripheral Arakan forests, the Commissioner placed restrictions on pyinkado extraction in 1863, and retained full control over forest matters until 1902.³⁵

In contrast, forest officials swiftly asserted control over Pegu's teak forests. In doing so, they impinged on civil administration in two ways. First, in so far as forests had been an exclusively civil matter, the advent of the Forest Department entailed a transfer of authority that was much resented. Hitherto, the civil official held "sole control of all lands in his district, and the unoccupied lands were his chief means of conferring patronage".³⁶ The arrival of the forest official ended such autonomy.

Secondly, Forest Department activities affected purely civil matters. Of particular concern to civil officials was the impact of the forest rules on agriculture. After 1852, the expansion of paddy cultivation in Lower Burma was a top priority of government, and the amount of forest converted to agriculture became "the recognised measure of a district [civil] officer's capability and tact".³⁷ Moreover, the

³⁵ W.S. Oliphant (Assistant Secretary to the Chief Commissioner) to Secretary, Government of India (Public Works Department), 24 November 1863, IFP (May 1864), 57-64; A.H.M. Barrington, Forest Administration in the Arakan Forest Division (Rangoon: Government Printing, 1918); E.P. Stebbing, "A Note on the Forests of Arrakan," Indian Forester 27 (February, April-May 1901): 67.

³⁶ C.F. Amery, "On the Relation Between District and Forest Officers," Indian Forester 1 (January 1876): 295.

³⁷ *Ibid*; Adas, "Destruction of the Deltaic Rainforests," 104-5.

forests were needed for the manufacture of carts, boats and implements essential to the agrarian economy; restrictions on forest access were viewed by many civil officials as impediments to development.

The potential for inter-departmental conflict depended in part on the relative economic importance of the forest vis-a-vis alternative land uses. For example, forest officials by and large acquiesced in the conversion of the deltaic forests to permanent cultivation. In contrast, they imposed draconian restrictions on access to the teak forests of the Pegu Yoma, and civil officials rarely questioned the primacy of forest conservancy in these areas. Yet, this image of forest officials controlling the hills as civil officials regulated the plains is misleading. Just as teak, and other commercially important forests spilled onto the plains surrounding the Pegu Yoma, inviting the attention of forest officials, so too the growth of the non-teak forest sector in conjunction with agrarian development prompted a keen civil interest in the hill economy. In these areas, civil and forest interests could not be compartmentalized, but were part of a seamless web of agrarian and forest concerns.

It was the interlaced nature of those concerns that made cooperation as essential as it was problematic. Civil officials acknowledged that deforestation in Lower Burma was leading to a growing scarcity of forest produce.³⁸ Yet, they were reluctant to introduce measures that might limit the general prosperity associated with nineteenth-century

³⁸ Ashley Eden, "The Reorganization of the Forest System of British Burma," Government of India, Copy of Enclosures, 5.

agrarian development.³⁹ Civil officials were also unwilling to surrender to forest officials the additional powers that the extension of forest rules in the plains forests inevitably implied.⁴⁰ Conversely, most forest officials recognized the principle that agrarian development took precedence over forest conservancy in suitable areas. Yet, such development was often associated with the destruction of residual forests as land clearance led to unchecked timber extraction. The problem confronting civil and forest officials was, therefore, a complex one: to allow agricultural expansion in selected areas, but not so as to damage the residual forest.

If accelerating deforestation made the need for rational decision-making more pressing, the expansion of civil and forest administration in the 1860s and 1870s encouraged the articulation of narrow department perspectives. The gulf between these perspectives was nowhere more evident than over the question of reserved forests. Under the Burma Forest Rules (1865), civil and forest officials were to cooperate in the demarcation of forest tracts.⁴¹ A forest official first inspected the tract and prepared a report that included information on local inhabitants, the reasons for reservation

³⁹ RFA for 1873-74, 11.

⁴⁰ Deputy Commissioner W.C. Plant (Myanoung) to Commissioner (Pegu), 12 February 1870, IFP (August 1870), 507-8; Deputy Commissioner E.M. Ryan (Amherst) to Commissioner (Tenasserim), 9 October 1871, IFP (June 1872), 320.

⁴¹ These rules were drawn up under the India Forest Act (1865) see D. Brandis, Memorandum on the Forest Legislation Proposed for British India other than the Presidencies of Madras and Bombay (Simla: Government Central Branch Press, 1875), 57.

and a map of the proposed reserve. The report was submitted to the Deputy Commissioner for comment, who then forwarded it through the Commissioner to the Conservator who in turn attached his own remarks. Finally, the report was submitted to the Chief Commissioner for final orders.

As the senior district official, the fate of the proposal often rested with the Deputy Commissioner. If this individual did not object to the proposed reserve, he was empowered to prohibit forest clearance pending the Chief Commissioner's decision.⁴² In practice, the Deputy Commissioner was often opposed to reservation, and was able to delay, or even halt, the proceedings.⁴³ Forest officials denounced such obstructionism, and the lack of concern many civil officials showed for forest conservancy.⁴⁴ But civil officials resisted forest reservation because they feared an erosion of their powers by a Forest Department which, "by its demands for absolute authority over the forests, has provoked the District Officials to the support of forest rights as against the Department".⁴⁵

Lacunae in the Forest Rules reinforced these fears. The Rules made no provision for popular access to reserves, based

⁴² Ibid.

⁴³ Resolution of the Chief Commissioner, 10 May 1870, IFP (October 1870), 704-5; Conservator W. Seaton to Secretary to the Chief Commissioner, 18 November 1871, IFP (June 1872), 322; A.O. Hume (Secretary, Government of India) to Chief Commissioner, 14 September 1872, IFP (September 1872), 593.

⁴⁴ Amery, "Relation," 294-98; B.H. Baden-Powell, "Forest Conservancy in Its Popular Aspect," Indian Forester 2 (July 1876): 8-9.

⁴⁵ Anonymous, "A Few Notes on 'Suggestions Regarding Forest Administration in British Burma' by D. Brandis," Indian Forester 2 (October 1876): 191.

as they were on the assumption that it was possible "from the great mass of excess forest and waste, to set apart reserves, to be at the absolute disposal of the State, without interfering with the rights of the people".⁴⁶ By the late 1850s, this assumption was probably ill-founded. Subsequently, however, it became completely untenable as hundreds of thousands of migrants cleared Lower Burma's plains and delta forests. Not surprisingly, then, when faced with the prospect of outright land alienation, civil officials typically resisted the creation of reserves. The Forest Rules were also defective in that they made no provision for forest conservancy outside of 'Government Forests'.⁴⁷ This omission led to the notification of much of the Province under this heading. If in the process a vast area was incorporated that was never intended for ultimate regulation,⁴⁸ the legal definition of many low-lying areas as Government Forest only reinforced civil fears of a land grab by the Forest Department.

Moreover, the resolution of certain policy differences within the Forest Department only increased the likelihood of inter-departmental conflict after 1870. Previously, the Department had been divided over the best means of

⁴⁶ Brandis, Suggestions, 15.

⁴⁷ D. Brandis, "Memorandum on revision of Act VII of 1865," IFP (December 1868), Appendix; A. Fraser (Secretary to the Chief Commissioner) to Secretary, Government of India (Public Works Department), 11 April 1870, IFP (August 1870), 503.

⁴⁸ B.H. Baden-Powell, "On the Defects of the Existing Forest Law (Act VII of 1865) and Proposals for a New Forest Act," in Report of the Proceedings of the Forest Conference, 1873-74, ed. B.H. Baden-Powell and J.S. Gamble (Calcutta: Government Printing, 1874), 13.

guaranteeing future teak supplies. Whereas one group led by Conservator Leeds promoted plantations, another group under Inspector-General Brandis urged reservation of the best tracts "to be converted gradually into more or less compact Teak Forests".⁴⁹ In 1869, the latter prevailed with the Government of India, and Leeds was replaced as Conservator by men (such as Seaton and Ribbentrop) who accepted the new policy.⁵⁰ Although plantations continued to expand, particularly under the taungya forestry system, the creation of reserves became the Forest Department's principal objective. As Brandis noted in 1876: "it is now acknowledged on all sides that the demarcation of permanent forest reserves is at present the most important work to be accomplished by the Forest Department in Burma".⁵¹

However, such work continued to be hindered by civil officials, particularly when the proposed reserves were situated in populated areas. In 1875, Conservator Ribbentrop reported that the creation of fuel reserves had been blocked as "all such proposals which have been made from time to time have been annulled or ordered to be revised," and he

⁴⁹ Brandis in RFA for 1865-66, 45-46; see also RFA for 1866-67, 8; Secretary of State for India to the Governor-General of India, 16 July 1868, SDI (1868), 109; E.P. Stebbing, The Forests of India, vol.2 (London: John Lane for the Bodley Head, 1923), 194-95.

⁵⁰ Leeds was transferred to Bengal where he served as Conservator until 1872. He was then demoted to the rank of Deputy Conservator for incompetence and sent to the Central Provinces. See A.O. Hume (Secretary, Government of India) to Secretary to the Government of Bengal, 5 October 1872, IFP (October 1872), 654-55.

⁵¹ Brandis, Suggestions, 1; see also Secretary of State for India to the Governor-General of India, 8 June 1871, SDI (1871), 115; Secretary of State for India to the Governor-General of India, 19 November 1874, SDI (1874), 90.

attributed this to a "disinclination, on the part of the Civil authorities, to consent to the reservation of areas, in the midst of populated parts".⁵² Civil officials also held up reservation on a technicality. In the Thayetmyo region in 1877-78, for example, they objected to various proposals on the grounds that "the prescribed procedure had not been fully carried out".⁵³

Such foot-dragging extended to other areas as well. Chapter 3 noted how the Forest Department's efforts to regulate non-teak forest use in the 1870s provoked widespread popular opposition. However, such opposition was often strengthened by the actions of civil officials who objected to these restrictions. At first, forest and civil officials shared responsibility for the distribution of free and trade permits. Forest officials even required the Deputy Commissioner's approval before wood illegally extracted could be confiscated.⁵⁴ In 1878, the Chief Commissioner issued revised rules to correct the 'misapprehensions' of civil officials who were "putting too liberal an interpretation on the scope and applicability of free permits"; and, in the case of species such as padauk that were becoming scarce, extraction came under greater Forest Department control.⁵⁵ Two years later, however, Conservator Seaton reported that civil

⁵² RFA for 1874-75, 7, 9-10; see also RFA for 1873-74, 2-4.

⁵³ RFA (Pegu) for 1877-78, 5.

⁵⁴ B. Ribbentrop, "Special Report on the Working of the Revenue Notifications nos. 33 and 34 of 8 March 1876," RFA for 1876-77, 33-34; Nisbet, Burma under British Rule, 2: 57.

⁵⁵ Resolution, RFA for 1877-78, 3-4.

officials in Toungoo division had increased the number of free permits issued by nearly one-third in just one year.⁵⁶

With the fiscal and legal changes of 1878-82, the Forest Department came under the immediate control of the Chief Commissioner. An attempt was then made to improve inter-departmental relations by partially integrating civil and forest administration.⁵⁷ Beginning in 1880, the divisional forest official became the assistant of the Deputy Commissioner, but retained a direct link with the Conservator on professional and accounting matters.⁵⁸ The Deputy Commissioner was required to submit all forest correspondence to the Conservator, but was otherwise answerable only to the Commissioner. As with the latter, the Conservator was now responsible to the Chief Commissioner who had the final say on operational matters. More than ever before, the relationship between the Conservator and the Chief Commissioner set the general tone of forest management, as the interaction of divisional forest officials and Deputy Commissioners established the complexion of local forest administration.

These changes clarified forest-civil relations, but did not completely eliminate inter-departmental conflict. Forest and civil officials continued to dispute control in a number of policy areas. Nevertheless, the partial integration of

⁵⁶ RFA for 1879-80, 32-33.

⁵⁷ This move was in keeping with the wishes of the Secretary of State for India that "an intimate relationship" be achieved between civil and forest officials, see Secretary of State for India to the Governor-General of India, 15 January 1880, IFP (March 1880), 127.

⁵⁸ Ribbentrop, Forestry in British India, 95.

forest and civil administration promoted greater cooperation which, in turn, facilitated forest reservation in the late nineteenth and early twentieth century. But first, the broader issue of forest rights had to be resolved.

Defining Forest Rights

Forest politics in colonial Burma was all about the determination of forest access according to the law. As a result, the manner in which rights were legally defined had a direct impact on the nature of state forest control. In this section, the focus is on the decade-long debate over the definition of forest rights, and its resolution and embodiment in the Burma Forest Act (1881). For a brief period in the 1870s, colonial officials debated the basic principles of forest management that were to shape forest politics during the remainder of British rule.

If these debates had an abstract quality about them, it was because they formed part of a process of legislative reform that culminated in the India Forest Act (1878), the Burma Forest Act (1881) and the Madras Forest Act (1882). Yet the issues that they addressed were anything but inconsequential for the millions of people in the British-Indian empire who depended on the forests for needed produce.

New legislation was needed to replace the inadequate India Forest Act (1865). In 1868, and again in 1869, a draft forest bill was circulated to the provincial governments, but a consensus was not achieved.⁵⁹ In 1873, a conference of

⁵⁹ Government of India (Department of Revenue, Agriculture and Commerce) to the Marquis of Salisbury (Secretary of State for India), 28 September 1876, IFL no. 30 of 1876.

foresters at Allahabad examined the issue in detail.⁶⁰ Two years later, Brandis prepared a memorandum on forest legislation that formed the basis of the India Forest Act (1878).⁶¹ In conjunction with these India-wide developments, Burma and other provinces were the subject of reports that dealt with their specific requirements. Reports by Baden-Powell (1873) and Brandis (1876) helped to structure the Burmese deliberations, and the detailed proposals which they contained formed the basis of the 1881 Act.⁶²

If at first it appeared that Burma might be included in the 1878 legislation, the Province's unique position in imperial forest management ensured its treatment under separate legislation.⁶³ Such legislation recognized Burma's distinctive social and ecological conditions. More importantly, the 1881 Act catered to the special administrative requirements associated with management of the Province's teak forests. Without a doubt, those forests were the jewel in the crown of Indian forestry, and revenue derived from their exploitation formed the largest share of the imperial forest surplus. Between 1889-90 and 1894-95, for example, the annual net revenue of Burma's forests amounted to 3,308,000 rupees or 45 per cent of the British-

⁶⁰ B.H. Baden-Powell and J.S. Gamble, ed., Report of the Proceedings of the Forest Conference, 1873-74 (Calcutta: Government Printing, 1874); Brandis, Indian Forestry, 51.

⁶¹ Brandis, Memorandum.

⁶² Baden-Powell, Forest System; Brandis, Suggestions.

⁶³ Government of India (Department of Revenue, Agriculture and Commerce) to the Marquis of Salisbury (Secretary of State for India), 28 September 1876/19 October 1876, IFL nos. 30 and 33 of 1876.

Indian total.⁶⁴ The Government of India was thus only too aware of the need to tailor legislation to Burmese needs in order to maximize efficient resource extraction.

And yet, the general concern of both the 1878 Act and the 1881 Act was with the definition of rights. Each act aimed to distinguish, if not completely separate, state and societal claims as a precursor to the full and unimpeded commercial development of state forests. The determination of rights and the reservation of forests was thus linked: "the acquisition of more extensive rights by Government within the demarcated area, against concessions made outside its limits to the surrounding population".⁶⁵

It was the precise nature of that link that was debated in the 1870s. With reference to India, Guha suggests that three positions emerged on this issue:

The first, which we call annexationist held out for nothing less than total state control over all forest areas. The second, which one can call pragmatic, argued in favour of state management of ecologically sensitive and strategically valuable forests, allowing other areas to remain under communal systems of management. The third position (a mirror image of the first), we call populist. It completely rejected state intervention, holding that tribals and peasants must exercise sovereign rights over woodland.⁶⁶

Although elements of all three positions were to be found in the Burmese debate, the Province's distinctive socio-economic and ecological conditions ensured that the debate

⁶⁴ Brandis, Indian Forestry, 42. In 1869-70, the net revenue was 39 per cent of the British-Indian total, see Government of India (Public Works Department) Circular no. 5F, 11 March 1871, IFP (March 1871).

⁶⁵ Brandis, Memorandum, 10.

⁶⁶ Ramachandra Guha, "An Early Environmental Debate: The Making of the 1878 Forest Act," Indian Economic and Social History Review 27, 1 (1990): 67-68.

would take a different course from that which took place in India.

Most evidently, the economic importance of Burma's teak forests was a powerful incentive for their intensive management. Although teak was found elsewhere, Burma was the principal source of the quality timber in European demand.⁶⁷ Yet, its distribution in the country's forests posed special management problems. Native to the mixed evergreen and deciduous forest, teak is only found scattered below an elevation of about three thousand feet, and in areas with a rainfall of 60-130 inches per year.⁶⁸ Even in so-called teak forest, the tree rarely comprises more than 10 to 12 per cent of the total forest cover. Inevitably, the diffuse nature of these forests increased the costs of extraction and administration, and led forest officials to advocate extensive reservation.

Social factors also accounted for the distinctiveness of the Burma debate. The debate took place at a time when the development of an export-oriented agrarian economy was in full swing in Lower Burma. In a matter of decades, what Furnivall called the 'plural society' emerged: a society of individuals divided by language, religion, culture and

⁶⁷ P.L. Simmonds, "The Teak Forests of India and the East, and Our British Imports of Teak," Journal of the Society of Arts 33 (February 1885): 345-55; R.S. Troup, The Silviculture of Indian Trees, vol.2 (Oxford: Clarendon Press, 1921), 699-700.

⁶⁸ D.J. Atkinson, "Forests and Forestry in Burma," Journal of the Royal Society of Arts 96 (1948): 483-84; and Appendix B.

history.⁶⁹ What is important here is less the precise nature of that society as the fact of its impermanence; it was in effect the antithesis of the 'traditional' society. The lack of a traditional society in late-nineteenth-century Lower Burma was in marked contrast to many areas of India, and this had important implications for the direction of the debate in Burma.

A brief comparison with the situation in Madras Presidency illustrates the point. It was no coincidence that the Madras government was "the most articulate spokesman for village interests in the controversy around the 1878 Act" for it ruled a territory that was densely populated, and which had a long tradition of communal forest ownership.⁷⁰ In this setting, civil opposition to the new legislation flourished, and combined jealousy of the Forest Department, fear of popular discontent, and apprehension that the restriction of customary forest access would destabilize the agrarian economy.⁷¹ In contrast, and to the extent that it had ever previously existed, traditional communal forest ownership in Lower Burma was eliminated by the influx of Burmese and Indian migrants who transformed large areas of forest into paddy field. As noted, this did not stop civil officials from resisting the assertion of Forest Department control. Yet, in Lower Burma's plural society, their defense of traditional

⁶⁹ J.S. Furnivall, Colonial Policy and Practice: A Comparative Study of Burma and Netherlands India (1948; reprint, New York: New York University Press, 1956), 303-12.

⁷⁰ Guha, "1878 Forest Act," 69.

⁷¹ Ibid., 70-72.

access lacked authenticity, and may partly explain why the populist position was relatively unimportant in Burma.⁷²

Rather, the annexationist and pragmatic positions, as championed by Baden-Powell and Brandis respectively, formed the focus of attention. Deputed by the Government of India in 1872 to investigate irregularities in the permit system, Baden-Powell used the occasion of his visit to make comprehensive recommendations on the reform of Burma's forest administration.⁷³ In essence, he proposed a strategy of extensive reservation and restricted popular access. Burma's main teak tracts would become special reserves, but ordinary reserves would also be created in order to protect watersheds for climatic purposes, curtail 'barbarous' shifting cultivation, generate revenue, and 'religiously preserve' existing teak supplies wherever they were found. The Pegu Yoma, and even much of the surrounding plains forests, were implicated in Baden-Powell's scheme, reflecting the author's uncompromising belief in absolute state forest control.

That belief was also manifested in proposed limits on popular forest access. In what Guha calls a "legal sleight of hand," Baden-Powell claimed that all land that was not under actual cultivation belonged to the state, and access to such land was a privilege granted by the state, and not

⁷² Writing in 1871, for example, Deputy Commissioner A.G. Duff (Shwegyin) condemned the restriction of free forest access enjoyed by villagers throughout the colonial period and for "countless ages before," but lamely concluded that if these villagers were to be excluded from selected areas, they should receive compensation from the Forest Department, see Duff to Commissioner (Tenasserim), 23 September 1871, IFP (June 1872), 317.

⁷³ Baden-Powell, Forest System.

a legal right.⁷⁴ There were "no such things as forest rights, properly so called, held by individuals or communities over any forests in British Burma"; rather, the state was the "unrestricted owner" of the forest and all that it contained.⁷⁵ According to Baden-Powell, rights only existed where they had been expressly admitted in land settlements; otherwise, forest access was merely a privilege that could be modified or withdrawn at any time.⁷⁶

If Baden-Powell's proposal appealed to many forest officials, it received a much cooler reception among non-foresters. In a letter to Chief Commissioner Ashley Eden in 1874, Secretary to the Government of India A.O. Hume rejected a system of special and ordinary reserves in which popular access would be severely curtailed.⁷⁷ Not only would such a complex system be impossible to enforce in practice, Hume also believed that it would only exacerbate state-peasant relations. Civil officials in Burma were also strongly opposed to the extensive access restrictions associated with the creation of ordinary reserves.⁷⁸

⁷⁴ Guha, "1878 Forest Act," 68.

⁷⁵ Baden-Powell, Forest System, 50.

⁷⁶ This argument is based on two linked assumptions. First, that in pre-colonial times, the sovereign owned all land that was not explicitly alienated, even if only in theory. Second, by right of conquest, the British inherited that ancient right. On this selective appropriation of tradition, see Guha, "1878 Forest Act," 68-69; Baden-Powell, Manual of Jurisprudence, 44-45, 48, 55-56, 62-63.

⁷⁷ A.O. Hume to Chief Commissioner, 28 July 1874, Government of India, Copy of Enclosures, 2-3. Hume's decision was confirmed by the British government, see Secretary of State for India to the Governor-General of India, 19 November 1874, SDI (1874), 90.

⁷⁸ Ribbentrop, "Special Report," 23.

As a result of such criticism, Brandis in 1876 outlined a simpler arrangement.⁷⁹ Believing that Baden-Powell's system would result in reserves 'only in name', Brandis proposed one class of reserves that would embrace all teak tracts of sufficient size to merit long-term management. Outside these reserves, civil officials would enforce basic rules designed to protect selected species and regulate the timber trade. Few restrictions would be placed on popular access.

While upholding the state's right to manage Burma's forests, Brandis also insisted that customary forest access by settled agriculturists was a right, and not, as Baden-Powell believed, a privilege. Local needs not met from village forests could be accommodated through access to specified blocks within reserves in which definite rights would be enjoyed. In part, such liberality reflected Brandis' belief that extensive reservation in aid of commercial timber production would not "in any way" interfere with "the present requirements of the agricultural population".⁸⁰

However, the same could not be said about shifting cultivators. As practised in the Pegu Yoma, shifting cultivation was very land intensive. In the Tharrawaddy and Prome hills alone, five thousand people required three hundred square miles to complete a twenty year field rotation.⁸¹ Moreover, such cultivation occurred in the most valuable forests. As a result, Brandis was adamant that shifting cultivation did not constitute a right: the Forest

⁷⁹ Brandis, Suggestions.

⁸⁰ Ibid., 8.

⁸¹ Ibid., 11.

Department should feel free to take up "all valuable forest tracts, provided no actual settlements are included...deserted toungyas...may be taken up without prejudice to any one".⁸²

It was partly because of this issue that Brandis opposed the extension of the 1878 Act to Burma. At first, Burma's Chief Commissioner had requested the application of that Act to the Province.⁸³ But, with the support of his Department head, Alexander Arbuthnot, Brandis gained the approval of the Governor General to reconsider the issue in conjunction with the Chief Commissioner. Subsequently, a draft forest bill was circulated to civil and forest officials in Burma for comment.⁸⁴ After extended discussion, the Government of India enacted the Burma Forest Act in 1881.

The Act was based largely on the 1878 Act, with, however, important modifications.⁸⁵ Following Brandis, the 1881 Act prescribed one class of reserves in which only those rights explicitly recognized in settlement proceedings would be permitted, and even then, only when they were compatible with forest conservancy. Concurrently, unauthorized access was

⁸² Ibid.

⁸³ Proceedings of the Council of the Governor General of India (hereafter Proceedings) 17 (1878): 130, 117.

⁸⁴ G.D. Burgess (Secretary to the Chief Commissioner) to Secretary, Government of India (Home Department), 7 May 1880, IFP (October 1881), 1084-87. Civil officials were "very strongly opposed" to section 68 of the proposed Act which empowered junior forest officials to compound (ie. fine on the spot) forest offenses; they believed this clause would be liable to abuse. However, the Government of India insisted on its retention, see C. Bernard (Secretary, Government of India, Home Department), Office Memorandum, 20 May 1880, IFP (October 1881), 1087.

⁸⁵ References are to the Burma Forest Act 1881.

forbidden, and damage to the forests made subject to a stiff penalty: a five hundred rupee fine, six months imprisonment or both (XXVI).

Going beyond the Indian legislation, the 1881 Act also placed explicit limits on taungya practices within reserves. Such practices were still permitted, but were subject to detailed regulation, and it was made clear that shifting cultivation did not constitute a right (XI). Although the Burma Land Revenue Act (1876) expressly declared that no rights accrued from shifting cultivation, the Chief Commissioner and the Forest Department sought to eliminate residual doubts on this matter through a re-statement of the principle in the context of the new piece of legislation.⁸⁶

In unreserved forests, the primary objective was to protect reserved species and regulate trade. Yet, the Forest Department still had considerable power in these forests. It could regulate or prohibit fires, shifting cultivation, hunting and fishing, timber felling, pasturage, charcoal and lime burning, and catch boiling (XXXVII). Moreover, avoiding the legal ambiguities of the 1878 Act, the Burma legislation made no provision for 'protected forests' or a statement of popular rights in unreserved forests. In part, this omission reflected the fact that fewer formal rights had accrued in Burma than in India. However, it also increased the Forest Department's flexibility over rights to these forests as it moved to reserve the best remaining teak tracts.⁸⁷

⁸⁶ Proceedings, 20 (1881): 199-200; Baden-Powell, Manual of Jurisprudence, 173, 177.

⁸⁷ Ribbentrop, Forestry in British India, 111-12; Proceedings, 20 (1881), 4.

The 1881 Act combined elements of the pragmatic and annexationist positions. The rights of settled agriculturists in the vicinity of reserves were selectively acknowledged, but those of shifting cultivators were formally denied. Brandis' proposal for the creation of one class of reserves was sanctioned, but the Act did not specify the ultimate extent of reservation. It expedited the assertion of Forest Department control, but did not place a limit on the scope of such control.

In effect, that limit was to be negotiated with the civil administration. As recommended by Baden-Powell and Brandis, civil officials were to control village forests in populated areas. More importantly, they also continued to exert an important influence over the creation of state reserves. In this respect, the difference between the 1878 Act and the 1881 Act is instructive. Under the former, provincial governments in India had the power to convene a three member settlement committee, one member of whom could be a forest official, but who was in no way subordinate to the other committee members.⁸⁸ In contrast, the 1881 Act provided for the appointment of a Forest Settlement Officer, but expressly stated that the individual should not ordinarily be a forest official. As Secretary to the Government of India A. Rivers Thompson observed during consideration of the Burma forest bill:

It was proposed that the chief officer to be entrusted with the duty should be in no way connected with the Forest Department; he might be a civilian or some other officer; and though a Forest-officer might be associated with such Forest-Settlement-officer in the investigation and record of all independent

⁸⁸ Proceedings, 20 (1881), 3.

claims and privileges, it was intended that he should always act in subordination to the Forest-Settlement-officer.⁸⁹

In this manner, cooperation between civil and forest officials was embedded in the 1881 Act.

However, such cooperation was not always forthcoming. Inter-departmental conflict persisted in the late nineteenth and early twentieth centuries, albeit at a reduced level. The basis of such conflict remained rooted in differing programmatic interests. But it also reflected an important, if calculated, omission of the 1881 Act: the ultimate reserved area was not specified. With large areas of Burma's forests as yet unexplored, forest officials were understandably reluctant to be precise on the matter. The almost inevitable result, however, was that as the Forest Department grew, and became more knowledgeable about the forests, it continually revised that total upwards. With the Government of India's approval, Brandis tentatively suggested a limit of 2000 square miles in 1874.⁹⁰ As that total was exceeded, he proposed a revised total of 3,474 square miles in 1881. Within two years, even that figure was surpassed, and the ultimate area was disputed by the Chief Commissioner and the Government of India.⁹¹ The Burma Forest Act (1881) did not eliminate conflict within the state over forest policy. Rather, it shifted the terms of the debate.

⁸⁹ Ibid. Thompson was the Chief Commissioner of Burma during the years 1875-78.

⁹⁰ D. Brandis, "Demarcation of State Forests in British Burma," and A.O. Hume to Chief Commissioner, 28 July 1874, in Government of India, Copy of Enclosures.

⁹¹ A. Mackenzie (Secretary, Government of India) to Chief Commissioner, 7 December 1883, and Resolution, both in RFA for 1882-83.

Yet, the persistence of 'departmentalism' must not obscure the importance of the administrative changes just described. If Chapter 3 illustrated how state forest control was affected by the resistance of diverse forest users, the present chapter has shown that such control was also shaped by bureaucratic politics. The development of a professional forest service was an essential part of the transition from laissez-faire forestry to scientific forest management, but it also resulted in the separation of forest and civil administration. In a sense, the debates of the 1870s were partly about seeking ways to coordinate the two services in a context of ongoing bureaucratic growth and differentiation. In the process, the role of the Forest Department as a resource manager was firmly situated in a broader institutional context.

The debates of the 1870s also reflected a need to establish the parameters of state forest control. If Burma's forests were to be managed for long-term commercial timber production, then the rights of forest users required careful definition. Following the passage of the Burma Forest Act (1881), forest officials began to rationalize forest use to that end. Those efforts are the subject of the next two chapters.

CHAPTER 5

RATIONALIZING FOREST USE: THE ERA OF EXPANSION 1881-1902

During the last two decades of the nineteenth century, the Forest Department strengthened its hold over Burma's forests. But the ability of forest officials to rationalize forest use was conditioned by the bureaucratic politics and the popular resistance examined in the preceding two chapters. In this chapter, the implications of this situation for the development of forest control and conflict in the late nineteenth century are addressed.

This chapter is thus concerned with what may be termed the era of expansion. The period 1881-1902 may be so characterized for three reasons. First, it was during this era that Upper Burma and the Shan States were annexed, and all of Burma came under British rule for the first time. The addition of a vast new forest estate was the occasion for a major expansion of Forest Department activity. Secondly, the period marked a rapid increase in the area enclosed in reserved forests, first in Lower Burma and, after 1890, in Upper Burma too. Finally, the late nineteenth century witnessed a selective, and highly ambiguous attempt to regulate the use of non-teak forest produce. One of the most important such instances concerned the management of catch, a water extract of the sha tree.

Each of these areas of activity was linked by a common objective: the rationalization of forest use. In Chapter 6, this topic will be pursued further when the thesis examines the Forest Department's efforts in the early twentieth century to consolidate control over Burma's forests through

working plans and other measures. This process of expansion and consolidation varied regionally, and was generally effected at a later stage in Upper Burma than in Lower Burma. More importantly, it should be recognized that the issues discussed in the next two chapters are closely linked. The expansion of Department control, and its subsequent consolidation, were two facets of the same process. During the period 1881-1923, attention focused on the rationalization of forest activity as part of a broader attempt to re-arrange land use in colonial Burma. To fully appreciate such rationalization, however, it is necessary first to be clear about the ways in which the Forest Department extended its activities in the late nineteenth century.

Forest Policy in Upper Burma and the Shan States

After the third Anglo-Burmese war (1885-86), the British controlled all of Burma's forests. But, as in 1852 in Pegu, colonial officials inherited a series of political, economic and ecological problems that conditioned policy formulation. Specifically, the Forest Department faced problems concerning pre-colonial timber leases, political unrest and extensive over-harvesting.

The Department's first task was to gain a working knowledge of the forests. Under the direction of Henry C. Hill, Upper Burma's first Conservator, foresters set out to "explore, survey and roughly value the forests" beginning with the more valuable Pyinmana teak tracts of the north Pegu

Yoma in 1886.¹ By the early 1890s, the approximate extent and condition of the teak forests was known in all but the most remote areas. This preliminary survey confirmed what had long been suspected - over-harvesting was extensive.² In the Pyinmana forests, for example, rough calculations indicated that for every 33 mature trees, 27 had already been removed or killed; one-sixth of the girdled trees were also undersized (ie. below six feet in girth).³

Forest officials found widespread evidence of over-harvesting. However, their reports did not indicate that Upper Burma's forests were irreparably damaged. Contemporary popular accounts of pervasive deforestation may have served to belittle pre-colonial forestry, but they were otherwise highly misleading.⁴ Regrettably, this deforestation myth persists even today. Keeton, for example, comments:

the 1883-1885 'drought' and the other calamities attributed to [King] Thebaw's 'misrule' were, in the main, caused by 'modern' Deforestation. King Mindon had first leased extensive portions of his forests to the BBTC in 1862. Within twenty years many catch, teak, and other timber areas in the provinces south of Mandalay and elsewhere were largely denuded of trees and other ground cover.⁵

¹ Progress Report of Forest Administration (hereafter RFA) for Upper Burma for 1888-89, 6.

² RFA (Upper Burma) for 1889-90, 6; Government of India (Home, Revenue and Agricultural Department) to Viscount Cranbrook (Secretary of State for India), 6 November 1879, India Forest Letters no. 157 of 1878-79.

³ RFA (Upper Burma) for 1887-88, 8.

⁴ Grattan Geary, Burma After the Conquest (London: Sampson Low, Marston, Searle, and Revington, 1886), 312.

⁵ Charles Lee Keeton III, King Thebaw and the Ecological Rape of Burma: The Political and Commercial Struggle between British India and French Indo-China in Burma, 1878-1886 (Delhi: Manohar, 1974), 143; see also Mark Poffenberger, "The Evolution of Forest Management Systems in Southeast Asia," in Keepers of the Forest: Land Management

What is important here is not the link between alleged deforestation and drought in Upper Burma,⁶ so much as the assumption that over-harvesting and deforestation were synonymous. This assumption is false for several reasons. First, it has already been noted that teak in Burma rarely constitutes more than 12 per cent of the total forest cover. Thus, even if every teak tree in a given area was removed, much of the forest cover would remain. In this regard, it must be remembered that teak extraction was non-mechanical: elephants hauled the felled trees to streams where the logs were then floated to market. As a result, damage to the surrounding forest was relatively minor.⁷ Secondly, leaseholders in practice did not remove the entire teak crop, but instead took only marketable trees. If the latter included what forest officials termed 'undersized' trees, they typically did not always include the smallest timber. Finally, loggers bypassed completely those forests where logs could not be floated out due to natural obstructions. It was partly because these inaccessible forests had not been logged that the Forest Department was able to expand production in

Alternatives in Southeast Asia, ed. Mark Poffenberger (West Hartford, Conn.: Kumarian Press, 1990), 17.

⁶ This link is debated even today. In Burma, it was extensively considered in 1909, see below.

⁷ This practice in pre-colonial (and colonial) Burma was thus different from contemporary Third World extraction which is usually mechanized and predicated on the existence of a road network. Under these conditions, forest damage is extensive. Elephants continue to be used in Burma today, but the government is mechanizing extraction, see John Blower and James Paine with Saw Hahn, Ohn, and Harold Sutter, "Burma (Myanmar)," in The Conservation Atlas of Tropical Forests: Asia and the Pacific, ed. N. Mark Collins, Jeffrey A. Sayer and Timothy C. Whitmore (London: Macmillan, 1991), 107.

the twentieth century, despite the closure of accessible but over-worked areas.⁸

In the case of the sha forests, over-harvesting was probably more serious. But even here, the sha forests of Upper Burma were not as denuded as they were in Lower Burma in 1885.⁹ In short, extensive over-harvesting of selected species under Burmese rule did not denote pervasive deforestation. Such deforestation was indeed occurring in Burma in the late nineteenth century. But, it was in British-held Lower Burma, and not in monarchical Upper Burma, that this process took place.¹⁰ The conversion of plains and delta forests into paddy fields under colonial rule reduced forest cover much more extensively than timber extraction (whether under Burmese or British direction) ever did.

The change in forest cover due to logging may have been relatively insignificant, but it reiterated what forest officials had learned in Tenasserim and Pegu. Unregulated private extraction was synonymous with over-harvesting. If the Forest Department was inclined to eliminate private extraction from Burma altogether after 1886, broader political considerations came into play. Specifically, there

⁸ A similar situation prevailed in Pegu after 1856, see Dietrich Brandis, "The Burma Teak Forests," Garden and Forest 9 [1895]: 12-13.

⁹ R.S. Wilkie, Yamethin District Gazetteer (Rangoon: Government Printing, 1934), 83; F.C. Owens, Pakokku District Gazetteer (Rangoon: Government Printing, 1913), 59; and below.

¹⁰ Michael Adas, "Colonization, Commercial Agriculture, and the Destruction of the Deltaic Rainforests of British Burma in the Late Nineteenth Century," in Global Deforestation and the Nineteenth-Century World Economy, ed. Richard P. Tucker and J.F. Richards (Durham, N.C.: Duke University Press, 1983), 95-110.

was the question of the pre-colonial forest leases of the Bombay Burmah Trading Corporation Limited (BBTCL), and other firms, and the conditions under which the colonial state would honour their terms.

Significantly, the option of nullifying the pre-colonial agreements was not seriously entertained by the British government. There were several reasons for this stance. First, from its founding on 4 September 1863, the BBTCL had become the most powerful British timber company in the region (if not the world), and enjoyed considerable influence in government circles.¹¹ Secondly, as the principal lessee in Upper Burma, it already possessed the staff and elephants that the Forest Department would require years to match. Subject to careful supervision, therefore, the BBTCL was best placed to maintain teak production, at least in the short-term.¹² Finally, it was in the colonial state's own interest to uphold pre-colonial legal arrangements. Chapter 2 noted how the British claimed ownership of Pegu's teak forests on the basis of pre-colonial law. In 1886, this inherited prerogative was extended to Upper Burma, and after some

¹¹ Such influence was reinforced by expert legal advice, see Anonymous, "Forest Administration under Lord Dufferin," Indian Forester 15 (January 1889): 7; Annual Report of the Bombay Burmah Trading Corporation Limited (henceforth ARBBTCL) for 1876-77, 5; see also A.C. Pointon, The Bombay Burmah Trading Corporation Ltd., 1863-1963 (Southampton: Millbrook Press, 1964); Ernest Andrews, The Bombay Burmah Trading Corporation Limited in Burmah, Siam and Java, 3 vols. (n.p., 1930-31).

¹² C. Bernard, "Claims of the Bombay-Burma Corporation against the Government of Upper Burma," 29 January 1886, Burma Forest Proceedings (hereafter BFP), (February 1886), 5-6.

initial confusion, to the Shan States.¹³ In the latter case, British proprietary rights, as expressed in the sanads (treaties) granted to the Sawbwas (hereditary local rulers), were explicitly based on the putative control of the Shan forests by the Burmese monarchy.¹⁴

If the colonial state recognized the pre-colonial forest leases, it was nevertheless committed to their revision in keeping with long-term teak production.¹⁵ In contrast, the BBTCL and other lessees, as well as the Shan Sawbwas, fought to protect their privileged forest access.¹⁶ Inevitably, the transition from Burmese to British forest management was marked by prolonged negotiation involving governments in Burma, India and England.

Negotiations began in January 1886 when the BBTCL conveyed to Chief Commissioner Charles Bernard its financial

¹³ The British government had at first intended to leave the Sawbwas in possession of the Shan forests. But at the last minute, Inspector-General Ribbentrop intervened, claiming the forests were a British inheritance from the Burmese kings, see B. Ribbentrop, Forestry in British India (Calcutta: Government Printing, 1900), 103-4.

¹⁴ Ibid; Resolution of the Chief Commissioner (hereafter Resolution), RFA (Upper Burma) for 1889-90, 2; C.U. Aitchison, ed., A Collection of Treatises, Engagements and Sanads relating to India and Neighbouring Countries, vol. 2 (Calcutta: Government Printing, 1909), 63-65. As Anderson notes generally of this period, the Europeans were in the business of "reconstructing the property-history of their new possessions...[and] the antiquity of specific, tightly bounded territorial units," see Benedict Anderson, Imagined Communities: Reflections on the Origin and Spread of Nationalism, rev. ed. (London: Verso, 1991), 174-75.

¹⁵ Lord Dufferin, "Minute by His Excellency the Viceroy and Governor General of India, 17 February 1886, as to the Future Administration of Upper Burma," in Further Correspondence Relating to Burmah No. 3 (London: Eyre and Spottiswoode for H.M.S.O., 1886), 31.

¹⁶ ARBBTCL for 1887-88, 4; J. Nisbet, "Suggestions for the Administration and Working of the Forests in the Southern Shan States," BFP (December 1898), 98-102.

claims against the Burmese monarchy. Bernard felt that the Corporation's existing leases should be confirmed subject to cutting restrictions. However, he also argued that

it will be better for the country, the people, and the forests that at the end of the existing leases (1890 or 1891) the Forest department should be free to arrange for the working of the forests after the most approved methods. Doubtless they would...employ largely the agency of the Bombay-Burmah Corporation; but they would regulate girdlings, fellings, and reproduction in the best way for securing permanent and steady yield from all the different teak forests in the country.¹⁷

Bernard's plan was thus an attempt to accommodate the Forest Department's demands for sufficient authority to manage the forests, but without necessarily challenging the predominance of the BBTCL.¹⁸ Not satisfied with this plan, the Corporation lobbied the British government, and in October 1886, the Secretary of State for India ruled that both the existing contracts and renewals would be recognized.¹⁹ After more than two years of negotiation, an agreement between the British government and the BBTCL was concluded on 18 August 1888; that agreement then formed the basis of agreements with the other lessees.²⁰ Under the terms of the agreement, the BBTCL

¹⁷ Bernard, "Claims," 5-6.

¹⁸ More than seventy European and indigenous timber merchants in Rangoon and Moulmein urged the government on 13 January 1886 to cancel the BBTCL leases in favour of a system of Department extraction. Otherwise, they claimed, the Corporation would achieve a monopoly, and over-harvesting would be the result, see *Ibid.*, app. Q, 22-23.

¹⁹ H.C. Hill, "Brief Report on Forest Administration in Upper Burma for the Year 1887-88," BFP (August 1888), Upper Burma Circle, 22.

²⁰ U.K. Parliament, "Return of Contract between the Secretary of State for India and the Bombay-Burma Trading Corporation referring to the Teak Forests of Upper Burma, and Correspondence relating thereto," Sessional Papers (Commons), Accounts and Papers - 12, vol. 58, 24 August 1889; Hill, "Brief Report," 22-24; RFA (Upper Burma) for 1888-89,

retained the right to work Upper Burma's teak forests until the turn of the century.²¹ It was to extract not less than 100,000 tons per annum on payment of a royalty of ten rupees per ton on full-size timber, and six rupees per ton on undersized timber, but the government could reduce or even eliminate the allowable cut in areas already overworked.²²

This agreement was important for the future of colonial forest policy in two respects. First, it confirmed the role of the BBTCL as the preeminent extraction agency in Upper Burma. Ultimately, this led to the further privatization of extraction as the government sought to counterbalance that Corporation's predominance in Upper Burma by allocating teak forests to other firms in Lower Burma. Secondly, the agreement confirmed government ownership of the forests, and its right to manage them. BBTCL activities were subject to the Upper Burma Forest Regulation (1887) with the Forest Department in complete control of teak selection and girdling. As such, the latter was empowered to bring teak extraction in Upper Burma into line with the practises already introduced in Lower Burma.²³

appendix; RFA (Upper Burma) for 1889-90, appendix.

²¹ Specifically, the BBTCL leases were as follows: Pyinmana (1897), Chindwin (1900), Mu (1900), Taungdwingyi (1900), Thaingon (1900), Yaw (1900), Pyaungshu (1904).

²² U.K. Parliament, "Contract," 14-15. If the Corporation felt that its claims had not been dealt with liberally, the "improved security" of the leases was a factor in its willingness to reach a deal. However, this did not stop the firm from petitioning the British government for additional compensation for war-related losses, see ARBBTCL for 1887-88, 4; ARBBTCL for 1893-94, 5.

²³ Departmental girdling was a source of tension between forest officials and Corporation employees in the 1890s. Differences occurred over the meaning of a 'first-class' tree as specified in the contract. Forest officials understood it

The British dealt with the Shan Sawbwas somewhat differently, befitting their special political and economic status.²⁴ As developed in the late 1880s and early 1890s, government policy in the Shan States represented a delicate attempt to assert British control over the teak forests, but not so as to alienate the Sawbwas whose allegiance was actively solicited. As a result, a central feature of that policy was the retention of Sawbwas as lessees in their individual states. In effect, this policy conditionally affirmed the autonomy that many local rulers enjoyed in pre-colonial times. As one forest official noted, under Burmese rule

such Sawbwas, whose wealth or whose extent of forest made them conspicuous, were from time to time called upon to pay a duty on teak extracted from their forests, but as a general rule the Sawbwas were accustomed to work their forests just when and how they pleased, and it is therefore not unnatural that they should have come to look upon them as their personal property, to be exploited to their own direct profit.²⁵

Such autonomy was gradually limited, however. In 1890, the colonial state introduced an annual tax of 200 rupees per timber elephant as was done in pre-colonial times. But this fixed rate was soon abandoned for one geared to the

to mean all trees seven feet or more in girth (including commercially-inferior trees), whereas Corporation employees took it to mean trees only of the best quality. In the end, the Forest Department agreed to exclude inferior timber from the girdling totals. See S.F. Hopwood, Working Plan for North and South Gangaw Working Circles (Rangoon: Government Printing, 1916), 5; ARBBTCL for 1894-95, 4.

²⁴ D.T. Griffiths, Working Plan for Southern Shan States Forest Division, 1940-41 to 1949-50, vol. 2 (Rangoon: Government Printing, 1949), 3; Robert H. Taylor, The State in Burma (London: C. Hurst, 1987), 93-94.

²⁵ H. Jackson, "Preliminary Report on Some of the Forests in the Shan States in the Basin of the Salween," BFP (September 1891), 33.

profitability of individual forests, and a surcharge was levied in cases where Sawbwas operated sawmills.²⁶ In 1893, the system was modified yet again as an annual fixed assessment per state was introduced; richer states such as Kengtung and Mongpan paid 10,000 rupees, and poorer states paid as little as 200 rupees.²⁷ By the end of the decade, evidence of illegal extraction and over-harvesting provided a pretext for further British intervention, and hastened the demise of teak extraction by the Sawbwas. In the early twentieth century, their place was gradually taken by the European firms, a change that was part of a general campaign to limit the autonomy of these rulers.²⁸

The caution with which colonial officials treated the claims of the Shan Sawbwas and timber lessees must be situated in a broader context of political unrest following Upper Burma's annexation in 1886. The elimination of monarchical rule triggered the outbreak of rebellion in many areas as pre-colonial political and religious leaders led resistance to the British. The propensity of insurgents to take refuge in the forests when pursued by British-Indian forces prolonged the anti-insurgency campaign. The well-wooded Pegu Yoma and outer hills - "an earthly paradise for

²⁶ Resolution, RFA (Upper Burma) for 1891-92, 6-7. Sawbwas also had to obey rules pertaining to the girdling of teak, see J. George Scott and J.P. Hardiman, Gazetteer of Upper Burma and the Shan States, vol. 2, part 1 (Rangoon: Government Printing, 1900), 313.

²⁷ Resolution, RFA (Upper Burma) for 1892-93, 6; RFA (Eastern) for 1893-94, 17.

²⁸ Nisbet, "Suggestions," 97-104; Conservator F. Beadon-Bryant to Revenue Secretary, 24 June 1905, BFP (October 1907), 1-4; RFA for 1905-06, 68; Griffiths, Southern Shan States, 2: 3; Taylor, State in Burma, 94-98.

outlaws" - were home to Burmese insurgents until 1890, if not later.²⁹ Under these circumstances, forest administration was introduced gradually, and forest officials required an armed escort to go about their duties.³⁰ Moreover, the military practice of concentrating out-lying villagers in large stockaded villages deprived the Forest Department of a local labour supply to be used in fire-protection duties; difficulties experienced in hiring Burmese foresters, or persuading those hired to enter remote forests, only exacerbated this problem.³¹ Not surprisingly, Conservator Hill reported that it was "either not possible or, where possible, unadvisable to proceed against offenders more than exceptionally," and with the exception of teak offenses, violations of the law were overlooked in the 1880s.³²

By the early 1890s, however, the Upper Burma forest administration was regularized along the lines of that in Lower Burma. In March 1887, the territory had been formed into one large forest circle, but by 1892 growing political stability led to its division into two, each circle being in

²⁹ D. Wilson, "General Report on the Ngamingyaung, Yinmale, Kinmundaung, and Kyauk-migyaung Reserves," in BFP (January 1896), 214; see also Charles Crosthwaite, The Pacification of Burma (London: Edward Arnold, 1912), 32, 61; RFA (Upper Burma) for 1889-90, 18; RFA (Upper Burma) for 1890-91, 12-13; RFA (Upper Burma) for 1891-92, 19.

³⁰ RFA (Upper Burma) for 1887-88, 1; RFA (Upper Burma) for 1888-89, 12, 19; RFA (Upper Burma) for 1889-90, 18. As did employees of the BBTCL, see ARBBTCL for 1888-89, 5.

³¹ RFA (Upper Burma) for 1888-89, 9; RFA (Upper Burma) for 1887-88, 9; Hill, "Brief Report," 18.

³² Hill, "Brief Report," 20; Resolution, RFA (Upper Burma) for 1887-88, 3; Resolution, RFA (Upper Burma) for 1888-89, 3.

the charge of a Conservator.³³ Modelled on the Burma Forest Act (1881), the Upper Burma Forest Regulation (1887) was gradually enforced, and its provisions selectively extended to the Shan States.³⁴ At the same time, additional foresters were posted to Upper Burma. From only sixteen officers in 1887-88, the superior service had reached a total of twenty-six men by July 1893.³⁵ These changes both reflected and reinforced the growing assertiveness of the Forest Department in the newly acquired territory. With the exception of the Shan States (and other frontier areas), Burmese forest policy was standardized.

Creating and Protecting Reserved Forests

The standardization of forest policy was particularly evident with regard to the creation of reserved forests. During the late nineteenth century, attention focused on the selection and protection of these forests. But as reservation became the principal means of asserting Forest Department

³³ Between 1892 and 1900, Upper Burma was divided into a Western Circle (the region to the west of Mandalay) and an Eastern Circle (the area to the south and north-east of Mandalay). In 1900, in the first of a series of administrative re-designations, these circles in a slightly modified form became the Northern and Southern Circles respectively.

³⁴ H.C. Hill, Memorandum on the Forest Laws in Force in Upper Burma (Rangoon: Government Printing, 1889); Secretary (Upper Burma) to Secretary, Government of India (Revenue and Agriculture Department), 3 February 1887, Upper Burma Proceedings (February 1887), 5; Chief Secretary (Burma) to Secretary, Government of India (Revenue and Agriculture Department), 22 September 1888, BFP (September 1888), Upper Burma Circle, 4; BFP (April 1889), Upper Burma Circle, 1.

³⁵ Resolution, RFA (Upper Burma) for 1887-88, 1; Hill, "Brief Report," 18; Revenue Secretary (Burma) to Secretary, Government of India (Revenue and Agriculture Department), 6 July 1893, BFP (July 1893), 8.

control, it provoked widespread popular opposition, and was a recurring source of inter-departmental friction.

The Burma Forest Act (1881) established a complex procedure for the creation of reserved forests. A forest official first prepared a detailed proposal which was submitted to the Deputy Commissioner for comment, before being passed on via the Commissioner and Conservator to the Chief Commissioner. In this manner, civil officials could express any objections to the proposals, and the Conservator had the opportunity of "explaining away their objections or adducing additional arguments for reservation".³⁶ If the Chief Commissioner approved the proposal, an official notification was published, and a civil official was appointed as Forest Settlement Officer

to ascertain by full and careful enquiry the actual state of things, the manner in which the reservation, if carried out, will affect the people in the neighbourhood, and the rights and privileges, if any, to which they are entitled.³⁷

Assisted by a forest official, the Settlement Officer was empowered to redraw boundaries so as to exclude permitted practices, buy out rights that would interfere with forest management, specify rights within the reserve, and in the case of shifting cultivation, separately demarcate land within the reserve subject to special rules.³⁸ The proceedings of the enquiry were then forwarded to the Deputy Commissioner. A three-month period ensued during which local

³⁶ J. Nisbet, Burma under British Rule and Before, vol.2 (Westminster: Archibald Constable, 1901), 67.

³⁷ "Instructions for Forest Settlement Officers, Upper Burma," BFP (April 1891), 10.

³⁸ Ibid., 9-19; Burma Forest Act 1881 (Rangoon: Government Press, 1884), nos. 6-15.

villagers could appeal the Settlement Officer's decision. If an appeal was lodged, the Deputy Commissioner reviewed the case, and modified or confirmed the original decision, forwarding the proceedings as before. With the notification of a reserve, all rights not claimed were extinguished, a move that precluded their subsequent accrual. With the Government of India's approval, however, the Chief Commissioner could later cancel such a notification. This provision was primarily designed to permit the opening of new lands for permanent agriculture.³⁹

It was on the basis of this system that extensive reservation took place in Lower Burma, and after 1890, in Upper Burma. If settlement work was hindered by a paucity of civil officials, much of the Pegu Yoma was nevertheless reserved by the turn of the century (Table 5.1).⁴⁰

TABLE 5.1

GROWTH IN RESERVED FORESTS 1880-1905
(Selected Years; Area in Square Miles)

Year	Lower Burma	Upper Burma	Total
1880-81	2,288	-	2,288
1883-84	3,759	-	3,759
1886-87	4,788	-	4,788
1889-90	5,574	-	5,574
1892-93	5,790	2,269	8,059
1895-96	7,379	5,438	12,817
1898-99	7,680	7,989	15,669
1901-02	9,471	9,135	18,606
1904-05	10,340	10,071	20,411

Source: RFA (various years).

Note: These figures include demarcated Karen areas which constituted approximately 5 per cent of the total area.

³⁹ Nisbet, Burma under British Rule, 2: 69.

⁴⁰ H.W.A. Watson, A Note on the Pegu Yoma Forests (Rangoon: Government Printing, 1923), 4.

Two things are particularly striking about the change in the reserved area during this period.⁴¹ The first concerns the steady, almost routine increase in the reserved area in Lower Burma, which occurred despite the political turmoil of the late 1880s. If, as discussed below, forest administration was temporarily disrupted in many areas of Pegu in 1885-86, work nevertheless continued as usual in neighbouring Tenasserim. This, in itself, is testimony to the power and resiliency of the bureaucratic structures and rational-legal techniques introduced after 1856. In contrast, what is noteworthy about the pace of reservation in Upper Burma in the 1890s is its rapidity. Thus, whereas reserves in Upper Burma constituted 28 per cent of the total reserved area in 1892-93, six years later they already represented 51 per cent. This record reflected both the importance of the teak forests in Upper Burma (particularly in the northern Pegu Yoma), as well as the growing stability of forest administration in the region in the 1890s.

But the growth in the reserved area did not go unopposed in either Upper or Lower Burma. Within the colonial state, conflict between civil and forest officials may have been substantially reduced following the passage of the Burma Forest Act (1881), but the silence of that Act on the ultimate extent of reservation remained a bone of contention between civil and forest officials. When the Forest Department proposed to reserve large areas adjoining populated areas, civil officials were particularly reluctant to support their colleagues. A proposed reserve covering 637

⁴¹ See also Appendix C.

square miles in Henzada district was rejected by the Deputy Commissioner for this reason in 1884. In making this decision, J. Butler noted that in the past, reservation had led to the "total exclusion" of the people from the forests, and that, even with the new legislation, the quest for "a good balance sheet" might influence a forest official more than "supplying the wants of a people whose prosperity or reverse do not immediately come under his observation".⁴² In turn, the Commissioner of the Irrawaddy division, G.J.S. Hodgkinson, deemed the proposed reserve to be 'unnecessary', and the arguments adduced in its favour as 'unsubstantiated'; in the end, Chief Commissioner Charles Bernard sided with these officials.⁴³

In other cases, civil officials supported a proposal only after recommending that substantial areas be set aside to meet the objections of peasants or shifting cultivators. In the case of Aingdon-kun reserve (Shwegyin district), Forest Settlement Officer J.L. Long recommended in 1894 that the livelihood of 181 Karen shifting cultivators and their families be safeguarded by allocating to them 65 square miles (22 per cent) of a total proposed area of 294 square miles.⁴⁴ In 1903, the Namkwin reserve in Myitkyina district was sanctioned over fifteen square miles, down from a proposed

⁴² J. Butler to Deputy Conservator (Western Division), 30 August 1884, BFP (December 1884), 29.

⁴³ BFP (December 1884), 29-30; see also, RFA (Pegu) for 1883-84, 3; RFA (Tenasserim) for 1888-89, 1.

⁴⁴ BFP (November 1894), 133-37; see also BFP (December 1884), 13; BFP (July 1896), 229-32.

size of sixty square miles.⁴⁵ In some instances, exclusions encompassed so much of the proposed area that forest officials ultimately abandoned the proposal.⁴⁶

In this manner, forest and civil officials became involved in a process of ongoing negotiations as to the nature and extent of reservation and Forest Department control. If inter-departmental friction based on differing programmatic interests thus persisted, it is nevertheless important to situate such differences in the broader context of a common European (typically British) heritage, as well as a shared interest in the maintenance of imperial rule. Despite their differences, civil and forest officials were united in their capacity as representatives of the British government in a land acquired by force. Their common identity was formally acknowledged through hiring and promotion policies that, until the 1920s at least, reserved the top jobs for Europeans. But that identity was also informally reinforced through various social fora, and notably the 'Club'.

All the social activities of the Europeans are centred in the Club, where outdoor games such as golf, tennis and polo, and indoor ones such as billiards, snooker and bridge can be played. Newspapers and magazines are also to be found, while a library is usually attached.⁴⁷

⁴⁵ W.A. Hertz, Myitkyina District Gazetteer (Rangoon: Government Printing, 1912), 96.

⁴⁶ For example, the proposed Kyaukchaw reserve (Myingyan district), see W.F.L. Tottenham (Conservator, Southern) to Revenue Secretary, 15 November 1911, BFP (January 1912), 17; see also Methe reserve (Shwebo district) proceedings, BFP (July 1896), 123-81.

⁴⁷ G.H. Ogilvie, "A Forestry Officer's Life in Burma," Sylva (Edinburgh) 14 (1934): 20.

In many respects, the Club was, as Orwell asserts, the "spiritual citadel, the real seat of the British power".⁴⁸ In such a setting, Deputy Commissioners, Police Officers, Public Works Officers and Forest Officers had ample opportunity to resolve their differences.

It was for these reasons of social and imperial solidarity that the Burmese could not count on civil officials to defend their interests against forest officials. Thus, peasants and shifting cultivators objected to settlements that typically provided insufficient access for grazing, agriculture, wood-cutting and the collection of forest produce. But, with the general support of Burma's civil administration, as well as the Government of India, the Forest Department was able to bypass such opposition and make rapid progress in creating reserves. Unable to prevent their creation, cultivators resorted to various means of everyday resistance and avoidance protest to subvert the strict rules that were now imposed in these forests.

Within reserves, forest officials sought to eliminate all natural and human hazards to teak growth. From the start, a primary concern was the exclusion of fire from these areas. The urgency with which forest officials sought to introduce fire protection reflected a belief, widespread in the nineteenth century, that fire was a major threat to teak.

⁴⁸ George Orwell, Burmese Days (1935; reprint, Harmondsworth, Middlesex: Penguin, 1987), 17. It was also one of the few places where colonial officials were 'offstage'; where they were "among their own...and no longer strutting before the audience of colonial subjects. Activities, gestures, remarks, and dress that were unseemly to the public role of sahib were safe in this retreat," see James C. Scott, Domination and the Arts of Resistance: Hidden Transcripts (New Haven: Yale University Press, 1990), 12-13.

Forest reservation and fire protection were thus closely linked. But, if fire protection was integral to scientific forest management, it was also used as a means to criticize indigenous practices. Earlier, it was noted how shifting cultivators were condemned for their 'destructive' ways. In the late nineteenth century, such condemnation centred on the ways in which taungya fires allegedly eliminated teak in hill clearances, and damaged the surrounding forest. However, other indigenous practices also attracted the ire of forest officials: hunters firing the jungle in search of game, individuals who damaged trees to collect minor produce such as wood-oil, varnish and honey, villagers who fired grazing tracts to promote the early growth of succulent grasses for their cattle, and careless travellers who abandoned camp fires and burning cheroot embers.⁴⁹ If fire protection was to succeed, such practices had to be stopped. As a result, fire management encompassed the regulation of indigenous fire use, a task that became more difficult as the protected area increased.

In the late nineteenth and early twentieth century, the fire protection programme was expanded, but as Table 5.2 illustrates, the protected area varied considerably on an annual basis.

⁴⁹ B.H. Baden-Powell, The Forest System of British Burma (Calcutta: Government Printing, 1873), 12, 14; Nisbet, Burma under British Rule, 2: 63-64.

TABLE 5.2

FIRE PROTECTION 1880-1905
(Selected Years; Area in Square Miles)

Year	Area Attempted	Area Burnt	Success (%)
1880-81	150	30	80.00
1883-84	286	25	91.26
1885-86	296	58	80.41
1887-88	309	94	69.58
1889-90	379	5	98.68
1892-93	529	34	93.55
1895-96	1,307	129	90.13
1898-99	3,157	710	77.51
1901-02	5,412	433	92.00
1904-05	8,268	632	92.36

Source: RFA (various years).

Note: Prior to 1892-93, areas are for Lower Burma only.

Despite such variability, the area over which fire protection measures were conducted increased rapidly at the turn of the century. In the process, a growing proportion of the total reserved area was affected. Whereas the attempted area in 1880-81 represented 6.6 per cent of the total reserved area, by 1898-99, that figure had climbed to 20.1 per cent. In 1904-05, fire protection embraced 40.5 per cent of Burma's 20,411 square miles of reserved forests.

As the attempted area increased, forest officials discovered that the key to successful fire protection was often the timely onset of the monsoon season. If the rains were delayed, or at all sporadic, it became increasingly difficult to contain the spread of fire. But if fire protection was subject to the vagaries of climate, it was also affected by human factors. Labour shortages handicapped Department efforts, and virtually guaranteed that fires in remote areas went unchecked. The fate of fire protection

often depended on local support to help fight fires and adopt preventative measures. In many cases such support was not forthcoming. To understand why that was so, it is necessary to examine the restrictions that the Forest Department imposed on villagers in the vicinity of fire-protected areas.

At first, those restrictions were few in number, and fire protection was predominantly an attempt to adapt to local practices. As Nisbet observes:

This original system of 'fire protection' consisted in being first in the field, and in burning all round the areas to be protected before the villagers began to fire their fields and grazing lands or the Karens to burn their hill clearances.⁵⁰

But as the reserved area expanded, and the Forest Department became more powerful, villagers faced a growing number of restrictions.

These restrictions were incorporated in the Burma Forest Act (1881). Thus, the use of fire in reserves was strictly prohibited (unless explicitly sanctioned), and offenders were liable for a five-hundred rupee fine, six months in prison, or both. In the dry season, additional restrictions were imposed: hunting was banned, and the use of fire within two miles of reserve boundaries was curtailed. Shifting cultivators permitted to clear taungyas in reserves had to fire-trace their fields to reduce the risk to adjoining areas. But the most unpopular rule was that which compelled the assistance of all those who exercised any right in reserves, or who received emoluments from the government, in the fighting of fires and the apprehension of offenders. By

⁵⁰ Nisbet, Burma under British Rule, 2: 65.

this measure, foresters sought to place the onus of responsibility for fire prevention on villagers.

The rules became the focus of ubiquitous, if covert popular resistance. Such resistance encompassed the illegal use of fire, village complicity, labour strikes or slowdowns, and incendiarism. In many cases, resistance took the form of continuing practices that were now an offence under the law. Thus, hunters fired reserves in search of game, shifting cultivators failed to fire-trace their clearings, and peasants fired grazing tracts to provide food for their cattle in prohibited areas.⁵¹

Suspects could also count on village complicity. Although rewards were offered for information leading to the arrest of offenders,⁵² strong social pressures within the village offset this measure. As one frustrated forester in Tharrawaddy division observed in 1891, the offer of a one-hundred rupee reward to informers was useless, because "in no case was such information given in spite of the numerous incendiary or mysterious fires which occurred".⁵³ In another instance, an entire reserve was burnt, but an arrest could not be made as information was unattainable.⁵⁴

⁵¹ RFA (Pegu) for 1880-81, 2, 9; RFA (Pegu) for 1884-85, 18; RFA (Eastern) for 1893-94, 11; J.P. Hardiman, Lower Chindwin District Gazetteer (Rangoon: Government Printing, 1912), 114.

⁵² Forest Department Circular No. 3 (1891), 13 August 1891, BFP (August 1891), 10.

⁵³ G.Q. Corbett to Conservator (Pegu), 21 September 1891, BFP (November 1891), 66; E.P. Popert (Conservator, Pegu) to Secretary to the Chief Commissioner, 4 February 1886, BFP (March 1886), 4.

⁵⁴ RFA for 1894-95, lxii.

Forest officials also complained of villager indolence and negligence when called upon to perform fire-fighting duties. The case of Kyaungthaik village (Minbu division) is typical. Called upon at noon to assist with a fire, the villagers did not arrive until evening, and even then "only remained a short time, going away before the fire was put out".⁵⁵ In other cases, villagers refused to turn out when required to do so.⁵⁶ Whatever the cause of the blaze, villagers were reluctant to assist the activities of a department that was notoriously unpopular.

The most serious and calculated form of resistance was incendiarism. As might be expected, it was often difficult in practice to determine whether a fire was deliberate, accidental or natural. But it was precisely this anonymity which made incendiarism such a popular form of resistance. In many cases, incendiary attacks were small and isolated affairs by individuals with a particular grievance against the Forest Department.⁵⁷ However, other attacks suggested broad-based opposition to the forest rules. In one Upper Burma village, for example,

the rules relating to protection from fire were read over and explained to villagers at the forest settlement, but two days after the rules had been explained to one village, a fire was started by one of these villagers within half a mile of the Divisional officer's camp.⁵⁸

⁵⁵ RFA for 1898-99, ciii.

⁵⁶ RFA (Western) for 1894-95, 11; A. Rodger, Working Plan for East Yoma, Satsua and Tindaw Reserves (Maymyo: Maymyo Branch Press, 1907), 7.

⁵⁷ For example, see RFA (Tenasserim) for 1877-78, 8.

⁵⁸ RFA (Eastern) for 1893-94, 10.

In Tharrawaddy division, repeated warnings given to suspect villages near the Minhla reserve, only led to an increase in incendiary attacks; but when the forest official urged a collective fine, he was overruled by the Deputy Commissioner who warned against any "impolitic move" in the matter.⁵⁹

During the third Anglo-Burmese war (1885-86), and subsequent political unrest, incendiary attacks against reserves, plantations and Department premises were common in Pegu, and formed part of a broader resistance to the British. In the Prome and Tharrawaddy divisions, key reserves were overrun by insurgents and became their headquarters.⁶⁰ Reserves and plantations that had been fire protected since the 1870s were destroyed. In Prome division, 78 per cent of the area attempted was burnt through, and in Tharrawaddy division, 67 per cent of the 44,688 acres attempted was similarly set ablaze.⁶¹ In contrast, Tenasserim experienced little unrest, and 97 per cent of the attempted area was successfully fire protected in 1885-86.⁶²

During these troubles, forest officials were greatly assisted by the hill Karen. As noted, in more peaceful times these cultivators planted teak and fought fires on the Forest Department's behalf. But during the fighting, the hill Karen were indispensable as they contained fires in a number of

⁵⁹ G.Q. Corbett to Conservator (Pegu), 21 September 1891; F.D. Maxwell to Commissioner (Pegu), 22 September 1891, both in BFP (November 1891).

⁶⁰ RFA (Pegu) for 1885-86, 5-6; RFA (Pegu) for 1886-87, 5.

⁶¹ RFA (Pegu) for 1885-86, 5-6.

⁶² RFA (Tenasserim) for 1885-86, 5.

reserves set alight by insurgents.⁶³ In retaliation they were attacked: taungya plantations were fired, and at least one headman was shot.⁶⁴ The loyalty of these scattered and unarmed groups of hill Karen was important not so much for any military advantage that it gave the British in quelling the rebellion.⁶⁵ Rather, such loyalty was important because it facilitated the rapid restoration of forest administration, even in remote reserves. The events of 1885-86 illustrated that Department control in these areas was more dependent on the support of shifting cultivators than perhaps forest officials realized or cared to admit.

If incendiarism was a source of trouble to the British, it nevertheless did not disrupt the expansion of fire protection efforts in the late nineteenth and early twentieth century. Paradoxically, it was at this juncture that fire protection came under attack from within the Forest Department itself. Herbert Slade, one of colonial Burma's ablest young foresters, was turning conventional wisdom on its head when, in an article published in the Indian Forester in May 1896, he suggested that annual ground fires "should be

⁶³ Resolution, RFA for 1885-86, 3.

⁶⁴ RFA (Pegu) for 1886-87, 7-8; RFA (Pegu) for 1885-86, 6; John F. Cady, A History of Modern Burma (Ithaca: Cornell University Press, 1958), 137-38.

⁶⁵ These groups must not be confused with the Karen troops who assisted the British in suppressing the revolt. Undoubtedly, cultivators provided intelligence on the insurgents. But if the American missionary, Dr. Vinton, enthused at the time about the significance of Karen volunteers, this said more about Western perceptions of the Karen than it did about the military campaign itself, see Donald Mackenzie Smeaton, The Loyal Karens of Burma (London: Kegan Paul, Trench and Co., 1887), 8-19, 54-55; Martin Smith, Burma: Insurgency and the Politics of Ethnicity (London: Zed Books, 1991), 44-45.

considered as the friends and not the natural enemies of the teak" and that fire was thus "one of the forest officer's most useful agents as long as it is his servant and not his master".⁶⁶ Slade's landmark article generated much debate, and incensed foresters, like Conservator G.F. Prevost, who believed that to promote the use of fire was "to hark back to the very commencement of Indian forestry," and was thus highly unscientific.⁶⁷ But as a growing number of officials became convinced that fire actually helped teak in its struggle to survive, views defending the status quo were heard less frequently. Indeed, by the second decade of the twentieth century, it was conventional to view indiscriminate fire protection as both a waste of funds and a threat to the teak forests. As a result, after the First World War the programme was restricted to young plantations only.

Regulating the Use of Cutch

To promote long-term teak production, the Forest Department developed a network of reserves that were fire-protected, and in which hill Karen planted teak. But if teak

⁶⁶ Herbert Slade, "Too Much Fire-Protection in Burma," Indian Forester 22 (May 1896): 176. Educated at the Nancy Forest School in France, Slade joined the Burma Forest Department in 1882. After various postings, he was deputed to Siam in 1896 to help the Siamese establish a forest service. In recognition of his services, Slade was awarded the 'Third Class of the Order of the White Elephant of Siam' in 1899, and his name is still widely remembered in Thailand today. In 1901 he returned to Burma, where he died of cholera soon thereafter while on special duty in Arakan.

⁶⁷ RFA (Tenasserim) for 1895-96, 7-8. On the subsequent debate, see H. Carter, "Fire Protection in the Teak Forests of Burma," Indian Forester 30 (August 1904): 363-66; R.S. Troup, "Fire Protection in the Teak Forests of Burma," Indian Forester 31 (March 1905): 138-46. However, fire protection was attacked as early as 1875, see M.J. Slym, Memorandum on Jungle Fires (Maulmain: Tenasserim Press, 1876).

was the primary concern, forest officials also regulated the use of non-teak timber and 'minor' forest produce. As noted, the Forest Department ran into difficulties when it first attempted to control non-teak forest use in the 1870s. Those difficulties intensified in the 1880s as forest officials explored new methods of control. In this regard, particular attention was paid to catch, and discussion of the vicissitudes of its management illustrates a complex, and often overlooked facet of forest policy.

In the nineteenth century, catch was a product in domestic and foreign demand. A water extract of the sha tree (Acacia catechu), catch was used for tanning and dyeing fishing nets, canvas sails and leather, and to a lesser extent as an astringent medicine and for chewing with the betel leaf.⁶⁸ Found primarily in the dry deciduous and scrub forests of the plains (Appendix B), sha was also used for agricultural implements, carts, wheels and firewood, but it was as a source of catch that it became the focus of an important cottage industry in central Burma.⁶⁹

At the time of the second Anglo-Burmese war (1852), that industry was already well established. One of Pegu's leading exports next to timber, catch supplies were described in 1855 as 'inexhaustible', and stretched along the Irrawaddy valley

⁶⁸ F.T. Morehead, The Forests of Burma (London: Longmans, Green and Co., 1944), 63; Alex Rodger, A Handbook of the Forest Products of Burma (1921; reprint, Rangoon: Government Printing, 1951), 66-67; F.J. Branthwaite, "Catch and Its Adulterants," Indian Forester 18 (May 1892): 184-85; Shway Yoe [J. George Scott], The Burman: His Life and Notions (1882; reprint, Edinburgh: Kiscadale, 1989), 71.

⁶⁹ On the manufacture of catch, see Rodger, Handbook of Forest Products, 67; H. Slade, "Manufacture of Catch in Burma," Indian Forester 12 (June 1886): 257-61; Nisbet, Burma under British Rule, 1: 374-75.

from just north of Rangoon to beyond the Burmese border.⁷⁰ Under colonial rule, the catch trade developed rapidly, and by the mid-1860s, foresters were reporting the deforestation of accessible areas.⁷¹ In a context of political unrest, it was considered impolitic to introduce unpopular restrictions, but by the early 1870s British rule in Pegu had begun to stabilize. Attention then turned to the regulation of this trade.

But regulating the catch trade posed problems quite different from those experienced in managing the teak industry. The former was located in relatively populated areas, and hence used lands that were already intensively used by shifting cultivators and peasants. These land-use patterns were further complicated by seasonal variation. In good times, catch boiling was the principal livelihood of the poor in Prome and Thayetmyo districts. When the rains failed, however, their numbers were greatly increased by other cultivators desperate to eke out a subsistence. On these occasions, the catch industry became an important means of famine relief.⁷²

⁷⁰ J. McClelland, "Report on the Sitang and other Teak Forests of Pegu," Selections from the Records of the Government of India (Foreign Department) 9 (1855): 141-42; Owens, Pakokku District Gazetteer, 54.

⁷¹ D. Brandis, "Memorandum on the Working Plan of the Forests for 1865, 1866 and 1867," India Forest Proceedings (henceforth IFP), (March 1865), 96. In 1871-72 alone, catch exports from Burma were valued at £2 million, see A.O. Hume (Secretary, Government of India) to Chief Commissioner, 14 September 1872, IFP (September 1872), 591.

⁷² Government of Burma, Thayetmyo District Gazetteer (Rangoon: Government Printing, 1911), 45-46; A.H.M. Barrington, Working Plan for Allamyo Forest Division, 1927-28 to 1936-37 (Rangoon: Government Printing, 1928), 28.

For these reasons, the catch question was never treated as purely a forest matter. Rather, its regulation required the cooperation of civil and forest officials. Yet, as noted, such cooperation was tempered by programmatic differences. In part, therefore, the complexity of the government's response, and the different methods used to combat catch deforestation, reflected the vagaries of bureaucratic politics.

In 1871, Chief Commissioner Ashley Eden directed that catch tracts be examined with a view to their reservation, and three years later, the first reserve was created.⁷³ In 1876, sha was reserved, and a five-rupee tax per cauldron was imposed.⁷⁴ Notwithstanding these actions, between 1876 and 1879 at least 750,000 trees were cut down in the Irrawaddy valley, and by decade's end, large catch-yielding trees had all but disappeared from the Tharrawaddy, Prome and Thayetmyo districts outside of reserves.⁷⁵

The Burma Forest Act (1881) marked a new phase in catch regulation. Sha was removed from the reserved list, but licenses continued to be required for trade purposes, and the cutting of trees below three feet in girth was prohibited. A myo-ok (township officer) was appointed to supervise catch manufacture.⁷⁶ Village catch reserves were

⁷³ Baden-Powell, Forest System, app. A; RFA for 1874-75, 6.

⁷⁴ This became the standard method of taxation. Earthen pots or iron pans were used to boil the chipped heartwood of the sha tree.

⁷⁵ D. Brandis, "Suggestions regarding Forest Administration in British Burma 1881," IFP (February 1881), 249.

⁷⁶ RFA (Pegu) for 1882-83, 25.

also to be established under indigenous management.⁷⁷ If this delegation of power was only tentative, it was nevertheless an ambitious attempt to win local support for the protection of catch. Significantly, these reserves were the responsibility of the Deputy Commissioner, and forest officials played only an advisory role. Indeed, in the demarcation of reserves in Thayetmyo district in 1884-85, they were not consulted.⁷⁸

These measures did not slow catch deforestation. In part, this failure was due to the general unrest surrounding the annexation of Upper Burma which led the government to temporarily relax restrictions on the catch industry. Catch boilers were allowed to pay their taxes by instalment, and reserves were opened to them free of charge.⁷⁹ But it also reflected an under-estimation of the problem.

As the extent of deforestation became known, civil and forest officials debated what to do. In 1889, a proposal to re-reserve sha was rejected because "it was feared that the rights of taungya-cultivators would be unduly interfered with"; instead, the cutting of the tree for fuel was prohibited.⁸⁰ In Upper Burma, where supplies were more plentiful, rules were strengthened to prevent a repeat of

⁷⁷ Burma Forest Act 1881, nos. 31-34; RFA for 1884-85, app. O; BFP (November 1888), 1-10.

⁷⁸ BFP (November 1888), 1-2.

⁷⁹ P.J. Carter to Chief Commissioner, 4 September 1890, BFP (September 1891), 49.

⁸⁰ Chief Commissioner to Conservator (Pegu), 7 May 1891, BFP (May 1891), 24.

the Lower Burma experience.⁸¹ But, as the rules continued to be flaunted, the government took more drastic action. In February 1892, sha was reserved in Lower Burma, and only a few licenses were henceforth issued by forest officials.⁸²

Conflict over catch was at its height during the 1890s. With the reservation of sha, shifting cultivators faced a new challenge to their way of life. As Chief Commissioner Frederick Fryer conceded, this act "no doubt increased the difficulties of taungya cultivation".⁸³ Inevitably, the number of prosecutions soared: of the 1,838 cases reported in 1893-94, no less than 1,451 were in the Thayetmyo and Prome divisions, many of which concerned the felling of sha in taungyas.⁸⁴ As the conflict between shifting cultivators and the government intensified, enquiries held in Prome and Thayetmyo districts in 1893-94 confirmed widespread resistance among Burman and Karen cultivators pushed by sheer necessity into open defiance of the law. As one thu-gyi commented: "the people do not wish to preserve any catch trees at all".⁸⁵ As if in confirmation, officials reported

⁸¹ Forest Department Circular no.2 of 1891, 7 May 1891, BFP (May 1891), 25-26.

⁸² Forest Department Circular no.2 of 1892, 12 February 1892, BFP (February 1892), 6-7.

⁸³ Resolution, RFA for 1893-94, 2.

⁸⁴ Ibid.

⁸⁵ Statement of Maung Shwe Ni, Chinle village, 23 November 1893, cited in C.H. Hampden and J.L. Long, "Special Catch Enquiry, Shwele Township, Prome District," BFP (August 1894), 11.

that the experiment with village catch forests had failed as "villagers take no interest" in them.⁸⁶

Faced with such pervasive opposition, a special conference of civil and forest officials was convened in Prome in March 1896 to resolve the crisis. It was decided that the Forest Department would reserve the best catch tracts, village reserves would be cancelled, and remaining areas would be abandoned to shifting cultivators. In this manner, government sought "to provide for the resuscitation of a profitable industry without harassing the taungya-cutters by frequent prosecutions".⁸⁷

Shifting cultivators were not the only group to challenge catch regulation. As the price of catch climbed, and supplies dwindled, catch boilers ignored the rules, and the theft of trees from reserves became commonplace.⁸⁸ In Pegu in 1886-87, of 135 breaches of the forest law, 71 involved catch, and when such offenses later declined, scarcity rather than obedience to the law was the cause.⁸⁹ Scarcity was also reflected in the adulteration of catch, as the bark of than (Terminalia oliveri) was used; when the government attempted

⁸⁶ Minutes of the Proceedings of the Catch Conference, Prome, 24 March 1896, BFP (July 1896), 13.

⁸⁷ Resolution, 15 July 1896, BFP (July 1896), 16.

⁸⁸ G.Q. Corbett, Working Plan for Taungnyo Forests (Simla: Government Central Printing Office, 1891), 9; H. Carter, Working Plan for Shwele Forests (Calcutta: Government Printing, 1893), 7.

⁸⁹ RFA (Pegu) for 1886-87, 4-5; RFA (Pegu) for 1889-90, 4.

to eliminate this practice by reserving than, cutch boilers shifted to new species.⁹⁰

A more serious challenge to cutch regulation developed in Upper Burma. As sha supplies on private lands were exhausted, villagers claimed adjoining tracts as bobabaing (ancestral) lands, and employed workers to boil cutch.⁹¹ The bobabaing campaign spread, but the response of the colonial state to this unexpected challenge was delayed by the legal uncertainties surrounding these claims. As the Deputy Commissioner of Magwe district dryly observed in 1893: "'Bobabaing land' is a very elastic and somewhat unsatisfactory term, and one that requires a good deal of examination".⁹² Not surprisingly, forest officials denounced bobabaing claims as a cover for illicit cutch-boiling. Conservator A.L. Home, for example, charged that

the quantity of cutch that finds its way to market from Upper Burma is out of all proportion to the legitimate outturn of cauldrons for which licenses are issued; areas [to be managed] are so large...that if the establishments were doubled it would still be impossible to efficiently check illicit boiling.⁹³

The problem was exacerbated, as Conservator F.B. Dickinson observed, by the unwillingness of Magistrates to convict offenders without unequivocal proof.⁹⁴

While many civil officials shared the general concerns of their colleagues in the Forest Department, there were

⁹⁰ RFA (Pegu) for 1888-89, 17; RFA (Pegu) for 1889-90, 18.

⁹¹ RFA (Eastern) for 1892-93, 7.

⁹² RFA for 1892-93, lxxii.

⁹³ RFA (Western) for 1893-94, 9.

⁹⁴ RFA (Eastern) for 1893-94, 9.

others who criticized what they perceived to be the heavy-handedness of forest officials. Blaming these officials for much of the legal confusion surrounding the bobabaing issue in the Pyinmana forests, for example, Commissioner D. Norton charged that

complaints were vague, procedure was irregular, several distinct offences were lumped together, and the misjoined defendants could not have known precisely the charges which they had to meet.⁹⁵

Cutch-boilers (many from Lower Burma) took advantage of these divisions within the colonial state to expand their activities.⁹⁶

In ruling on this matter in 1894, Chief Commissioner Fryer agreed with forest officials that many bobabaing claims were a front for illegal activities. But, he rejected any precipitous action that might involve "an amount of interference with the people on which with our present knowledge of Upper Burma it would be unwise to venture"; rather, claims would be individually adjudicated in the course of land settlements, and civil officials in the interim were free to decide policy on a local basis.⁹⁷

The Chief Commissioner's ruling resolved the legal confusion surrounding the bobabaing issue. It did not, however, guarantee the preservation of the sha forests. Deforestation continued in the early twentieth century as residual tracts were whittled away. Civil officials encouraged such destruction when, during times of drought,

⁹⁵ RFA for 1893-94, lxx.

⁹⁶ RFA for 1892-93, lxxi.

⁹⁷ Resolution, RFA for 1893-94, 10-11; see RFA (Western) for 1896-97, 9-11, for two different responses to the issue by civil officials.

they issued free licenses to cultivators in distress. In the Yamethin and Thayetmyo districts, for example, sha stands (even in reserves) were all but eliminated in this manner.⁹⁸ Ultimately, changing market conditions, not government regulation, saved sha from total elimination. As prices increased, cheaper substitutes such as mangrove extracts and aniline dyes gradually displaced cutch.⁹⁹

The fate of cutch management was a humbling reminder to colonial officials of the limits of state forest control. In part, such management was ineffectual precisely because it highlighted the inter-departmental differences discussed earlier. Forest officials sought to preserve sha forests as part of an attempt to promote long-term cutch production. Civil officials could scarcely find fault with this objective, but were primarily concerned with more immediate matters such as famine relief.

The fate of cutch management was conditioned above all by the widespread popular opposition that it provoked. In Upper Burma, peasants acting in league with cutch traders used bobabaing claims to undermine the new restrictions while at the same time asserting traditional claims to forest lands. In Lower Burma, cutch traders relied on covert methods of resistance, and shifting cultivators, who cleared fields

⁹⁸ Wilkie, Yamethin District Gazetteer, 84-85; Pe Kin, "Thayetmyo Forest Division," Guardian (Rangoon) 16 (February 1969): 48; P. Burnside and C.H. Thompson, Working Plan for Thayetmyo Forest Division, 1931-32 to 1940-41, vol. 1 (Rangoon: Government Printing, 1933), 17.

⁹⁹ Rodger, Handbook of Forest Products, 66-67. Ironically, shifting cultivators responded to cutch shortages by "growing their own cutch," see A.N. Barker, Working Plan for Meiktila Forest Division, 1929-30 to 1958-59, vol. 1 (Rangoon: Government Printing, 1931), 17.

in sha tracts, defied colonial officials by continuing with practices that were now illegal. Conspicuous by its absence was the popular goodwill that was essential to catch management.

The catch issue is a reminder that state forest control was not nearly as successful or trouble-free as forest officials might have wished. Yet, the Forest Department's ability to regulate a range of forest activities at the turn of the century was much greater than it had been in 1881. As this chapter has shown, during the 'era of expansion' a vast new forest estate was acquired upon the annexation of Upper Burma and the Shan States. More importantly, an increasing proportion of Burma's commercially valuable forests was set aside in reserves. That process continued in the early twentieth century (Figure 2). By 1911, reserves covered 26,077 square miles or 15 per cent of a total administered land area of 170,000 square miles.¹⁰⁰ This transition from unreserved to reserved status is central to the subsequent development of forest politics in colonial Burma. If forest officials continued to regulate practises outside reserves, during the early twentieth century, their attention increasingly turned to the consolidation of control inside reserves.

¹⁰⁰ Shein, Burma's Transport and Foreign Trade 1885-1914 (Rangoon: Department of Economics, University of Rangoon, 1964), 12; Appendix C.

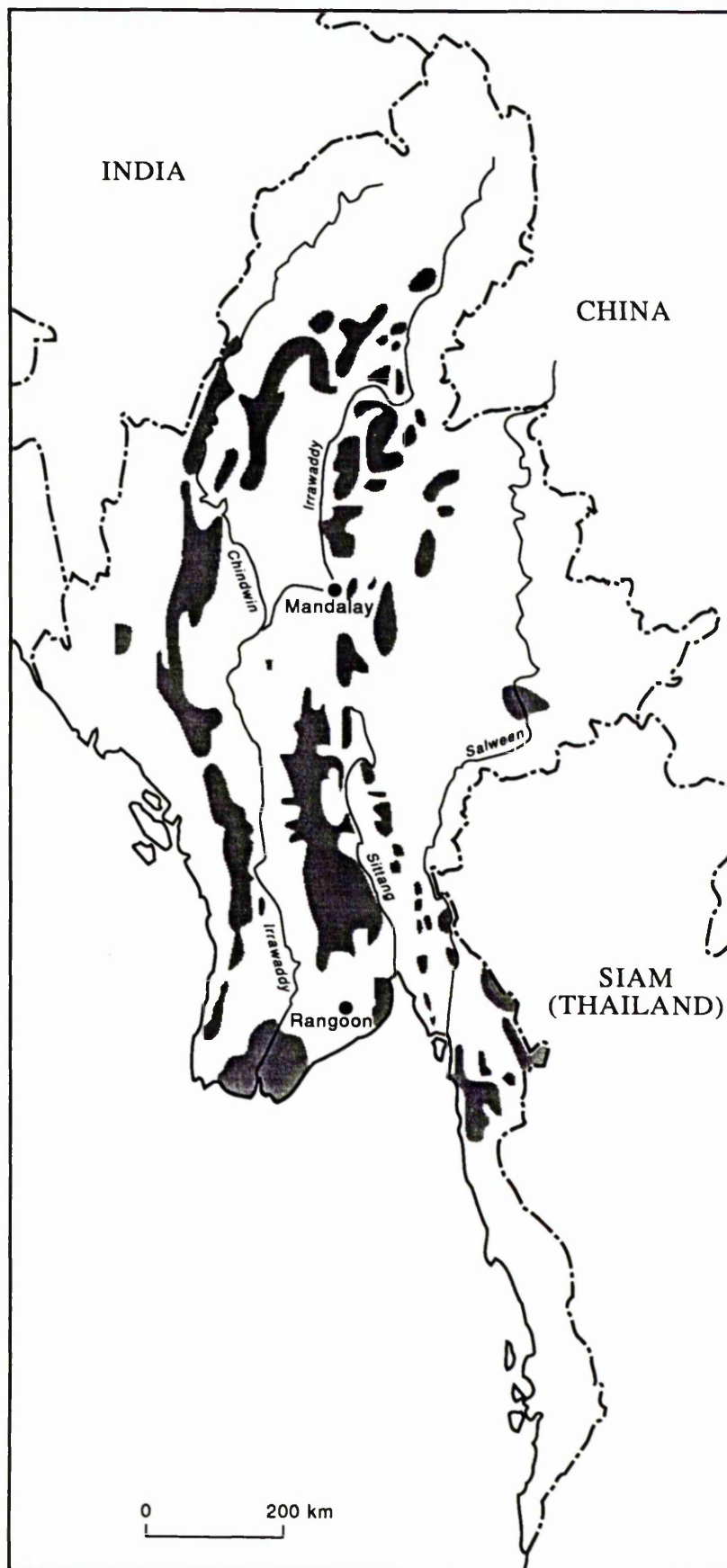


Figure 2. Map of Reserved Forests, c. 1923
Source: Adapted from L. Dudley Stamp, *The Vegetation of Burma from an Ecological Standpoint* (Rangoon: University of Rangoon, 1924), 6.

CHAPTER 6

RATIONALIZING FOREST USE: THE ERA OF CONSOLIDATION 1902-23

If the 1881 Act marked the start of a new phase in forest management based on the expansion of Forest Department control, then the passage of a new Burma Forest Act in 1902 reflected a need to consolidate previous gains. Unlike its predecessor, the 1902 Act was "by no means revolutionary in character," and was largely designed to overcome the 'inconvenience' of having separate laws for Upper and Lower Burma.¹ No great debates marked its enactment in turn-of-the-century Burma, as was the case in the 1870s in Burma and India. The 1902 Act improved the efficiency of, rather than materially altered, existing legislation.

That the 1902 Act indicated 'business as usual' in Burma's forests should not obscure its symbolic and practical importance. After 1902, forest management became an ever more rigorous attempt to adapt reserves for long-term timber production according to scientific principles. Yet, as the next chapter shows, the Forest Department's ability to fulfil that task was brought into question in the 1920s and 1930s. In 1923, partial self-rule or dyarchy was introduced in Burma, and forests was among the first subjects transferred to Burmese ministerial control. Under this system, forest management was increasingly politicized.

To appreciate the full impact of dyarchy on the forest sector, however, it is necessary first to explore the development of forest administration in the early twentieth

¹ H.M.S. Mathews, Burma Legislative Council Proceedings, 19 December 1901, 2.

century. In a sense, the era of consolidation (1902-23) was relatively 'uneventful' when compared with what came before or after. On the one hand, the reserved area continued to expand, but less dramatically than in the late nineteenth century. On the other, the politics associated with Burmese nationalism had yet to have an impact on forest administration. But this calm was deceptive, for it hid important changes that shaped forest politics in the late colonial era.

Three changes were particularly significant. First, teak extraction increasingly devolved upon the Bombay Burmah Trading Corporation Limited (BBTCL) and other European firms, subject, however, to ongoing Forest Department control. Secondly, forest officials introduced comprehensive working plans in order to promote long-term commercial timber production. Attention also turned to such ecological issues as watershed protection and soil erosion as the Department elaborated its resource management mandate. Finally, the closing of the agricultural frontier in Lower Burma increased the pressure on residual plains and delta forests exacerbating conflict over access.

Timber Extraction by European Firms

The most dramatic change of the period concerned the European timber firms. From the turn of the century, five companies came to dominant the teak trade at the expense of Burmese timber traders and the Forest Department. If the BBTCL consolidated its preeminence, the early twentieth century also witnessed the rise to prominence of Steel Brothers, Macgregor and Company, Foucar and Company, and T.D.

Findlay and Sons. Under a system of long-term renewable leases, these firms gained control of Burma's most valuable teak tracts. As Chapter 7 shows, this arrangement was criticized by Burmese nationalists after 1923. Here, the aim is to describe the reasons for this change, and to assess the implications for the Forest Department.

The role played by the European firms in the teak trade has been recorded in official company histories, as well as in the memoirs of former employees.² But with the notable exception of the BBTCL, that role was not always a prominent one, at least in so far as teak extraction was concerned. Before 1897, only the BBTCL and Macgregor and Company were lease-holders, and the latter had been granted a lease in the Toungoo forests in 1889 primarily in order to counter-balance the preponderance of the former in Upper Burma.³ It was only in 1897 that Steel Brothers and Foucar and Company secured leases in the Katha and Shwebo divisions, and T.D. Findlay and Sons did not commence forest work before 1903.⁴

Forest officials were understandably wary of extraction by these firms. After all, it was private enterprise that

² A.C. Pointon, The Bombay Burmah Trading Corporation Ltd., 1863-1963 (Southampton: Millbrook Press, 1964); H.E.W. Braund, Calling to Mind: Being some account of the First Hundred Years (1870 to 1970) of Steel Brothers and Company Ltd. (Oxford: Pergamon Press, 1975); J.H. Williams, Elephant Bill (London: Rupert Hart-Davis, 1950); A.A. Lawson, Life in the Burmese Jungle (Sussex: Book Guild, 1983); Hugh Nisbet, Experiences of a Jungle-Wallah (St. Albans: Gainsborough Press, 1936).

³ J. Nisbet, "The Development and Trade of Burma," Imperial and Asiatic Quarterly Review 25 (1908): 90; RFA (Pegu) for 1889-90, 11.

⁴ As noted, these firms did have prior experience in milling and marketing, see F.T. Morehead, The Forests of Burma (London: Longmans, Green and Co., 1944), 44-47.

was responsible for extensive over-harvesting in both Lower and Upper Burma prior to 1885. Not surprisingly, then, many in the Forest Department favoured the government contract system over private extraction.

In Upper Burma, the BBTCL's pre-colonial predominance was confirmed by the agreement of August 1888. With the exception of the Toungoo lease, however, Lower Burma's forests had been worked by Burmese contractors since the demise of the permit system in the 1870s. These were "not moneyed men," however, and consequently, they depended on cash advances to buy elephants and hire labourers.⁵ Reiterating a point made by Brandis in the 1850s, Conservator Edwin P. Popert noted that this system induced local inhabitants "to take an interest in forest matters," and fostered an allegiance to the Forest Department.⁶ When queried on the matter by the Government of India in 1888, Burma's Conservators expressed satisfaction with the system, and subsequently, one Conservator predicted that it would be extended as leases expired in Upper Burma.⁷

⁵ E.P. Popert (Conservator, Pegu) to Assistant Secretary, 6 January 1888, Burma Forest Proceedings (henceforth BFP), (March 1888), 13-14. Between 1876 and 1879, the average annual gross earnings of a contractor working in the Pegu Yoma rarely exceeded 10,000 rupees; the most successful contractor - a Karen named Maung Engyke - earned 59,377 rupees. In contrast, the annual average profit alone of the BBTCL during this period was at least 188,280 rupees. See Annual Report of the Bombay Burmah Trading Corporation Limited (henceforth ARBBTCL), various years; D. Brandis, "Suggestions regarding Forest Administration in British Burma 1881," India Forest Proceedings (henceforth IFP), (February 1881), 355.

⁶ Popert to Assistant Secretary, 6 January 1888, 14; see also P.J. Carter, "Note on the Extraction of Timber by Government Agency in Burma," Indian Forester 21 (May 1895): 183-95.

⁷ BFP (March 1888), 13-16; RFA (Eastern) for 1896-97,

That prediction became more credible in 1898 when it was discovered that employees of the BBTCL had felled green teak in the Pyinmana forests. Following these revelations, the Corporation's lease in that area was cancelled, and a 120,000 rupee fine was imposed.⁸ Ernest Andrews, the Corporation's manager responsible for teak marketing and milling, wrote to a colleague that the situation was so grim at this moment that it seemed "pretty clear that our centre of gravity will have to be moved to Siam".⁹

But it is a measure of how powerful the BBTCL had become in the late nineteenth century that the company was permitted to continue teak extraction in Upper Burma, albeit under a system of short and medium-term contracts. As the scandal broke, R.H. Macauley and C.B. Lacey (two of the BBTCL's senior managers) had been hastily dispatched to Simla to plead the Corporation's case before senior members of the Government of India. There, the two men successfully parried claims by the Forest Department that they, and other senior company officials, had possessed prior knowledge of the affair.¹⁰

As a result of these meetings, the Government of India ruled in 1899 that the lease (purchase contract) system was to be continued, subject to the state receiving "adequate remuneration", and extraction remaining within the "normal

30.

⁸ J. Nisbet (Conservator, Eastern) to Revenue Secretary, 23 February 1898, BFP (April 1899), 87-90.

⁹ Cited in Pointon, Bombay Burmah, 41.

¹⁰ The Corporation also pledged to make "every effort" to prevent a recurrence of "the irregularities complained of," see ARBBTCL for 1897-98, 5.

possibility" of the forests as determined by the Forest Department.¹¹ Although the government reserved the right to work the forests if it was not satisfied with the terms offered by the European firms, this decision effectively eliminated the possibility of Department extraction in Upper Burma. As Burma's Revenue Secretary observed in a letter to Upper Burma's Conservators in March 1899: "the general question of departmental extraction versus extraction by private firms has been settled and further remarks on it are not required".¹² Concurrently, and as part of an attempt to prevent a BBTCL monopoly, the Government of India offered leases to the other European firms.¹³ With the exception of the Toungoo forests, this decision did not apply to Lower Burma.

In 1907, however, Lower Burma's forests were opened to private enterprise as part of a major reorganization of the teak extraction business. The Forest Department retained control over extraction in those forests drained by the Myitkaka river, but other forests that had been worked by government agency for more than thirty years were surrendered to the European firms. These firms were granted fifteen-year leases (with a fifteen-year renewal) in Upper and Lower

¹¹ T.W. Holderness (Secretary, Government of India, Department of Revenue and Agriculture) to Revenue Secretary (Burma), 21 February 1899, BFP (June 1900), 12-13.

¹² Revenue Secretary to Conservators (Eastern and Western Circles), 6 March 1899, BFP (June 1900), 14.

¹³ J. Wilson (Secretary, Government of India, Department of Revenue and Agriculture) to Revenue Secretary (Burma), 5 October 1906, BFP (October 1907), 49. The leases were of seven to ten years duration and all offers were accepted, see Resolution of the Lieutenant-Governor (hereafter Resolution), RFA for 1899-1900, 1; RFA (Northern) for 1899-1900, 5.

Burma.¹⁴ As Table 6.1 illustrates, the European firms were responsible for a growing percentage of the teak extracted.

TABLE 6.1

TEAK OUTTURN BY AGENCY 1900-1924
(Average Annual Outturn in Tons)

Years	Govt	BBTCL	Other	Euro.	Non-Euro.	Total
1900-04	69,077	65,081	24,621	46,847	205,626	
1904-09	69,721	80,918	60,608	26,228	237,475	
1909-14	47,636	110,575	106,457	19,052	283,720	
1914-19	75,286	119,441	133,589	16,852	345,168	
1919-24	108,490	172,847	208,950	23,119	513,406	

Source: H.R. Blanford, "Distribution of Teak Forests," Note prepared for the Government of Burma, [1936], MSS Eur. D. 689.

The general movement of teak production shows a steady rise during this period, but output increased most rapidly during, and immediately after, the First World War. However, this increase was accompanied by a re-allocation of production among the extraction agencies. The principle losers were the non-European or Burmese timber traders whose combined outturn fell from 23 per cent of total production in 1904-09, to under 5 per cent in 1919-24. Not only did the outturn of this group fall as a percentage of total outturn, it also fell in real terms: from an annual average of 46,847 tons in 1900-1904, to only 16,852 tons per annum during the period 1914-19. If this dramatic drop partly reflected wartime economic conditions - Burmese traders were often unable to borrow the capital they needed to meet license pre-payments in the context of a general credit squeeze - the very modest nature

¹⁴ "Policy of Government to be pursued in the Allotment of Forests in Burma to Timber Firms," 14 September 1907, BFP (October 1907), 62-68.

of the postwar increase was indicative of a broader trend.¹⁵ Excluded from the most valuable teak tracts, Burmese firms had to settle for residual forests under less attractive short-term contracts. The different treatment accorded Burmese and European firms by the colonial state became the focus of sustained conflict in the 1920s and 1930s.

Department extraction also became less prominent in the twentieth century than it was in the nineteenth century. Although it temporarily increased over the period 1900-1924 (the dip of 1909-14 notwithstanding), Department extraction as a percentage of total extraction fell: from one-third at the beginning of the period to one-fifth at the end. This decline continued in subsequent years: in 1927-28, it was down to 11 per cent of the total, and outturn (50,344 tons) was less than half of the 1919-24 level. The shrinkage in output was a direct outcome of the restricted area allocated for such extraction. The circumscription of Department extraction also affected the Burmese contractors who worked on the Forest Department's behalf. Many of these men now became employees of the European firms: "the native Government contractors lost their elephants and gradually became their servants".¹⁶

¹⁵ This credit squeeze also affected the extraction of non-teak timber by Burmese firms which declined by more than half during the first year of the war, see RFA for 1914-15, 20. On the dependence of Burmese timber traders on Burmese and Indian Chettiar money-lenders, see Burma Forest Department, Review of Forest Administration in Burma during the five years 1909-10 to 1913-14 (Rangoon: Government Printing, 1916), 17; RFA for 1915-16, 20; H.C. Walker, "The Issue of Timber Licenses in Burma," Indian Forester 43 (February 1917): 70-75.

¹⁶ Kyaw, "An Old Forester Looks Back," Burmese Forester 6 (June 1956): 24; RFA for 1900-1901, 28.

If Burmese timber traders and the Forest Department became less important in teak extraction under the new system, the relative importance of the BBTCL vis-a-vis the other European firms was also reduced. Thus, although the BBTCL's outturn virtually trebled between 1900 and 1924, extraction by the other European lessees increased nearly three times as fast. The BBTCL share of total extraction by European firms fell during the same period from 73 per cent to less than 45 per cent. Through the judicious allocation of leases, the colonial state sought to prevent a BBTCL monopoly.

There were various reasons for the government's new extraction policy. First, and as a result of previous over-harvesting, quality teak was becoming scarce in Burma.¹⁷ There were fears that the prevailing high prices and diminished supplies would favour Siamese teak or even the substitution of other woods on the international market.¹⁸ It was precisely these conditions, however, that favoured extraction by the European firms. Only these companies possessed the financial means to conduct the capital intensive extraction that was now required as the Forest Department sought to open up remote and inaccessible teak tracts. By the early twentieth century, the exhaustion of the most accessible forests had altered the economics of teak extraction. Large firms which

¹⁷ This was notably manifested in a decline in the percentage of squaring logs in favour of less valuable planks and undersized (yathit) logs, see Ernest Andrews, The Bombay Burmah Trading Corporation Limited in Burmah, Siam and Java, vol. 1, Teak: The Cutting and Marketing (n.p., 1930-31), 44.

¹⁸ T.A. Hauxwell, "The Teak Timber Trade of Burma," Indian Forester 31 (November 1905): 618; Shein, Burma's Transport and Foreign Trade, 1885-1914 (Rangoon: Department of Economics, University of Rangoon, 1964), 161-62.

could muster hundreds, if not thousands, of elephants and workers were favoured at the expense of Burmese contractors who were rarely able to accumulate significant amounts of capital.

Secondly, the government promoted teak extraction by the European firms because it simplified forest management. Under the contract system, forest officials supervised the activities of a myriad of Burmese contractors, many of whom lived a hand-to-mouth existence on government advances. Chapter 3 noted that the administrative work associated with this system prompted some officials to support private extraction in the 1860s. As forest management became more complex in the early twentieth century, foresters once again noted the advantages of private extraction.¹⁹ With only five European firms on long-term leases to supervise, rather than hundreds of contractors on annual licenses, the Forest Department would be free to devote more time to forest conservancy without losing overall control of teak extraction. From this perspective, the revenue lost under the new system due to a lower rate of return on extracted teak would be partially offset by reduced management costs.²⁰ Moreover, revenue would become more stable as annual extraction became less dependent on the vicissitudes of contractor finances.

Third, the government was influenced by the lobbying of the European firms. The BBTCL was particularly important in

¹⁹ Hauxell, "Teak Timber Trade," 629, 631-32; RFA for 1905-06, 8.

²⁰ W.J. Keith, Burma Legislative Council Proceedings, 5 April 1915, 396. For annual revenue and expenditure data, see Appendix D.

this regard, and it's predominance in Upper Burma was used to advantage in the lease negotiations. Specifically, the prospect that the Corporation might shift its operations to Siam worried some colonial officials.²¹ Not only would such a move benefit Burma's chief competitor, it would also disrupt timber extraction in Upper Burma. For, the Forest Department had neither the staff nor the elephants to take over from the European firms. And, as Conservator Thomas Hauxwell warned:

it must not for one moment be imagined that the stopping of the purchase contract system would result in the working power [ie. elephants] being thrown into the hands of Government. The major portion would be transferred for similar work elsewhere, and in all probability a very large amount of invested capital in other directions would also disappear.²²

In this gloomy prognostication, the withdrawal of private capital was a major source of concern.

In practice, the European firms had no need to threaten a capital strike. After the turn of the century, senior officials in Burma, India and England were in agreement that extraction by these firms needed to be increased at the expense of Department extraction. Echoing remarks made by William Wallace forty years earlier, Indian Revenue and Agriculture Secretary J. Wilson summarized the new official mood in 1906:

²¹ The BBTCL deputed John Bryce to investigate Siam's forests in 1884, but it was not until the 1890s that the firm began to elaborate its operations in the country, see ARBBTCL for 1883-84, 5; ARBBTCL for 1893-94, 4; see also Banasopit Mekvichai, "The Teak Industry in North Thailand: The Role of a Natural-Resource-Based Export Economy in Regional Development" (Ph.D diss., Cornell University, 1988), 110, 204; Ian Brown, The Elite and the Economy in Siam c. 1890-1920 (Singapore: Oxford University Press, 1988), 111-12.

²² Hauxwell, "Teak Timber Trade," 630.

It is of great importance that the energies of the limited Forest Staff should be devoted mainly to the improvement of the forests under their charge, and that they should be relieved of operations which can be as efficiently conducted by private enterprise.²³

After the turn of the century, Burma's foresters expressed similar sentiments. Conservators even went so far as to urge government to "gradually abandon" department extraction in favour of the purchase contract system.²⁴ As noted, this about-turn reflected a recognition among forest officials that extraction work was hindering their ability to perform other tasks. But it also reflected a change of personnel: in 1906, none of Burma's Conservators had served in that capacity prior to 1900. Conservators like Edwin Popert and John Nisbet, whose views on private enterprise had been shaped by the over-harvesting of the past, had retired or left Burma.

The new official mood was cemented by a network of social affiliations between colonial officials and employees of the European firms that was already in evidence in the nineteenth century, but which only received its fullest expression in the twentieth century. That network operated at various levels: company directors met with Whitehall officials in London, local managers maintained links with senior administrators in Rangoon and Delhi, and assistants socialized with civil and forest officers in the district headquarters' Club. These affiliations served, among other things, to ensure the representation of corporate interests

²³ Wilson to Revenue Secretary (Burma), 5 October 1906, BFP (October 1907), 49.

²⁴ As reported by Chief Conservator F. Beadon Bryant in 1906, and cited in Blanford, "Distribution of Teak Forests".

at the key decision-making points in the imperial hierarchy. As the following statement by a Burmese forester makes plain, they were typically very effective in this regard too:

The Forest Officers almost all of them, being Europeans, were very friendly with the managers and assistants of those European firms. Consequently, hardly any native forest officer could dare to write a report against the firms even when they infringed certain clauses of the lease; also it was difficult to give straight-forward and bold explanations to the [Divisional Forest Officer] if he received reports from the European lessees against his native officers.²⁵

If the European firms, and particularly the BBTCL, enjoyed considerable influence with government, the same could not be said of their Burmese counterparts. These firms were run by small capitalists who may have been influential in their local communities, but who possessed negligible influence with those senior officials in Rangoon, Delhi and London responsible for the allotment of teak leases. This lack of influence was to prove fatal for many Burmese companies as European firms acquired the most profitable teak leases. The Burmese teak-trading community was effectively 'decapitated' in the early twentieth century.²⁶

The government's support of the European firms may also have been motivated by broader political calculations. To understand why this was so, it is necessary to appreciate the changing nature of politics in twentieth-century colonial Burma.²⁷ As Chapter 7 shows, the introduction of dyarchy in

²⁵ Kyaw, "An Old Forester Looks Back," 24.

²⁶ Aung Tun Thet, Burmese Entrepreneurship: Creative Response in the Colonial Economy (Stuttgart: Steiner-Verlag Wiesbaden, 1989), 64, 80-83.

²⁷ Robert H. Taylor, The State in Burma (London: C. Hurst, 1987), chap. 3.

1923 resulted in the gradual politicization of forest management. In the process, European predominance in the teak trade became an issue in the nationalist campaign. Yet, there were important political benefits to be gained from consolidating extraction in non-Burmese hands. Although referring to a different place and time, Anderson's explanation as to why Indonesia's Suharto regime favoured multinational corporations after 1967 is apposite:

The key to understanding this long-standing [arrangement] lies in recognizing the advantages that multinationals offer the state qua state. Thanks to their hierarchical structures, they provide the center with sizable, easily accessible revenues...they are [also] what one might call 'Grade A pariah entrepreneurs,' meaning that their executives have neither the interest nor the capacity to pursue political ambitions inside Indonesia. These corporations present no direct political threat to the state, as a powerful indigenous business class might do.²⁸

There are clearly differences between the situation faced by multi-nationals in post-colonial Indonesia, and that which confronted the European firms in colonial Burma. The latter enjoyed privileged access to senior government circles that the former did not. Thus, an explanation of European preponderance in colonial Burma's teak trade must remain couched largely in terms of the importance of the imperial connection.

And yet, the advantages that Anderson suggests that the state realized in New Order Indonesia were also a factor in twentieth-century colonial Burma. Indeed, the fact that,

²⁸ Benedict R. O'G. Anderson, "Old State, New Society: Indonesia's New Order in Comparative Historical Perspective," Journal of Asian Studies 42 (May 1983): 477-96; reprinted in Language and Power: Exploring Political Cultures in Indonesia, Benedict R. O'G. Anderson (Ithaca: Cornell University Press, 1990), 113.

unlike President Suharto in Indonesia, the British in Burma faced a serious nationalist challenge to their rule made the concentration of economic power in non-indigenous hands all the more important to the maintenance of political control. As such, the preponderance of the European firms was part of a larger attempt to maintain colonial rule by preventing the Burmese from gaining access to the key means of capital accumulation. In turn, this hindered the development of an indigenous business class that might have linked up with aggrieved peasants to challenge colonial rule. Moreover, the restriction of Department extraction eliminated the possibility of significant capital appropriation by a 'corrupt' Burmese Forests Minister after 1923. At the very least, the knowledge that teak extraction would be controlled by the European firms until the late 1930s, if not thereafter, must have been some comfort to colonial officials apprehensive about a transfer of forests to Burmese control.

If the European firms were thus favoured, the government did not completely give up its own extraction operations. In what became known as the Myitthaka Extraction Forest Division in 1921, Timber Assistants supervised Burmese contractors as before.²⁹ Various reasons were put forth for the retention of Department extraction. At least initially, it was viewed as a means to guarantee the British Admiralty a regular supply of quality timber.³⁰ Department extraction also served to

²⁹ RFA for 1920-21, 49; Htao Hai, "Commercial vs. Quasi-Commercial Departmental Teak Extraction in Burma," Indian Forester 43 (March 1917): 111-16; H.W.A. Watson, Note on Departmental Extraction of Teak in Prome, Zigon and Tharrawaddy Divisions (Rangoon: Government Printing, 1917).

³⁰ RFA for 1909-10, 14; RFA for 1912-13, 26.

sustain the small timber mills in Rangoon that depended on this source to stay in business. By keeping these mills in operation, the Department avoided becoming dependent on the big European firms which largely controlled teak milling in Burma.³¹ Further, it enabled the government to obtain accurate information as to extraction costs and the sale price of teak which could then be used in lease negotiations. Finally, such extraction gave the government some leverage over the local teak market, and was the principal means by which it could prevent price fixing and other forms of collusion among the lessees.³²

As Department extraction was restricted to the Myitkaka watershed, forest officials could devote more time to forest management. During the first two decades of the twentieth century, they introduced working plans and other measures that regulated in great detail forest access. It is to the discussion of such measures that this chapter now turns.

Ecology and the Politics of Scientific Forestry

From the passage of the 1902 Act to the advent of dyarchy in 1923, the Forest Department consolidated control over Burma's forests and forest users. Whereas working plans minutely regulated socio-ecological conditions within reserves so as to maximize efficient commercial exploitation, a revised taungya forestry system enhanced Department control over shifting cultivators. By the early 1920s, Burma's

³¹ RFA for 1912-13, 26; Maria Serena I. Diokno, "British Firms and the Economy of Burma, with Special Reference to the Rice and Teak Industries, 1917-1937" (Ph.D diss., University of London, 1983), chap. 6.

³² RFA for 1909-10, 14; Resolution, RFA for 1910-11, 2.

forests were managed much more intensively than had been the case in the nineteenth century, and this had important implications for forest conflict.

This more intensive style of forest management was epitomized in the creation of working plans. As developed by Brandis, the working plan was a rough forest survey designed to facilitate immediate extraction. As reserves were demarcated, however, the need for a location-specific approach became apparent, and in 1885, Deputy Conservator J.W. Oliver prepared the first modern working plan in the Thonze reserve, Tharrawaddy division.³³ This plan sub-divided the reserve into blocks and compartments which were to be harvested on a rotational basis. As with other plans of the era, it was solely concerned with teak; "ordinary jungle woods" were to be sold "without restraint at nominal rates, as their removal would make room for teak".³⁴ With this plan, the 'teak selection' system was formalized. In order to maintain, if not increase, the proportion of teak in the forest, climber cutting, and the removal of other species through 'improvement' fellings, were prescribed.

Over the next twenty years, the area under working plans expanded slowly as priority was given to reservation. But the need for working plans became more urgent as the government allocated timber leases to the European firms. In 1902, the Government of Burma introduced a five-year programme under which six working-plan parties were employed. Two years

³³ J.W. Oliver, Working Plan of the Thonze Reserve (Rangoon: Government Press, 1885); H.R. Blanford, "Forest Management and Preparation of Working Plans in Burma," Empire Forestry 4, 1 (1925): 57-58.

³⁴ Oliver, Thonze Reserve, 18.

later, a new approach was adopted to expedite work in which the effort expended on the plan was linked to the value of its forests.³⁵ The start of the First World War in 1914 halted field work, but not before most of the valuable Pegu Yoma and Chindwin reserves had been covered.³⁶ From 1920, the creation of working plans was taken up with renewed vigour, and a special branch was formed within the Forest Department to facilitate this process. As Table 6.2 illustrates, plans covered an increasing proportion of the reserved area in the 1920s.

TABLE 6.2

WORKING PLANS AS A PERCENTAGE OF RESERVED FORESTS,
1899-1930
(Selected Years; Amounts in Square Miles)

Year	A: Working Plans	B: Reserved Forests	A/B (%)
1899-1900	1,817	17,153	10.59
1904-05	3,388	20,411	16.60
1909-10	7,241	25,691	28.18
1914-15	8,857	28,239	31.36
1919-20	10,855	29,874	36.34
1924-25a	12,083	28,227	42.81
1929-30a	19,967	29,487	67.71

Sources: RFA (various years); H.R. Blanford, "Forest Management and Preparation of Working Plans in Burma," Empire Forestry 4, 1 (1925): 58.

a. Figures for the Federated Shan States excluded.

³⁵ Resolution, RFA for 1902-03, 2; Blanford, "Working Plans," 58-59. For a minor working plan prepared according to the fast-track method, see S.F. Hopwood, Working Plan for Thingadon-Yama and Patolon Working-Circles (Rangoon: Government Printing, 1915).

³⁶ Blanford, "Working Plans," 59; H.W.A. Watson, A Note on the Pegu Yoma Forests (Rangoon: Government Printing, 1923), 22. Later, these plans were revised according to a standardized procedure, see Burma Forest Department, Working Plans Manual Burma, 3rd ed. (1938; reprint, Rangoon: Government Printing, 1948).

If the data lump together plans of varying scope and detail, the expansion in the area under working plans during this period was nonetheless remarkable. Whereas the reserved area nearly doubled in size, the area covered by plans increased more than tenfold.

And yet, these plans began to provide systematic guidelines for non-teak extraction only after the First World War. This omission reflected what Conservator F.B. Manson in 1903 suggested was "the exaggerated importance" of teak on the export market, and "the comparative neglect, not to say contempt, of all other kinds".³⁷ If pyinkado and padauk had long been exported to India for conversion into railway sleepers and gun carriage wheels, attempts by the Forest Department to expand the non-teak timber trade failed miserably.³⁸ The promotion of in exports is illustrative in this regard.³⁹ A durable wood extensively used in Burma for house building (Appendix B), the government encouraged its export by offering concessions to the European firms in 1898 (and again in 1906). These concessions included: 5,000 tons of free timber in the first year, 10,000 tons at half royalty during the next five years, and a fixed royalty thereafter. In addition, the government promoted this wood through the

³⁷ F.B. Manson to Revenue Secretary, 8 June 1903, BFP (August 1903), 10; see also B.H. Baden-Powell, Memorandum on the Supply of Teak and Other Timbers in the Burma Markets (Calcutta: Government Printing, 1873), 5.

³⁸ R.S. Troup, Burma Padauk (Calcutta: Government Printing, 1909), 39; RFA for 1874-75, 23-24; RFA for 1879-80, 48. Between 1876-77 and 1899-1900, the Department shipped 3,785,013 tons of padauk to Madras and Bombay, see F.B. Manson (Conservator, Tenasserim) to Revenue Secretary, 21 September 1901, BFP (January 1902), 123.

³⁹ R.S. Troup, Burmese In Wood (Calcutta: Government Printing, 1909).

dissemination of information and samples. Despite these efforts, the export trade failed to develop due to high freight charges and the conservatism of British timber buyers.⁴⁰

Similar obstacles confronted the export of other 'jungle' woods.⁴¹ If jungle-wood exports increased in the early twentieth century - from 9,923 tons per annum (1901-05) to 32,959 tons per annum (1911-15) - this trend merely reflected an attempt on the part of traders to find substitutes for expensive teak.⁴² Despite such export growth, moreover, teak continued to dominate Burma's timber exports: between 1911-15, exports of all kinds of timber were 203,927 tons per annum, but teak exports constituted 170,968 tons or 84 per cent of the total.⁴³

During the First World War, the urgent need for timber led to a more diversified extraction that included a variety of woods hitherto never exported.⁴⁴ Concurrently, a visiting Canadian forester, H.R. MacMillan, urged Burma's foresters to take steps to develop the non-teak hardwood trade, and opined that there was "no sound reason" why revenue from the

⁴⁰ Alexander L. Howard, "Commercial Prospects of Burma Woods," Asiatic Review 19 (July 1923): 396-99.

⁴¹ On the government's equally doomed efforts to promote the commercial use of bamboo, see R.W. Sindall, Report on the Manufacture of Paper and Paper Pulp in Burma (Rangoon: Government Printing, 1906); Morehead, Forests of Burma, 62-63.

⁴² Shein, Burma's Transport and Foreign Trade, 161-62.

⁴³ *Ibid.*, 161.

⁴⁴ For example, such hardwoods as taukkyan (Terminalia tomentosa), panga (Terminalia Chebula), as well as such softwoods as hnaw (Adina cordifolia), didu (Bombax insigne) and letpan (Bombax malabaricum). See RFA for 1917-18, app. I.

country's hardwoods should not eventually rival that from teak.⁴⁵ MacMillan's visit had a major impact in Burma, and led to a Department initiative designed to 'show the way' for private enterprise.⁴⁶ The post-war enthusiasm for non-teak timber was also expressed in working plans as forest officials regulated the extraction of diverse species.⁴⁷

This interest in non-teak timber was part of a broader attempt to rationalize forest use. From 1909, the Forest Department even debated whether to abandon the teak selection system in favour of the uniform system - the latter being a method which combined clear felling with natural regeneration on a sequential basis.⁴⁸ An experimental working plan for the Mohnyin reserve (Katha division) was developed; during the First World War, a similar plan was drawn up for the Tharrawaddy division.⁴⁹

⁴⁵ H.R. MacMillan, "Notes on the Prospect of Working the Hardwood Forests of Burma," Indian Forester 42 (October 1916): 481-99; Htao Hai, "Burma Jungle Woods and the Europe Market," Indian Forester 45 (June 1918): 243-52.

⁴⁶ BFP (April 1918); G.S. Hart, Note on a tour of Inspection in the Forests of Burma (Simla: Government Central Press, 1918), 7-8; F.A. Leete, Memorandum on Departmental Extraction v. Cooperation with Traders for the Development of Trade in Burma Hardwoods (Rangoon: Government Printing, 1923).

⁴⁷ A.P. Davis, Working Plan for Indaung Working Circle (Rangoon: Government Printing, 1918); C.H. Philipp, Working Plan for Yinke Working Circle (Rangoon: Government Printing, 1921).

⁴⁸ Proceedings of the First Burma Forest Conference held at Maymyo between the 13th and 20th June 1910 (Rangoon: Government Printing, 1910); H.C. Walker, "The Uniform System in Burma," Indian Forester 41 (April 1915): 105-11; H.R. Blanford, "The Uniform System in Burma," Indian Forester 41 (October 1915): 366-71.

⁴⁹ H.R. Blanford, The Mohnyin Working Plan (Rangoon: Government Printing, 1911); H.R. Blanford and D. Ellis, Working Plan for the Yoma Reserves in the Tharrawaddy Division, 3 vols. (Rangoon: Government Printing, 1918-19).

These developments had important implications for various forest users, but particularly shifting cultivators. The connection between changes in extraction techniques, and the Forest Department's relationship with these individuals, becomes more evident if the development of taungya forestry from the 1880s until the 1930s is reviewed.

As Chapter 3 noted, a primary function of the taungya forestry system was to convert an ecological 'menace' into something more useful. But the use of shifting cultivators to plant teak in their taungyas was paradoxical in so far as it was predicated on a way of life that was to be eliminated. Each acre planted with slow maturing teak (150 or more years) was an acre no longer available for use by the hill Karen. As cultivators were shifted from one location to another, the meaning of their work also changed. They became forest labourers who also grew food and cash crops, rather than semi-autonomous agriculturists who happened to plant teak.

This transformation occurred slowly, and was never completed under colonial rule. Yet, by the late nineteenth century, some areas were already planted up. In the West Salween division, for example, it was reported that the Karen were "beginning to realize that they are virtually building themselves out, as the eligible lands become occupied with the teak they are planting".⁵⁰ Similar sentiments were expressed by Karen in Tharrawaddy division, where a sympathetic Deputy Commissioner urged that action was required to check "the gradual elimination of the taungya

⁵⁰ RFA (Lower Burma) for 1892-93, lxi; see also RFA (Pegu) for 1895-96, 10; RFA (Pegu) for 1897-98, 14; RFA for 1901-02, 23.

cultivator by the Forest Department which is now in progress".⁵¹ However, in most of Lower Burma's teak forests, the situation was the same: cultivators were being hemmed in by plantations and reserves.⁵²

Foresters viewed this process with equanimity:

It should not be forgotten that toungya [sic] cultivation is a system that must in time die out, when the population has increased sufficiently. To reserve a portion of forests against taungya is simply to anticipate by a few years what ultimately must happen anyhow.⁵³

The spatial dislocation of shifting cultivators into an ever smaller area simply mimicked what 'natural' processes would do. The contradiction between this attempt to eliminate a valued way of life, and a broader campaign to gain the support of the hill Karen, was a recurrent source of tension between cultivators and the Forest Department.⁵⁴

Hill Karen and foresters nevertheless cooperated to their mutual benefit. In the late nineteenth century, such cooperation was at its height (Table 6.3).

⁵¹ J.J. Cronin, cited in RFA for 1895-96, lxix.

⁵² Cultivators applied in vain for the opening to them of reserves, see F.W. Collings, "Note on the Possibility of Permanent Cultivation in the Upper Reaches of the Baingda-Daik-U Township," BFP (June 1916), 154-55.

⁵³ B.H. Baden-Powell, The Forest System of British Burma (Calcutta: Government Printing, 1873), 12.

⁵⁴ Shifting cultivators resisted by cultivating in forbidden areas, see A.H.M. Barrington, Working Plan for North Zamayi Reserve (Rangoon: Government Printing, 1919), 2, 10; C.W.D. Kermode, Working Plan for Henzada Forest Division, 1929-30 to 1938-39, vol. 1 (Rangoon: Government Printing, 1929), 20.

TABLE 6.3

GROWTH IN TAUNGYA PLANTATIONS, 1886-1934
(Area in Acres)

Year	Planted	Annual Increase	Total
1886-96	31,741	3,174	42,059
1896-06	28,496	2,850	70,555
1906-16	6,291	629	76,846
1916-24	21,894	2,737	98,740
1924-34	16,610	1,661	115,350a

Sources: RFA (various years).

Note: Numbers include all species planted by this method but teak was at least 75 per cent of the total.

a. Estimate only; assumes taungya plantations were 86 per cent of the total planted area, as in 1923-24, the last year for which this figure was provided.

The initial sharp rise in the planted area - from 10,318 acres in 1886 to 70,555 acres in 1906 or a sevenfold increase - gives us some indication of the Forest Department's early enthusiasm for this reforestation method. After 1906, however, the record becomes more ambiguous.

As the plantations matured, problems began to emerge that tempered the initial enthusiasm. It had been assumed, for example, that teak required only two years of weeding and clearing; in fact, a much more extensive time was needed. The trees also required thinning in order to ensure proper growth, a process that had been neglected.⁵⁵ These seemingly innocuous ecological miscalculations had serious financial and administrative consequences. Extra plantation work cost the Department scarce funds. Moreover, additional supervision

⁵⁵ B. Ribbentrop, Forestry in British India (Calcutta: Government Printing, 1900), 194-95; J. Nisbet, Burma under British Rule and Before (Westminster: Archibald Constable, 1901), 2: 83-84.

was needed to check an increasingly complex system, thereby placing a new burden on an already overextended staff.⁵⁶ Inevitably, the quality of the work declined. As plantations expanded, supervision decreased, leaving cultivators free to choose their own sites; all too frequently, these sites were already stocked with teak, thereby defeating the purpose of adding to, and not replacing natural stocks.⁵⁷

More importantly, critics questioned the principles on which taungya forestry was based. Foreshadowing future debates,⁵⁸ a number of foresters challenged the efficacy of teak monoculture, arguing that the increased probability of disease and insect damage associated with concentrated regeneration would offset any benefits. As Assistant Conservator H.N. Thomson warned in 1896:

Teak is not by nature a gregarious tree, and all our efforts to make it so are sure not to be so successful as is anticipated...Teak, when growing in pure patches, as the result of taungya plantations, is peculiarly liable to damage from insects, fungi and other pests, which danger is greatly reduced when it is mixed with other species.⁵⁹

In the twentieth century, scientific evidence tended to confirm Thomson's warning. It was found, for example, that teak was naturally subject to the predations of an insect pest known as the bee-hole borer (Xyleutes ceramica), but

⁵⁶ RFA for 1905-06, 6; H.C. Walker, "Reproduction of Teak in Bamboo Forests in Lower Burma," Indian Forester 30 (February 1904): 51.

⁵⁷ RFA for 1904-05, 11. Cultivators also picked flat, swampy ground that was often better suited for their crops than for teak, see J.D. Clifford, "The Formation of Teak Taungya Plantations in Burma," Indian Forester 43 (March 1917): 121.

⁵⁸ Julian Evans, Plantation Forestry in the Tropics (Oxford: Clarendon Press, 1982), 413-16.

⁵⁹ RFA (Tenasserim) for 1895-96, 8.

that damage was much higher in plantations than in mixed forests. In the early 1930s precise data became available, but even then the ambiguous nature of that data left foresters divided.⁶⁰

The fortunes of taungya forestry fluctuated in accordance with these ecological cum administrative debates. Between 1906 and 1918, planting virtually ceased as attention turned to natural regeneration techniques such as improvement fellings.⁶¹ Yet, planting not only resumed at the end of the First World War, it became an integral part of plans to convert Burma's forests to uniformly aged timber stands.⁶² Suddenly, as Chief Conservator Frederick Leete observed, cultivators had acquired a new respectability:

The change of attitude with regard to the taungya cutter is remarkable. For many years Forest Officers looked upon him as an unmitigated curse. It is now recognized, however, that he can play a useful part, and that, in the taungya cutter Burma possesses an extremely valuable asset in the regeneration of forests.⁶³

This new respectability soon ended, however. The reluctance of the European firms to enter the non-teak timber trade, combined with the government's decision in the early 1920s

⁶⁰ At issue was whether the incidence of rainfall or the concentration of teak was ultimately to blame for the damage. See C.W. Scott, Measurements of the Damage to Teak Timber by the Beehole Borer Moth (Rangoon: Government Printing, 1932); H.G. Champion, The Problem of the Pure Teak Plantation (Calcutta: Government Printing, 1932); Kyaw Sein, "The Bee-Hole Borer of Teak," Burmese Forester 13 (December 1963): 32-39.

⁶¹ Taungya forestry still had its supporters during these years, see G.S. Hart, Note on a Tour of Inspection in Burma (Simla: Government Central Branch Press, 1914), 9-10. Hart was Inspector General during the First World War.

⁶² H.R. Blanford, "Regeneration with the Assistance of Taungya in Burma," Indian Forest Records 11, 3 (1925): 83.

⁶³ RFA for 1918-19, 4.

not to undertake the extraction of such wood departmentally, reduced the appeal of the uniform system, and with it, that of the shifting cultivator.⁶⁴

The onset of the Great Depression sealed the fate of taungya forestry. In 1935, the Government of Burma declared that the system was 'too speculative' an endeavour to be justifiable on economic, or any other grounds, and ordered its gradual termination. Although many foresters protested this decision, the British empire's first system of taungya forestry had effectively come to an end.⁶⁵

The vicissitudes of the system have tended to obscure the broader political changes that redefined taungya forestry even as its fate was being debated. As noted, the system was partly designed to increase state control in the politically unstable, but economically important Pegu Yoma at a time of British weakness. By the twentieth century, the need for such an arrangement was less pressing. An improved transportation and communications network, and a more extensive knowledge of Burma's forests and inhabitants, were only part of a larger process of state empowerment.⁶⁶ In 1900 forest officials were

⁶⁴ On Steel Brother's disappointing experience with non-teak extraction in the interwar period, see Braund, Calling to Mind, 53-54; R.J. Sayres, Working Plan for Pyinmana Forest Division, 1936-37 to 1946-47, vol. 2 (Rangoon: Government Printing, 1937), 100. Earlier, the BBTCL extracted pyinkado for the Burmese sleeper trade, but abandoned the business after repeated losses, see ARBBTCL for 1895-96, 4; ARBBTCL for 1900-1901, 4.

⁶⁵ The decision is reprinted in RFA for 1939-40, 20; see also, RFA for 1934-35, 19; RFA for 1935-36, 20; C.W.D. Kermode, "Natural and Artificial Regeneration of Teak in Burma," Indian Forester 72 (January 1946): 15-21.

⁶⁶ Taylor, State in Burma, chap. 2.

in a much stronger position to regulate forest activities than were their predecessors in 1870.

That increased power was reflected in the more systematic approach which was now taken toward the taungya question. If an outright ban was never seriously considered, efforts were still made to persuade the hill Karen to take up permanent cultivation.⁶⁷ Such efforts were, however, largely to no avail.

None of them, in fact, would think of engaging in any permanent cultivation either in the hills or in the plains unless ya-cutting were prohibited, and then only as an alternative to working as a coolie. The Karen believes that the jungle will continue to support the present generation, and is incapable of looking beyond that.⁶⁸

As a result, attention centred on the strict regulation of taungya activities. Wherever possible, the area set aside in reserves for that purpose was reduced; to facilitate the process, a census of Karen living in the Pegu Yoma was also conducted.⁶⁹ Conservator J.W.A. Grieve captured the prevailing mood when he noted that "the taungya-cutter is like a forest

⁶⁷ A ban was not considered for at least two reasons. First, forest officials relied on cultivators to serve as labourers, particularly in remote areas where labour was scarce and expensive. Secondly, the problems associated with forcibly evicting thousands of cultivators from the forest were formidable, and probably beyond the ability of even the colonial state to overcome.

⁶⁸ E.F. Baum, "Report on the proposal to induce Karen taungya-cutters in the Upper Baingda Drainage Area to settle down to permanent cultivation," BFP (June 1916), 164.

⁶⁹ H.W.A. Watson, Working Plan for Pyu-chaung and Pyu-kun Reserves (Rangoon: Government Printing, 1902), 3; idem, "Taungya Cutting," Indian Forester 34 (May 1908): 264-69; J.S. Vorley, Working Plan for Prome Forest Division, 1930-31 to 1939-40, vol. 1 (Rangoon: Government Printing, 1935), 222-27. The number of taungya cutters in this area was 1,054 in 1922, down from 1,757 at the time of settlement, see Watson, Pegu Yoma Reserves, app. IV.

fire, he is a bad master, but, under control, he is the best servant the forest can have".⁷⁰

To this end, the Forest Department established forest villages for its indigenous employees doing planting and other work. Under the Burma Village Amendment Act (1921), forest officials were granted extensive powers, and assumed the responsibilities of subdivisional civil officers in these villages. These changes increased the ability of the Department to specify the rights and duties of cultivators.⁷¹ In the Pyinmana division, for example, villagers were not allowed to have more than six acres of cultivable land each as "a greater grant merely means that the villager becomes too affluent or that most of his time is spent in cultivation".⁷²

Other political changes also affected the status of taungya forestry. Upon the annexation of Upper Burma in 1886, the British obtained a vast new forest estate. As the Forest Department extended its operations into this area, limited funds and staff prevented the promotion of planting in Upper

⁷⁰ J.W.A. Grieve, "Note on Forest Policy in Burma," Indian Forester 42 (September 1916): 446-47.

⁷¹ Government of Burma, Village Manual (Rangoon: Government Printing, 1940), 119-25; A.P. Davis, "Forest Villages in Burma," Indian Forester 49 (December 1923): 641-45. Cultivators often resisted this more regimented work arrangement, see RFA for 1917-18, 31; RFA for 1921-22, 53; G.S. Shirley, "Growing of Timber so far as Forest Villages and Taungyas are concerned (Burma)," Third British Empire Forestry Conference Papers (1928): 612-15; A.F.R. Brown, Working Plan for Yamethin Forest Division, vol. 1 (Rangoon: Government Printing, 1932), 30-31.

⁷² F.G. Burgess and C.R. Robbins, Working Plan for Pyinmana Forest Division, 1927-28 to 1936-37, vol. 1 (Rangoon: Government Printing, 1929), 121.

Burma.⁷³ Instead, a system of natural regeneration based on improvement fellings was adopted. Under these conditions, it was almost inevitable that interest in intensive silviculture would decline (the brief interest in the uniform system notwithstanding). As Conservator John Nisbet noted, the introduction of taungya forestry was predicated in part on British control of the more limited teak forests of Lower Burma.⁷⁴

These factors contributed to the ambiguous status of the system in the twentieth century. Such ambiguity heightened the financial insecurity of cultivators who depended on emoluments from the Forest Department. For many hill Karen, taungya forestry had become a way of life. Yet, just as the colonial state undermined their relatively autonomous lifestyle in the 1860s, it now disrupted their new-found dependency in the late colonial period. Not for the last time, Karen who trusted the British, in the end felt betrayed.⁷⁵

⁷³ Taungya forestry was attempted with Kachin living in the Bhamo division in the 1920s. However, the experiment was at first stymied by "the slackness and opium-smoking tendencies of the forest villagers"; it thereafter remained a small-scale operation, see E.S. Hartnoll and F.T. Morehead, Working Plan for the Kaukkwe Portion of the Bhamo Forest Division, 1935-36 to 1947-48 (Rangoon: Government Printing, 1936), 20, 25.

⁷⁴ J. Nisbet, "Notes on Improvement Fellings for the Benefit of Teak in Fire-protected Reserved Forests, Burma," Indian Forester 25 (May 1899): 202-14.

⁷⁵ Even foresters recognized that policy changes were "grossly unfair", see H.W.A. Watson, "Forestry in Lower Burma," Indian Forester 44 (May 1918): 215. Following the Second World War, Karen felt betrayed when they were not granted independence by the British, see Martin Smith, Burma: Insurgency and the Politics of Ethnicity (London: Zed Books, 1991), 50-52, 72-87 passim, 110-12, 137-54 passim.

If the cooperation embodied in the taungya forestry system began to break down in the early twentieth century, other factors increased the likelihood of conflict between the colonial state and shifting cultivators. Specifically, a growing ecological concern focused attention on the practises of hill peoples throughout Burma. As Chapters 2 and 3 illustrated, criticism of shifting cultivators, and the Karen in particular, was a prominent feature of early colonial rule. During the nineteenth century, such criticism reflected an overriding interest in the protection of teak, and was usually only indirectly about ecological questions. In contrast, forest officials in the twentieth century became increasingly concerned about hill erosion, siltation and flooding.

There were several reasons for this change. First, as the main teak tracts were demarcated, the Forest Department reserved forest lands that were valuable for other reasons. Forests containing sha, and other commercial species were sporadically demarcated.⁷⁶ But forests were also reserved predominantly, if not exclusively, for ecological reasons. The creation of ecological (as opposed to teak or sha) reserves was an integral part of the elaboration of forest control in the late nineteenth and early twentieth centuries.

Secondly, forest officials were influenced by the Government of India's 1894 statement on forest policy. If Dalhousie's Minute of 1855 had established the state's intention to manage commercially valuable forests (such as teak forests), the 1894 statement went further by laying down

⁷⁶ For example, see F.C. Owens, Pakokku District Gazetteer (Rangoon: Government Printing, 1913), 59.

the general principles according to which all of British-India's forests were to be managed.⁷⁷ Thus, it recognised four types of forest: (1) protection forests to be maintained on climatic or physical grounds; (2) commercial forests to be managed for timber production; (3) local supply forests designed to satisfy subsistence needs; and (4) pasture lands. Prompted by criticism that the forest service in India was paying insufficient attention to the needs of the subcontinent's agricultural population, the policy statement was primarily intended to address that issue.⁷⁸ As such, it was only partially applicable to Burma, where different conditions (such as a more favourable population-to-land ratio) prevailed.

If Chief Commissioner Frederick Fryer concluded that the 1894 statement was of "little application to Burma," the document nevertheless encouraged a greater ecological awareness among officials.⁷⁹ Through reservation and new restrictions on shifting cultivators, forest officials sought to protect watersheds, and thereby (it was believed) safeguard the plains villages from flooding and decreased water supplies. At first, attention focused on the dry deciduous and scrub forests of central Burma, but subsequently, the Forest Department targeted more remote

⁷⁷ Resolution of the Government of India, Department of Revenue and Agriculture, Circular No. 22F, 19 October 1894, BFP (December 1894), 65-71.

⁷⁸ Specifically, the government was responding to a report on Indian agriculture by Dr. Voelcker published in 1893, see Madhav Gadgil and Ramachandra Guha, This Fissured Land: An Ecological History of India (Delhi: Oxford University Press, 1992), 135.

⁷⁹ Revenue Secretary to Inspector General, 20 December 1894, BFP (December 1894), 73-74.

areas in northern Burma and the Shan States.⁸⁰ Between 1897 and 1909, over 2,000 square miles were reserved, and in the latter year, 3,700 square miles were being considered for reservation, for reasons "at least partially climatic".⁸¹

The impetus for ecological reservation came from a belief that deforestation in the hills was linked to agricultural distress in the plains, as well as to general climate change. In 1909, however, when the Government of India inquired into this matter, it found that when pressed to substantiate the link between deforestation and ecological change, forest and civil officials were generally unable to do so.⁸² There was no evidence to suggest that rainfall, ground-water levels or flooding had significantly changed in recent decades, despite a reduction in overall forest cover. And, as Burma's Revenue Secretary noted, there was no sign that "serious injury to cultivation or other interests" was occurring either.⁸³ Despite such inconclusive evidence, the governments of Burma

⁸⁰ A.M. Reuther (Conservator, Pegu) to Revenue Secretary, 21 May 1899, BFP (July 1899), 313; Review of the Chief Conservator, RFA for 1905-06, 1; Alex Rodger, Forest Reservation in Burma in the Interests of an Endangered Water-Supply (Calcutta: Government Printing, 1909); Ralph Neild and J.A. Stewart, Kyaukse District Gazetteer (Rangoon: Government Printing, 1925), 85-86; G.W. Dawson, Bhamo District Gazetteer (Rangoon: Government Printing, 1912), 46; RFA for 1909-10, 67.

⁸¹ G.F. Arnold (Revenue Secretary) to Secretary, Government of India (Department of Revenue and Agriculture), 15 July 1909, BFP (December 1909), 90, 96-99.

⁸² BFP (December 1909), 9-122.

⁸³ G.F. Arnold to Secretary, Government of India, Department of Revenue and Agriculture, 15 July 1909, BFP (December 1909), 89.

and India continued to uphold a policy of watershed protection.⁸⁴

In a sense, this policy was more about the regulation of shifting cultivation than it was about watershed protection. In his submission to the inquiry, Chief Conservator John H. Lace noted that although "the reservation of large areas [to protect teak] has done much to prevent the denudation of important catchment areas," the restriction of shifting cultivation remained the "most urgent" task facing the government.⁸⁵ In the twentieth century, foresters blamed cultivators for ecological degradation throughout Burma, even if there were plausible alternative explanations.⁸⁶ Diverse hill peoples and practices were lumped together and blamed for erosion, flooding and landslips; processes that occurred naturally, but for which colonial reports typically made no allowance.⁸⁷

⁸⁴ Ibid., 90-91; E.D. MacLagan (Secretary, Government of India) to Department of Revenue and Agriculture, Circular No. 8F, 28 April 1911, BFP (June 1911), 19-21.

⁸⁵ Lace to Revenue Secretary, 16 March 1909, BFP (December 1909), 59-60.

⁸⁶ The association of shifting cultivators with ecological degradation remains strong today, see Thiem Komkris, "Forestry Aspects of Land Use in Areas of Swidden Cultivation," in Farmers in the Forest: Economic Development and Marginal Agriculture in Northern Thailand, ed. Peter Kunstädter, E.C. Chapman and Sanga Sabhasri (Honolulu: University Press of Hawaii, 1978), 61-70; Evelyne Hong, Natives of Sarawak: Survival in Borneo's Vanishing Forests (Penang: Institut Masyarakatakat, 1987), 135-38.

⁸⁷ F.B. Manson, "The Erosion of the Hills to the East of the Sittang River, Burma," Indian Forester 31 (April 1905): 223-27; D.E.B. Manning, "Some Aspects of the Problem of Taungyas in Burma," Indian Forester 67 (October 1941): 502-5; T.S. Thompson, Soil Erosion and its Control in the Shan States, Burma (n.p., 1944).

In addition to the creation of reserves, the Forest Department restricted shifting cultivation in ecologically-fragile, but unreserved hill forests under the 1902 Act and Rules. Rule 19, for example, prohibited cultivation in designated public forest lands; other rules were more selective, and applied to teak, and (in Arakan) pyinkado forests.⁸⁸ These rules were a flexible means to restrict taungyas without having to resort to the more costly and time consuming measure of reservation. They also could be applied quickly over an extensive area. In 1909-10, Rule 19 was used to cover 100 square miles in Arakan and 222 square miles in the Ruby Mines district.⁸⁹

The ability of the Forest Department to enforce these rules was conditioned in part by its expansion in the late nineteenth and early twentieth century. Table 6.4 illustrates the growing size and complexity of the Department in this period.

⁸⁸ Burma Forest Act (1902), sec. 33 (2a/b); Rule nos. 17-19. The penalty for breach of these rules was six months imprisonment, a five-hundred rupee fine, or both (Rule 98). See Government of Burma, The Burma Forest Manual (Rangoon: Government Printing, 1922).

⁸⁹ Review of the Chief Conservator, RFA for 1909-10, 1. Shifting cultivators were often able to resist this sweeping but difficult to enforce rule, see Kermode, Henzada Forest Division, 1: 6; H.B. Barrett, Working Plan for Bassein Forest Division, 1929-30 to 1938-39, vol. 1 (Rangoon: Government Printing, 1930), 5.

TABLE 6.4

GROWTH OF THE FOREST DEPARTMENT, 1893-1923
(Sanctioned Strength)

Position	1893	1907	1923
Chief Conservator	-	1	1
Conservators	4	4	9
D/A Conservators	35	56	103
Forest Engineers	-	-	10
Extra D/A Conservators	15	60	110
Total	54	121	233

Sources: Revenue Secretary (Burma) to Secretary, Government of India (Department of Revenue and Agriculture), 6 July 1893, BFP (July 1893), 8; Great Britain, Minutes of Evidence taken before the Royal Commission upon Decentralization in India, vol. 3 (London: H.M.S.O., 1908), 131; Great Britain, Indian Statutory Commission, Memorandum submitted by the Government of Burma to the Indian Statutory Commission, vol. 11 (London: H.M.S.O., 1930), annexure 1: Forest Department, 60-61.

Note: D = Deputy; A = Assistant

In practice, the actual strength of the forest service often lagged behind its sanctioned level. In 1907, for example, there were 91 officials on active service, or 75 per cent of the allowable level. In 1923, there were 160 officers on duty, or just 69 per cent of the full complement. The growth in the number of forest officials was nevertheless impressive. Between 1893 and 1923, the operational strength of the forest service grew threefold.

But the Forest Department not only grew in size, it also became more complex as new posts were added. The most important addition was that of Chief Conservator in 1905.⁹⁰ Between 1876 (when a second Conservatorship was established)

⁹⁰ Appendix E lists Burma's Chief Conservators between 1905-42.

and 1905 (by which time there were four Conservators), no single forest official held supreme charge in Burma. The Province's Conservators corresponded with the Inspector-General of Forests in India on technical questions, but otherwise reported to the Lieutenant Governor through the Revenue Secretary. The latter was typically unfamiliar with forestry. The result was a procedure scarcely designed to inspire confidence:

It consequently often occurs that, when important suggestions are made by any one Conservator, the opinions of the other three are taken; and if it should happen that two are for and two against the proposals, the matter is shelved indefinitely.⁹¹

The post of Chief Conservator was designed to remedy this situation. As head of the Department in Burma, this official became the principal forestry adviser to the Government of Burma. In addition to assuming responsibility for many of the technical matters previously controlled by the Inspector-General of Forests, he was also placed in charge of government timber sales.⁹²

Technical positions were also created. In 1913, a Research Officer was appointed, and following the First World War, the posts of Silviculturist and Botanist were created.⁹³ From 1920, Forest Engineers were appointed to improve Burma's road network.⁹⁴ Such functional diversification continued in

⁹¹ Nisbet, Burma under British Rule, 1: 248.

⁹² Great Britain, Minutes of Evidence, 3: 131.

⁹³ H.R. Blanford, "Highlights of One Hundred Years of Forestry in Burma," Burmese Forester 6 (June 1956): 16-17; A.H.M. Barrington, "Forest Development in Burma," Empire Forestry 4, 2 (1925): 256.

⁹⁴ As noted, teak was extracted by river. However, the lack of metalled roads hindered non-teak extraction. As these woods could not be floated out, they had to be transported by

the 1920s - the posts of Zoologist, Forest Economist and Game Warden were created - and was only brought to a halt by the Great Depression of the 1930s.

As manifested in its increased size and complexity, the Forest Department was more powerful than it had been in the past. It was able to regulate timber extraction and shifting cultivation as never before. But as forest officials sought to strengthen their hold over Burma's forests in the early twentieth century, they met the growing opposition of Burmese peasants. Broad societal and ecological changes limited the ability of the Department to protect forests, especially near populated areas, at a time when the need for such protection was most pressing.

Forest Crime as Everyday Resistance

That inability was nowhere more evident than in the case of the plains and delta reserves.⁹⁵ In a sense, efforts to safeguard these forests went against the grain of colonial policy. After all, Burmese cultivators had been encouraged by the British to view low-lying forest as an obstacle to be overcome. Indeed, the conversion of such forest into paddy fields was facilitated by diverse financial incentives. Thus, colonial officials exempted recently occupied land from

cart, but unpaved roads limited the carting season, see RFA for 1922-23, 27-28.

⁹⁵ For the purposes of this study, no distinction is made between plains and delta reserves. The former encompassed low-lying areas covered by mixed evergreen and deciduous forest and dry deciduous and scrub forest; the latter incorporated the mangrove swamps of the Irrawaddy Delta (Appendix B). For a brief description, see J.B. Carrapiett, "Plains Forests," Burmese Forester 2 (March 1952): 15-18; Pe Kin, "From the Hills to the Delta," Guardian (Rangoon) 15 (October 1968): 39-44, and 15 (November 1968): 12-16.

taxation for up to twelve years, arranged for the conversion of squatter's tenurial rights to full legal ownership, kept taxes on fallow lands low, and waived payment of the capitation tax for the first two years of a migrant's residency.⁹⁶ Moreover, the state funded the construction of canals and embankments, and improved river and land transport networks, as part of a grand attempt "to facilitate the movement of labour and export products and to make cultivation of empty lands possible".⁹⁷ However, if colonial officials encouraged agriculture, they also recognized that selected plains forests had to be spared the axe in order to provide villagers with a ready supply of timber and fuel. In a context of rapid agricultural expansion, that task was always difficult, but it became ever more so as residual forests were whittled away.

To appreciate why this was so, it is necessary to grasp the sheer scale of agricultural expansion under British rule. Between 1852 and 1905-06, the area under rice cultivation in Lower Burma expanded from about 700,000/800,000 acres to nearly 6,000,000 acres. Concurrently, the Delta's population climbed from about one million in 1852 to over four million in 1901.⁹⁸ Prior to 1880, land clearance was concentrated in Prome, Henzada and Tharrawaddy districts, as well as around the expanding towns of Rangoon, Bassein and Pegu. In many cases, this process involved the reclamation of fallow or

⁹⁶ Michael Adas, The Burma Delta: Economic Development and Social Change on an Asian Rice Frontier, 1852-1941 (Madison: University of Wisconsin Press, 1974), 33-36.

⁹⁷ Ibid., 35.

⁹⁸ Ibid., 58.

previously cultivated lands, rather than the removal of primary forest. In the last two decades of the century, however, Burmese and Indian migrants increasingly cleared virgin, and predominantly forested lands in the lower delta region. It is estimated that at least three million hectares of kanazo (Heritiera fomes) forest alone were eliminated in this manner.⁹⁹

Adas suggests that this ecological transformation was viewed with equanimity by peasant and official alike.

Colonial administrators, Indian migrants, and Burmese peasants all became so caught up in the rewarding process of clearing, cropping, marketing, milling, and exporting rice that no one...gave a thought to the destruction of the great rainforests that was a central consequence of the delta's development...to participants at all levels the forest was seen only as an obstacle. To British officials it was a striking symbol of precolonial backwardness, ignorance, and neglect. Its transformation into rice paddies was repeatedly cited by colonial administrators as clear proof of the superiority of European over indigenous rule.¹⁰⁰

The benefits of agricultural clearance undoubtedly obscured the ecological effects of extensive deforestation. However, the British were concerned about the social implications of this change. From the late 1890s, the government sporadically established plains reserves in an attempt to meet the agricultural population's forest needs.¹⁰¹ Forest and civil

⁹⁹ Michael Adas, "Colonization, Commercial Agriculture, and the Destruction of the Deltaic Rainforests of British Burma in the Late Nineteenth Century," in Global Deforestation and the Nineteenth-Century World Economy, ed. Richard P. Tucker and J.F. Richards (Durham, N.C.: Duke University Press, 1983), 106.

¹⁰⁰ Ibid., 104-5.

¹⁰¹ Resolution, RFA for 1896-97, 2; RFA (Pegu) for 1899-1900, 3; RFA for 1902-03, 23; Pe Kin, "From the Hills to the Delta," 41; J.S. Furnivall and W.S. Morrison, Syriam District Gazetteer (Rangoon: Government Printing, 1914), 92.

officials may have disputed the size and management of these reserves. Burmese peasants and timber traders may have subverted their purpose through illicit extraction. But there was not a consensus of opinion about deltaic deforestation. Rather, it was precisely because the issue was in dispute that forest politics in late colonial Burma came to be so closely associated with the status of the plains reserves. In the next chapter, this question is discussed in greater detail. Here is described the erratic creation of plains reserves, and the everyday resistance that frustrated their management.

The distinction between 'plains' and 'hill' reserves only became meaningful with the great land clearances of the late nineteenth and early twentieth centuries. In the 1870s and 1880s, for example, reserves were created in the Irrawaddy and Sittang valleys to protect teak and sha forests, and to provide fuel for an expanding rail and river transport network.¹⁰² At first indistinguishable from the surrounding forest, these reserves were gradually transformed into isolated patches of forest as peasants converted unreserved forests into paddy fields. Located ten miles east of Zigon, the case of the Myodwin teak plantations is illustrative. As described by Brandis in 1860, the village where these plantations were started was 'surrounded' by forest. Indeed, it was primarily for its strategic location in the Tharrawaddy forests that it was chosen as the temporary

¹⁰² Resolution, RFA for 1870-71, 2; RFA for 1874-75, 9-10; S.G. Grantham, Tharrawaddy District Gazetteer (Rangoon: Government Printing, 1920), 63. As fuel reserves near railway lines were depleted, imported coal became the main fuel, see Shein, Burma's Transport and Foreign Trade, 77.

headquarters of the Forest Department.¹⁰³ In 1915, however, a forest official reported that the Myodwin plantation was "entirely surrounded by paddy fields and temporary cultivation".¹⁰⁴

Agricultural clearance in Lower Burma raised the question of village forest needs. However, this question illustrated better than any other the differences between civil and forest officials over forest management. Whereas civil officials viewed plains forests in transitional terms - their sole objective being to facilitate agricultural development - forest officials urged stringent access restrictions in order to ensure the long-term production of timber and fuel.

Inter-departmental differences manifested themselves in various ways. Civil officials criticized the Forest Department's policy of requiring cultivators to pay for minor forest produce and grazing rights in reserves. Noting the negligible income derived from the latter, the Commissioner of Sagaing division remarked in 1898 that it was this kind of "petty economy" that made forest officials "so thoroughly unpopular with the people".¹⁰⁵ In contrast, foresters drew attention to problems such as tree damage associated with

¹⁰³ D. Brandis, "Report on the Pegu Teak Forests for 1859-60," Selections from the Records of the Government of India (Foreign Department) 31 (1861): 76-78.

¹⁰⁴ A. Rodger, "The Myodwin Teak Plantations, Zigon Division, Lower Burma," Indian Forester 41 (October 1915): 372; see also Pe Kin, "History of Forest Management in British Burma," Guardian (Rangoon) 15 (December 1968): 14; A.J. Page, Pegu District Gazetteer (Rangoon: Government Printing, 1917), 80.

¹⁰⁵ RFA for 1897-98, cxvix; see also RFA (Lower Burma) for 1890-91, lvi-lvii.

allowing cattle to freely roam in reserves.¹⁰⁶ Their response was to impose user fees or even close reserves.¹⁰⁷

Differences also emerged over the constitution and use of village fuel and fodder reserves. Entrusted with their creation in Lower Burma in 1886, civil officials failed to implement the policy. In 1895 Chief Commissioner Fryer was forced to intervene and order once more their creation.¹⁰⁸ At the same time, civil officials were quick to recommend the 'disforestation' (forest clearance designed to permit permanent agriculture) of plains or delta reserves. In the case of the Kamase and Yitkangyi reserves in 1901, the Commissioner of Pegu division recommended their disforestation even though, as Conservator Hauxwell observed, they represented virtually the last opportunity in Pegu district to maintain a local fuel supply.¹⁰⁹ In other instances, civil officials in Hanthawaddy district questioned the long-term closure of several fuel reserves, even though they acknowledged their depleted condition.¹¹⁰ Moreover, in

¹⁰⁶ RFA for 1903-04, 9; RFA (Tenasserim) for 1897-98, 10; F. Beadon Bryant (Conservator, Southern) to Revenue Secretary, 25 December 1904, BFP (January 1906), 47; Grantham, Tharrawaddy District Gazetteer, 63.

¹⁰⁷ In Tenasserim in 1897-98, out of a total reserved area of 4,137 square miles, 3,843 square miles were completely closed, and of the remainder, only 203 square miles were opened to cattle all year, see RFA (Tenasserim) for 1897-98, 10.

¹⁰⁸ Resolution, 8 October 1895, BFP (January 1896), 121-22; Resolution, 13 October 1894, BFP (October 1894), 270-73.

¹⁰⁹ T.A. Hauxwell (Conservator, Pegu) to Revenue Secretary, 12 August 1901, BFP (November 1901), 4-5; see also Tan Chein Hoe, Working Plan for Delta Forest Division, 1947-48 to 1956-57, vol. 2 (Rangoon: Government Printing, 1951), 2.

¹¹⁰ BFP (January 1910), 252-53.

the reserves that they did establish, civil officials often granted user rights that undermined their long-term management. In 1902-03, rights admitted by Settlement Officers in the Toungoo, Pegu and Thaton districts were subsequently restricted for this reason.¹¹¹ Not surprisingly, Chief Conservator C.G. Rogers concluded in 1915 that fuel reserves created after 1896 had "largely failed" to guarantee local supplies or prevent the destruction of remaining unreserved forests.¹¹²

More than these inter-departmental differences, the colonial state's inability to deal with the question of village forest needs reflected widespread popular resistance to access restrictions. As Scott notes, the power of everyday resistance derives primarily from its pervasiveness and anonymity.

Just as millions of anthozoan polyps create, willy-nilly, a coral reef, so do thousands upon thousands of individual acts of insubordination and evasion create a political or economic barrier reef of their own...It is only rarely that the perpetrators of these petty acts seek to call attention to themselves. Their safety lies in their anonymity.¹¹³

At various stages, this thesis has documented the ability of Burmese peasants, timber traders and shifting cultivators to disrupt state forest control through everyday forms of resistance. Chapter 3 noted how the regulation of shifting

¹¹¹ RFA for 1902-03, 23.

¹¹² C.G. Rogers, "Note on Proposal to Form Reserves in Unreserved Forests (Public Forest Land) for the Supply of Forest Produce to the Agricultural Population of Burma," BFP (June 1917), 363-65.

¹¹³ James C. Scott, Weapons of the Weak: Everyday Forms of Peasant Resistance (New Haven: Yale University Press, 1985), 36.

cultivation and the use of selected non-teak species was resisted through the illegal felling or burning of timber. Such resistance grew in the late nineteenth century, and as Chapter 5 illustrated, impeded efforts to fire-protect reserves and regulate the catch industry. The ability of these groups to sabotage forest policy was nowhere more evident, however, than with regard to the depletion of the plains reserves.

One indication of the intensifying conflict over these reserves is to be found in the growing number of breaches of the forest law. That information is collected in Table 6.5. Although the data summarize all forest crime, a substantial proportion of the offenses pertained to the plains reserves. In 1918, for example, 90 per cent of reported forest offenses in Tharrawaddy division concerned these areas.¹¹⁴ Peasants apprehended for the illegal possession of timber, or for having illicitly grazed their cattle in reserves, formed the bulk of detainees, and were fined under the compounding clause (sec. 62) of the 1902 Act. This clause was a flexible means to punish petty offenders on the spot without being forced to the more time-consuming and expensive recourse of the courts. However, in more serious instances of large-scale theft and fraud, cases were taken to court.

¹¹⁴ Hart, Tour of Inspection in the Forests of Burma, 8.

TABLE 6.5
BREACHES OF THE FOREST LAW 1889-1930
(Selected Years)

Year	Cases Tried	Cases Compounded	Total
1889-90	440	946	1,386
1894-95	639	2,983	3,622
1899-1900	663	1,527	2,190
1904-05	867	2,403	3,270
1909-10	878	2,429	3,307
1914-15	843	3,786	4,629
1919-20	701	4,993	5,694
1924-25	1,153	6,672	7,825
1929-30	1,687	9,014	10,701

Source: RFA (various years).

The evolution of forest crime between 1889 and 1930 is revealing on several counts. First, although the total number of cases more than doubled in the early 1890s, thereafter they declined, and until 1912 fluctuated between 2,500-3,500 offenses per year. The initial increase is accounted for by the catch crisis which, as Chapter 5 noted, peaked during this period. Conversely, the decision to ease catch restrictions led to a decline in the number of offenses in the late 1890s. Although the catch crime wave of the early 1890s is only partly related to the issue of the plains reserves, it is nevertheless interesting because it foreshadowed developments after 1912 when the plains reserves became the focus of popular resistance. At first glance, the period 1896-1912 represented a relative lull in forest crime. However, this pause in the upward climb of reported offenses reflected not so much the quiescence of peasants and shifting cultivators as the way in which legal violations were treated. It was during this period that the power to compound

offenses was removed from subordinates below the rank of Deputy Ranger as part of an anti-corruption drive. In the process, the government effectively reduced the number of offenses that were reported. Forest crime was not in abeyance during this period, it was simply less likely to be reported.

Secondly, the period after 1912 reveals a steady increase in the number of reported offenses, with the 1929-30 figure more than treble that of 1909-10. As discussed below, this increase reflected broad social and ecological changes arising from the closing of the agricultural frontier in Lower Burma around the time of the First World War.

Finally, Table 6.5 is revealing because it shows an interesting trend in the way that the Forest Department handled offenses. Notwithstanding the restrictions placed on its use by the subordinate service, the compounding clause became the predominant means by which foresters attempted to deter crime. Whereas in 1889-90 compounding cases made up 68 per cent of the total, in 1929-30 that figure had risen to 84 per cent. In part, this shift to on the spot punishment reflected the increasing incidence of petty offenses as peasants became desperate and took greater risks to obtain produce.

But the increased use of the compounding clause also reflected the vicissitudes of the judicial system. Forest officials frequently complained of delays, as well as the propensity of magistrates to dismiss cases, or only nominally punish offenders.¹¹⁵ However, the high acquittal rate also

¹¹⁵ RFA (Pegu) for 1894-95, 5; RFA for 1901-02, 5; RFA for 1904-05, 6; RFA for 1906-07, 15; RFA for 1911-12, 17. Civil officials often viewed the situation differently. In 1898-99, for example, Deputy Commissioner D. Ross opined that

reflected inadequate case preparation by foresters.¹¹⁶ The result, as Table 6.6 illustrates for the Pegu Circle between 1899 and 1902, was a system in which conviction was uncertain, and the deterrent effect of the law accordingly weakened.

TABLE 6.6
RESULTS OF CASES BROUGHT TO TRIAL IN PEGU CIRCLE,
1899-1900 to 1901-02

Division	1899-1900			1900-1901			1901-1902		
	C	A	%	C	A	%	C	A	%
Thayetmyo	74	-	-	46	6	12	28	3	10
Prome	55	19	26	20	20	50	10	7	41
Tharrawaddy	34	4	11	7	2	22	28	10	26
Rangoon	11	9	45	24	1	4	24	6	20
Pegu	23	4	15	5	1	17	10	3	23
Bassein	22	4	15	50	47	48	53	16	23
Henzada	24	5	17	17	3	15	8	3	27
Agency	9	-	-	38	3	7	10	2	17
Total	252	45	15	207	83	29	171	50	23

Source: RFA (various years).

Note: C = Convictions; A = Acquittals; % = % of failure.

The rate of conviction showed considerable annual and regional variation. In aggregate, the conviction rate fell from 85 per cent in 1899-1900, to 71 per cent the following year, before rising to 77 per cent in 1901-02. Such variability was even more pronounced at the divisional level. Thus, in Bassein division the conviction rate dropped from 85 per cent in 1899-1900, to only 52 per cent the year after, before climbing to 77 per cent in 1901-02. Finally, the

"it is well for the people that there is an unbiassed Magistrate between them and the Forest Officer," see RFA for 1898-99, xcv.

¹¹⁶ RFA for 1900-1901, 4; RFA for 1901-02, 5;

variation was often quite large between divisions. In 1899-1900, the conviction rate was 100 per cent in the Thayetmyo and Agency (or depot) divisions, but only 55 per cent in the Rangoon division. Faced with such volatility, it is not surprising that foresters preferred to commute offenses to a simple fine.

Even if the conviction rate in court had been higher, it is doubtful whether the law could have prevented the depletion of the plains reserves. The difficulties associated with law enforcement in populated areas were enormous. Forest officials noted that reported offenses were only a fraction of the real number of infractions; the number of undetected cases ran "into the thousands" because foresters did not record a case unless the identity of the offender was at least suspected.¹¹⁷ Produce was typically stolen from reserves under cover of darkness, and offenders were habitually "screened by the surrounding villagers".¹¹⁸ In cases where subordinates shielded villagers, illegal activity was more blatant. In one Pegu reserve in 1907-08, a surprise visit by a civil official led to the discovery of twenty-six cattle camps with six hundred cattle as well as illegal fisheries, all tolerated by the local Ranger.¹¹⁹ In the delta, villagers used boats to penetrate reserves taking advantage of the

¹¹⁷ RFA for 1908-09, 5; RFA for 1916-17, 6.

¹¹⁸ RFA for 1906-07, 5. Timber theft was most prevalent during the dry season (November to June) when carting was easiest, see R.S. Troup, Working Plan for Satpok, Sitkwin and Thindawyo Working Circles (Rangoon: Government Printing, 1905), 39; H.C. Smith, Working Plan for South Toungoo Forest Division, 1923-24 to 1932-33 (Maymyo: Government Printing, 1923), 17.

¹¹⁹ RFA for 1907-08, 8-9; RFA (Pegu) for 1897-98, 7.

numerous streams to escape detection; foresters even discovered a "fair-sized" village of fuel cutters inside one reserve.¹²⁰ Timber traders were believed to be the principal offenders, as they exceeded the terms of their trade permits or paid villagers for local free timber.¹²¹

The financial loss incurred by the government in terms of foregone revenue was considerable. In 1910-11, the illicit removal of bamboo from the Prome and Thayetmyo divisions alone deprived the treasury of 10,000 rupees; in 1919-20 it was estimated that 250,000 tons of kanazo (used for firewood) valued at 250,000 rupees was illegally extracted from the delta reserves.¹²² Indeed, theft from the latter was so rife that at least 75 per cent of timber, and 50 per cent of fuel, was harvested in this manner.¹²³ As with the catch industry, forest officials were as incapable of controlling, as they were of taxing, this forest trade.

The growing scarcity of forest produce that became noticeable around the time of the First World War intensified the struggle over the plains reserves. However, the willingness of a growing number of peasants to routinely flaunt the forest law must also be situated in the broader context of increasing agricultural landlessness and

¹²⁰ RFA for 1918-19, 22. In all, there were nine delta reserves covering 1,061 square miles, see Pe Kin, "From the Hills to the Delta," 40.

¹²¹ H. Carter (Conservator, Southern) to Revenue Secretary, 16 August 1905, BFP (December 1906), 344-45; RFA for 1911-12, 17; RFA for 1914-15, 19.

¹²² RFA for 1910-11, 6; RFA for 1919-20, 23.

¹²³ RFA for 1918-19, 22; A.W. Moodie, Working Plan for Delta Forest Division, 1924-25 to 1933-34, vol. 1 (Maymyq: Government Printing, 1924), 33.

deprivation in Lower Burma. In contrast to the situation that prevailed in the nineteenth century, by the early twentieth century unoccupied land was becoming scarce. As Adas observes, the closing of the agricultural frontier had important political and economic implications:

The Delta rice frontier closed gradually and unevenly. No government proclamations marked its end; in fact few government officials noted its demise and only a handful understood its importance. As the frontier closed, however, the potential and protection that it had provided for the cultivating classes also came to an end. With the open land buffer gone, problems inherent in the nature of economic development in Lower Burma grew more intense and an era of apparent prosperity and content gave way to decades of conflict and unrest.¹²⁴

Thus, between 1906-07 and the onset of the Great Depression in 1930, the area let to tenants climbed from 30 per cent to nearly 46 per cent of the total occupied land in the Delta.¹²⁵ As a growing proportion of cultivators became tenants or were otherwise marginalized, restrictions on forest access had a more devastating effect. Moreover, the failure of the Forest Department to develop fuel and timber plantations (as in the teak sector),¹²⁶ meant that its sole contribution to the issue of peasant forest needs was a coercive one. Access to reserves was limited, if not cut-off entirely, to permit natural regeneration in overworked areas.¹²⁷ Those who transgressed the rules were punished. As a result, foresters were in the paradoxical position of "protecting the reserves

¹²⁴ Adas, The Burma Delta, 128-29.

¹²⁵ Ibid., 150.

¹²⁶ For an exception, see J.M.D. Mackenzie, "Fuel and Bamboo Plantations in the Sittang Delta of the Pegu District, Lower Burma," Indian Forester 43 (January 1917): 2-9.

¹²⁷ C.W. Scott, Working Plan for Insein Forest Division, 1927-28 to 1936-37 (Rangoon: Government Printing, 1928), 14.

against the very people in whose interests they are being protected".¹²⁸

The most serious consequence of this policy was that it enhanced the opportunities for corruption among subordinates. Such corruption was fairly common, and helps explain why the Forest Department was so unpopular.¹²⁹ The low pay, difficult work conditions and limited prospects that encouraged indolence and corruption among Burmese in the nineteenth century had scarcely changed in the early twentieth century. Thus, a Forest Guard in 1905 still earned less in many districts than an ordinary coolie.¹³⁰ Burmese foresters expressed their dissatisfaction by moving to more remunerative, and less hazardous employment in other departments or in the private sector. What colonial officials termed 'wastage' was high among subordinates. In 1919-20, of a permanent staff of 2,637, 732 men left the service: 17 retired, 57 died, 375 resigned and 283 were dismissed.¹³¹

But, as the latter figure indicates, many subordinates were fired. In certain cases, these officials were guilty of defrauding the government of revenue or failing in their duties. Frequently, however, they were dismissed for having extorted money from the public. In this regard, the power to

¹²⁸ RFA for 1918-19, 22;

¹²⁹ Report of the Bribery and Corruption Enquiry Committee 1940 (Rangoon: Government Printing, 1941), 28-29.

¹³⁰ RFA for 1904-05, 18.

¹³¹ Review of the Chief Conservator, RFA for 1919-20, 11. In other years, the turnover was in the order of 300-350 men, see F.A. Leete (Chief Conservator) to Revenue Secretary, 1 March 1920, BFP (December 1920), 1-2; Review of the Chief Conservator, RFA for 1920-21, 13; RFA for 1922-23, 3.

compound offenses was an especially potent weapon. As one civil official observed in 1896:

what is complained of so much is the enormous power which is placed in the hands of subordinates of levying blackmail. It is a case of either subsidiarizing the forest gaungs [ie. guards] or being run in.¹³²

It was to stop the compounding clause from becoming "an engine of oppression" that reforms were introduced at the turn of the century restricting this power to the rank of Deputy Ranger or higher.¹³³ Indeed, subordinates below that rank were forbidden to receive any money on the government's behalf.¹³⁴ Nevertheless, corruption continued to be rife in the subordinate service. As Burma's Conservators observed in 1905, "the venality of these underpaid subordinates is proverbial," and was a "veritable blot on Forest Administration in Burma".¹³⁵

It was partly to seek ways in which to diffuse the growing confrontation between peasants and foresters over village needs that senior officials met in a series of meetings between 1917 and 1919. After much debate, Lieutenant-Governor Reginald Craddock proposed a scheme in which village reserves would be created under the Forest Department's control. Produce from these reserves would not

¹³² G.M.S. Carter (Deputy Commissioner, Thayetmyo) cited in RFA for 1895-96, lxviii.

¹³³ D. Ibbetson (Secretary, Government of India, Department of Revenue and Agriculture) to Revenue Secretary, 29 June 1897, RFA for 1895-96, 2; Burma Forest Act (1902), sec. 62 (1), and Forest Department Circular No. 19 of 1919, in Government of Burma, Burma Forest Manual, 28, 228-30.

¹³⁴ Burma Forest Department, Manual of Standing Orders for Forest Subordinates (Rangoon: Government Printing, 1919).

¹³⁵ Conservators to Revenue Secretary, 12 February 1905, BFP (October 1906), 13-14.

be free, but foresters would devote greater attention than before to their management.¹³⁶ Indeed, Craddock claimed that it was "just as much the duty of the Forest Department to conserve forests" for the agricultural population as it was "to conserve them for commercial purposes or for climatic reasons".¹³⁷ In a sense, the Lieutenant Governor was simply reiterating the Government of India's 1894 statement on forest policy which had emphasized the agricultural population's needs. In another sense, Craddock's scheme fit well with the quest to rationalize forest use.

That quest was soon overshadowed by political developments which culminated in the introduction of dyarchy in 1923. However, the issue of the plains reserves did not go away. Indeed, as the next chapter shows, the issue was integral to forest politics in the late colonial era.

The preceding two chapters have described the Forest Department's efforts to rationalize forest use between 1881 and 1923. This forty-two year period comprised an era of expansion (1881-1902) in which state forest control was asserted over a widening territory and range of activities, and an era of consolidation (1902-23) during which the gains of the late nineteenth century were consolidated. This process affected forest politics in different ways. A key development was the change in the relationship between the Forest Department and the European firms from one rooted predominantly in conflict to one based on mutual understanding and advantage. The concentration of teak

¹³⁶ Reginald Craddock, "Minute on Forest Produce in Burma," BFP (November 1919), 246-50.

¹³⁷ Ibid., 246.

extraction in the hands of the European firms may have freed foresters to attend to other matters. Yet, social and ecological changes were undermining the ability of those officials to manage the forests in populated areas. Colonial officials had a taste of what was to come during the catch crisis of the 1890s, but it was the depletion of the plains reserves in the early twentieth century that illustrated more than any other event the power of everyday resistance. For, if the actions of peasants, timber traders and shifting cultivators demonstrated one thing during this period, it was that there were definite limits to the ability of the Forest Department to rationalize forest use. After 1923, and in a more politicized context, those limits became even more apparent.

CHAPTER 7

THE POLITICS OF RATIONALIZED FOREST USE 1923-42

The introduction of dyarchy on 1 January 1923 marked a new phase in colonial forest management in Burma. A 'transferred' subject, forests became the responsibility of a Burmese Minister who was answerable to a partially elected Legislative Council. On 1 April 1937, the dyarchy reforms were extended when a system of parliamentary government was established in which Burmese politicians were given additional powers. There were of course limits to these powers. The Minister could be overruled by the British Governor. The allocation of timber leases and senior appointments remained under British control. Yet, the constitutional changes, and particularly those of 1937, were significant.

However much they might have wished it, British foresters could not remain aloof from such change. As a transferred subject which directly or indirectly affected the lives of most Burmese, it was only to be expected that forest policy would come under detailed scrutiny and criticism after 1923. Challenged in the Legislative Council by nationalists, that policy was sharply attacked outside of the formal political process too by peasants, monks and nationalists who boycotted the dyarchy system.

Contrary to those accounts that emphasize continuity with the past,¹ this chapter suggests that the system of

¹ F.T. Morehead, The Forests of Burma (London: Longmans, Green and Co., 1944); H.R. Blanford, "Highlights of One Hundred Years of Forestry in Burma," Burmese Forester 6 (June 1956): 12-23.

rationalized forest use that was introduced between 1856 and 1923 was gradually undermined by the politics of the interwar period. Prior to 1923, the British asserted control over Burma's forests in keeping with imperial interests, and without having to face the local political implications of their actions. If the assertion of state forest control in the nineteenth and early twentieth centuries was sporadically marked by conflict between forest and civil officials, by the early 1920s a system of rationalized forest use was in place that made such conflict largely a thing of the past. As a result, the politics of forest management in the interwar period was largely given over to incorporating the Burmese into this system under the constitutional reforms of 1923 and 1937. In the process, the British were forced to confront as never before the local political implications of colonial forest policy.

This chapter, then, examines how political change during the 1920s and 1930s affected forest management. Specifically, it focuses on two issues: popular access to the plains reserves, and the Burmanization of the forest sector. The previous chapter described how the closing of the agricultural frontier in Lower Burma reinforced popular resistance to access restrictions. During the interwar period, such resistance became increasingly politicized as nationalists seized upon the access issue in their campaign against the British. In contrast, the Burmanization issue mainly concerned the Burmese middle-class. It was this class which would benefit most from the employment opportunities in government and business that would occur with reform in this area.

Forests as a Transferred Subject

If the politicization of forest management began with the introduction of dyarchy in 1923, the origins of that process may be traced back to the years 1919-22. Acting upon the advice of the Viceroy of India, Lord Chelmsford, and the Secretary of State for India, Edwin Montagu, the British Parliament passed the Government of India Act in 1919 as part of a plan to establish the dyarchy system of tutelary democracy on the Indian sub-continent. The omission of Burma (thought to be politically less advanced than India) from the 1919 reforms was the occasion for the 'first sustained campaign' of the Burmese nationalist movement against the British.² Surprised by this political agitation, the British Parliament voted in 1921 to extend dyarchy to Burma. A Burma Reforms Committee (the Whyte Committee) was then appointed to sort out the details.³

It did not necessarily follow from this decision to extend dyarchy to Burma that forests would be treated as a transferred subject. Following the passage of the Government of India Act in 1919, only in Bombay were forests transferred, and even then, only over the strong objections

² Robert H. Taylor, The State in Burma (London: C. Hurst, 1987), 119-23; Albert D. Moscotti, British Policy and the Nationalist Movement in Burma 1917-1937, Asian Studies at Hawaii No. 11 (Honolulu: University Press of Hawaii, 1974), 24-30, 71-76; Reginald Craddock, The Dilemma in India (London: Constable and Co., 1929), 116.

³ Burma Reforms Committee, Report and Appendices (henceforth BRCR), and Record of Evidence (henceforth BRCE), 3 vols. (Rangoon: Government Printing, 1922).

of the Inspector General.⁴ It would have been surprising if in the case of Burma's much more valuable forests similar objections had not been raised. In practice, of course, the status of Burma's forests was the subject of much dispute. As the Whyte Committee noted:

The question of the transfer or reservation of forests was one of the crucial points of our inquiry. On it there was a more definite cleavage of opinion among our witnesses than on any other subject.⁵

The European community was generally opposed to the transfer of forests. In its submission, the Government of Burma expressed a common European concern when it suggested that Burma's forests were too valuable to be left to the vagaries of inexperienced Burmese management.⁶ Teak extraction by the European firms might be disrupted by Burmese ministers intent on promoting indigenous enterprise. Moreover, forest conservancy could be jeopardized:

It would not be wise to place responsibility for it in the hands of a Minister who will be responsible to, and naturally largely influenced by the wishes of, an electorate which is as yet completely untrained, and incapable of appreciating the importance of a policy of scientific and far-sighted development.⁷

Chief Conservator Leete expressed similar sentiments in a brief to the Whyte Committee. The government had always been "prodigal in its liberality" in granting popular access to

⁴ F. Lewisohn, "Note of the Local Government's views on the subject of the Franchise and of Transferred Subjects, etc." BRCE, app. IV, 41.

⁵ BRCE, 17.

⁶ Lewisohn, "Local Government's views," 41; J.A. Swan (Steel Brothers), BRCE 1: 126; H.A. Thornton (Commissioner, Mandalay), and D.F. Chalmers (Deputy Commissioner, Thaton), BRCE 2: 144-45, 207.

⁷ Lewisohn, "Local Government's views," 41.

reserves.⁸ Yet, forest management remained an unpopular undertaking in Burma reflecting, he believed, the country's lack of a 'healthy public opinion' on forest matters. As a result, it was premature to consider the transfer of forests to indigenous control.

The Burmese who testified before the Whyte Committee contested this claim, and drew attention to the pitfalls of the present system. Yet, these witnesses were hardly radical nationalists. Many of the latter had boycotted the Committee hearings at the insistence of the General Council of Burmese Associations (GCBA).⁹ Rather, the Burmese witnesses were mainly pro-British officials and lawyers.

Nevertheless, their complaints about forest administration foreshadowed many of those made subsequently by radical politicians. They noted, for example, that Burmese were being eliminated from the teak trade in favour of the European firms; but they were also restricted to small leases in the extraction of other hardwoods.¹⁰ Concurrently, the emphasis on commercial timber extraction detracted from local subsistence needs. The Pyinmana lawyer Maung Kan Baw observed that since reserves (kyo-waing) had been created, the forests were "given by compartments...a man who obtains a lease...won't allow the villagers to come and take

⁸ BRCE 3: 81, 93.

⁹ Maung Maung, Burma's Constitution, 2nd ed. (The Hague: Martinus Nijhoff, 1961), 17; Moscotti, British Policy, 32, 78. The GCBA was a prominent nationalist organization of the 1920s.

¹⁰ Maung Kan Baw (Advocate, Pyinmana), BRCE 2: 57, 62; Saw Pah Dwai (Karen National Association, Thaton), *Ibid.*, 240, 242-43.

firewood".¹¹ Village access was, in the words of another witness, being "gradually circumscribed" to the "great economic loss" of the peasantry.¹² Out of sheer necessity, villagers ended up stealing from the reserves.¹³ In the view of these witnesses, the system lacked legitimacy and was ineffective precisely because it was undemocratic.

Under an elected Burmese Minister, the Forest Department would be sensitive to indigenous needs. As the Tharrawaddy barrister Maung Kyaw asserted, he would rule "more in accordance with the wishes of the people".¹⁴ If such a change led to a relaxation of access restrictions, various witnesses believed that villagers would not abuse their new liberty. Villagers were against excessive restrictions and taxation, and not conservation.¹⁵ Moreover, the message of conservation would have a better chance of success if it came from a Burmese Minister who would "bring home to his countrymen the importance of the subject".¹⁶ The transfer of forests would not only reduce conflict over reserves; it would also facilitate their ultimate conservation.

To the general dismay of Burma's European community, the Whyte Committee agreed with this argument. By allowing the

¹¹ Ibid., 61.

¹² Taw Sein Ko (Bahuthuta Association, Mandalay), Ibid., 68.

¹³ Maung Po Hla (Deputy Commissioner, Pyapon), BRCE 3: 24.

¹⁴ BRCE 1: 274.

¹⁵ Ibid., 278; Maung Shwe Tha (Deputy Commissioner, Sagaing), BRCE 2: 132; Maung Po Yun (Advocate, Kyaukse), Ibid., 181.

¹⁶ Maung Shwe Tha (Deputy Commissioner, Sagaing), BRCE 2: 127.

Burmese to manage one of the larger revenue-earning departments, the government would promote the legitimacy of its reforms at the same time as it facilitated the emergence of a trained indigenous administrative elite. Moreover, the Committee believed that conservation measures would be more credible under an elected Burmese Minister.

Measures of development and of conservation, particularly those in the interests of the villagers, to which he gave his support, would be much more likely to gain general acceptance than if proposed by the Executive.¹⁷

The Whyte Committee assumed that the appointment of such an individual would undercut popular opposition to forest management. It also took for granted that the interests of an elected Burmese Minister and villagers would coincide.

The introduction of dyarchy in 1923 granted Burma greater administrative autonomy within the British-Indian empire. In keeping with the recommendations of the Whyte Committee, forests was accorded transferred status.¹⁸ Formal control of the Forest Department now passed to the Minister of Agriculture, Excise and Forests who was appointed by the British Governor from among the elected members of the Legislative Council.

Inevitably, ministerial appointments were subject to the vicissitudes of electoral politics. Wherever possible, the Governor favoured pro-British politicians over the more

¹⁷ BRCR, 18.

¹⁸ In London, some Conservative Members of Parliament opposed the transfer of forests, but in closing the debate on the Burma Reform Bill on 12 June 1922, Lord Winterton suggested that in making such a transfer Britain was meeting "the acid test of her sincerity" toward reform in Burma. The Bill was approved without difficulty, see John F. Cady, A History of Modern Burma (Ithaca: Cornell University Press, 1958), 239-40; Moscotti, British Policy, 80.

popular, but also more radical nationalists. In this respect, the group comprising the Progressive ('Golden Valley') Party and the Independent Party, was especially important.¹⁹ A significant force in the Legislative Council between 1923 and 1932, this group represented conservative Burman interests, as well as those of the country's powerful minorities. In January 1923, one of its leading members, Joseph A. Maung Gyi, was chosen by Governor Harcourt Butler as the first Forests Minister. Born in 1871, this London-trained barrister was one of the most prominent (and controversial) politicians of the interwar period.²⁰ Maung Gyi served in various ministerial and administrative posts, but is best known for having been the only Burman to serve as (acting) Governor under British rule (1930-31). In December 1925, another member of the conservative group, Lee Ah Yain, assumed the Forests portfolio. A representative of Burma's small but influential Chinese population, Lee Ah Yain served as Forests Minister until his death in 1932. The post then briefly reverted to J.A. Maung Gyi.

If members of the pro-British group were favoured, opponents of the government also received ministerial appointments. In 1924-25, the Forests Minister was Yamethin U Pu, a member of the Twenty-One Party (named after the twenty-one GCBA members who left that association in 1922 to

¹⁹ Frank N. Trager, Burma: From Kingdom to Independence, a Historical and Political Analysis (London: Pall Mall Press, 1966), 51.

²⁰ J.A. Maung Gyi gained notoriety for his close cooperation with the British, see Maung Maung, Burma and General Ne Win (London: Asia Publishing House, 1969), 16; Nyo Mya, "Profile: Sir Joseph Augustus Maung Gyi," Guardian (Rangoon) 2, 6 (April 1955): 10-11.

participate in the first dyarchy elections). In December 1932, U Kyaw Din, a supporter of the anti-dyarchist leader, Dr. Ba Maw, was appointed to the post. Finally, on 9 April 1934, the veteran nationalist, and head of the Twenty-One Party (also known as the People's Party and the United GCBA), U Ba Pe, became Forests Minister after a no-confidence motion in the Legislative Council led to the resignation of Kyaw Din and J.A. Maung Gyi.²¹ Ba Pe's career as editor, businessman and politician enabled him to become one of the leading spokesmen of Burmese middle-class interests in the 1920s and 1930s.

Formal control of the Forest Department thus rested with the elected member of the Legislative Council chosen as Minister by the Governor. The latter was required to act on the advice of his Minister unless there was "sufficient reason to dissent".²² In turn, the Minister was advised on Department matters by a Forest Secretary who also coordinated policy with the Chief Conservator. Beginning with H.O. Reynolds in 1923, this position was filled by a senior British official, but starting in the 1930s, Burmese officials such as U Kyaw Min and U Tin Tut were chosen for the post.

If dyarchy enabled selected Burmese politicians to attain senior government posts, in practice they possessed little real power. Thus, the superior service continued to be filled

²¹ Kyaw Din had fallen foul of Ba Maw and other politicians in 1933-34 when he supported the British on the proposed separation of Burma from India, see Cady, History of Modern Burma, 361-62.

²² F.S.V. Donnison, Public Administration in Burma: A Study of Development during the British Connexion (London: Royal Institute of International Affairs, 1953), 54-55.

by India Forest Service (IFS) recruits appointed by the Secretary of State; the Governor retained control over their pay and promotion.²³ Appointments to the subordinate staff were made by British forest officials.

As such, there was little that the Minister could do to promote Burmese advancement within the Department. If steps were taken during the 1920s to recruit Burmese to the superior service, this process began before the introduction of dyarchy.²⁴ Moreover, Burmese advancement remained slow. In 1923, there were no Burmese in the IFS; five years later there were three.²⁵ Subsequently, the IFS was renamed the Burma Forest Service (BFS) Class I, but traditional hiring practices persisted. Between 1925 and 1939, 18 Burmese were recruited to the Class I service; during the same period, 27 Europeans were appointed.²⁶ At the time of the Japanese invasion in 1942, of 70 Class I officials 53 (76 per cent) were European.²⁷ A British official may have been correct in noting that the Forest Department was 'fairly Burmese in

²³ Great Britain, Indian Statutory Commission, Memorandum submitted by the Government of Burma to the Indian Statutory Commission, vol. 11 (London: H.M.S.O., 1930), 31.

²⁴ Ibid., 58.

²⁵ Or, more accurately, three of Burmese and "allied races," Ibid., 62.

²⁶ Report of the Forest Reconstruction Committee (1944), app. VI, 24-27, Burma Office File (BOF), M/3/1531.

²⁷ H.C. Smith, "Reconstruction in Burma, the Forest Department: Preliminary Review of Past Administration" (1942), 10, BOF M/3/1531. In contrast, out of 145 Indian Civil Service employees, 81 (56 per cent) were British, see Trager, Burma: From Kingdom to Independence, 369.

character,' but, as in the past, the Burmese filled the lower ranks, and the senior posts went to Europeans.²⁸

The Burmese Minister also had no say over forest management in the Shan States and other excluded areas. Indeed, the creation of the Federated Shan States was partly designed to shelter the Sawbwas from "the effects of a more democratic government and of Burmese nationalism".²⁹ In 1920, Lieutenant-Governor Reginald Craddock informed Sawbwas that the Shan forests, and all revenue derived from them, would be managed by the new Federation.³⁰ In practice, British foresters drawn from the Burma cadre continued to control these forests. Under the direction of the Commissioner, the Federation's forest service was assisted by the Chief Conservator and other officers on an unofficial basis.³¹ If the Shan States were the most important excluded territories, they were not the only ones. Control over much of the Chin Hills, for example, was transferred from the Forest Department to Political Officers in 1927.³² In this manner,

²⁸ Donnison, Public Administration in Burma, 66.

²⁹ Taylor, State in Burma, 96-97.

³⁰ Reginald Craddock, Speeches by Sir Reginald Craddock, Lieutenant-Governor of Burma, 1917-1922 (Rangoon: Government Printing, 1924), 233-34.

³¹ H.W.A. Watson, A Note on Forest Administration and Policy in the Federated Shan States (Rangoon: Government Printing, 1929), 1-3; D.T. Griffiths, Working Plan for Southern Shan States Forest Division, 1940-41 to 1949-50, vol. 1 (Rangoon: Government Printing, 1949), 3. The link between the Shan State and Burma forest services was also reflected in salaries. The pay of men in the former was based on that of the latter, but with a 40 per cent 'Compensatory Local Allowance' in addition. See Commissioner (Federated Shan States) to H. Butler (Governor of Burma), 5 May 1927, Clague Papers, MSS Eur. E. 252/3.

³² Progress Report of Forest Administration in Burma (henceforth RFA) for 1927-28, 3.

dyarchy occurred in conjunction with the administrative disengagement of politically sensitive areas from Burmese ministerial control.

Given the limitations on ministerial authority, it is not surprising that many nationalists denounced dyarchy. Tharrawaddy U Pu expressed a popular sentiment when he suggested in February 1930 that the system was "not good at all for this country...the Ministers are merely puppets in the hands of their glorified Secretaries...".³³ The Government of Burma's submission to the Indian Statutory Commission (Simon Commission) indirectly supported these claims.³⁴ Summarizing the experience of the Forest Department since 1923, it noted that

the relations between the legislature and executive in regard to forest administration have thus been more in the direction of education of the legislature than of effective interference by it.³⁵

It was partly because dyarchy left unchanged the basic operation of transferred departments that the Government of Burma supported additional reforms. For this very reason, however, dyarchy elicited little support among the Burmese. As Governor Butler conceded in 1926, dyarchy was "almost a term of abuse" in Burma.³⁶

³³ Burma Legislative Council Proceedings (henceforth BLCP), 28 February 1930, 541. As noted, this did not stop some nationalists from accepting ministerial posts.

³⁴ Sir John Simon was appointed by the British government in 1927 to review the operation of dyarchy and to make recommendations on further constitutional reform.

³⁵ Great Britain, Memorandum by the Government of Burma, 64.

³⁶ Cited in Maung Maung, Burma's Constitution, 20.

If the effect of the introduction of dyarchy was not as pronounced as some nationalists had hoped, or as great as many British officials had feared, it would nonetheless be inappropriate to dismiss the 1923 reforms. The advent of a partially elected Legislative Council, and formal Burmese ministerial control, affected forest administration even before the late 1930s.³⁷

Moreover, after 1937 that effect was even more pronounced. Under the Government of Burma Act (1935) which came into effect on 1 April 1937, Burma was constitutionally separated from India. Concurrently, the introduction of a Westminster-style system of parliamentary government provided those politicians who were willing to cooperate with the British with an opportunity to acquire real political power.³⁸ But to appreciate the effect on forest management of these constitutional changes, this chapter now addresses two central issues of the interwar period: popular access to the plains reserves, and the Burmanization of the forest sector.

³⁷ An incident related by the Burmese forester, U Pe Kin, although in itself of a trivial nature, gives some idea of the often subtle, but nevertheless important changes that dyarchy imposed on British behaviour. In the late 1920s, R. Unwin (a future Chief Conservator) lectured at Rangoon University. On one occasion, he used derogatory language in referring to students in the class, an event which was reported to Forests Minister Lee Ah Yain. The latter took the matter up with the University authorities, and Unwin apparently had to apologize to the students. See Pe Kin, "Life in the Forest Service," Guardian (Rangoon) 15 (March 1968): 17. Such an occurrence would have been inconceivable in the pre-dyarchy period.

³⁸ Robert H. Taylor, "Politics in Late Colonial Burma: The Case of U Saw," Modern Asian Studies 10 (April 1976): 161.

Popular Access to the Plains Reserves

The struggle over the plains reserves did not suddenly emerge in the 1920s. Conflict grew during the early twentieth century, and as Chapter 6 noted, was exacerbated by the closing of the agricultural frontier around the time of the First World War. Dwindling unreserved forests and growing landlessness combined in such a manner as to guarantee that freedom of access to residual stands would be a rallying cry for nationalists in the 1920s and 1930s. In certain instances, peasants sought freer access to plains reserves in order to obtain needed timber and non-timber forest products or to graze cattle. In other cases, they demanded individual title to land which, although forested, was suitable for permanent agriculture. However contradictory these objectives may at times have been, they formed the basis of a political campaign to open the plains reserves that was a direct challenge to the system of rationalized forest use imposed by the British.³⁹

As the anti-colonial struggle intensified, the status of the plains reserves took on a new meaning. Before they had been widely resented and actively subverted. Now, these reserves became a symbol of imperial domination. Through wunthanu athin - village nationalist organizations established throughout Burma in the early 1920s - peasants

³⁹ As a British forester protested in 1925: "Some balance must be struck between the individual demand for land and the communal need for cheap fuel, bamboo and houseposts," see A.H.M. Barrington, Working Plan for North Toungoo Forest Division, 1920-21 to 1928-29 (Rangoon: Government Printing, 1925), 19-20. However, the Forest Department's neglect of village forest needs only reinforced the tendency of the Burmese to assert individual over communal claims, see below.

stepped up their resistance to the colonial state. Combining everyday resistance with overt collective action, these organizations derived their strength from peasant grievances as well as general anti-British sentiments.⁴⁰ That they were affiliated with national groups such as the GCBA and the General Council of Sangha Sammeggi (an organization founded by monks in 1920) was important in at least two respects. First, peasant grievances were now expressed nationally, and as a result, could no longer be dismissed by the colonial state as being of purely local, and hence, minor significance. Secondly, the GCBA served as a link between the increasingly politicized peasantry and the urban political elite. If, as is noted below, these two groups had differing interests and objectives, through the medium of the GCBA they nevertheless found common ground in the 1920s. At GCBA meetings, peasant demands were incorporated in conference resolutions. The 1925 conference, for example, resolved that "the poor should be allowed to use thit-pok (thitkado), firewood and bamboo free"; four years later, the Forest Department was urged to recognize "the just rights of the poor people concerning the forest products".⁴¹

⁴⁰ Taylor, State in Burma, 192-93. Opposition to colonial rule was also expressed through localized rebellions, see Michael Adas, "Bandits, Monks, and Pretender Kings: Patterns of Peasant Resistance and Protest in Colonial Burma, 1826-1941," in Power and Protest in the Countryside: Studies of Rural Unrest in Asia, Europe, and Latin America, ed. Robert P. Weller and Scott E. Guggenheim (Durham, N.C.: Duke University Press, 1982), 93-94.

⁴¹ Maung Maung, "Nationalist Movements in Burma, 1920-1940: Changing Patterns of Leadership, from Sangha to Laity" (M.A. Thesis, Australian National University, 1976), 593, 601.

Peasant grievances were also publicized in the Legislative Council. In March 1923, for example, U Ba Pe noted the "general complaint all over the country" was that the forest rules prevented the poor from "enjoying the fruits of the country".⁴² In 1930, U San Lu drew attention to the plight of villagers in Thayetmyo district whose livelihoods were jeopardised by the proposed extension of a reserve.⁴³ The opposition also proposed legislative amendments designed to relax access restrictions. In September 1926, to take one example, San Lu recommended that the Burma Forest Act (1902) be amended so as to extend the radius of free domestic consumption from ten to twenty miles; but the resolution was lost on division by 43 votes to 26.⁴⁴ These initiatives did not result in reform. They were nevertheless politically significant in so far as they were a means by which nationalists could confront the government with the social implications of its forest policy.

Those implications were scarcely addressed by the Burma Forest Committee that was appointed in 1924 to consider the organization of the Forest Department and timber extraction. Composed mainly of pro-British officials, politicians and businessmen, the Committee was supportive of existing

⁴² BLCP, 21 March 1923, 292.

⁴³ BLCP, 20 February 1930, 220-22. Villagers in this district extracted fuelwood for local mills as well as for the Irrawaddy Flotilla Company. In 1920-21, 10,740 tons were extracted; in 1927-28 that figure was 53,770 tons, see P. Burnside and C.H. Thompson, Working Plan for Thayetmyo Forest Division, 1931-32 to 1940-41, vol. 1 (Rangoon: Government Printing, 1933), 17.

⁴⁴ BLCP, 1 September 1926, 86-90.

policy.⁴⁵ Thus, the commercialization of forest produce in populated areas was "an inevitable result of progress and prosperity," and it found that there was "little that requires remedy" in the Department's relations with the people.⁴⁶ However, three nationalists who sat on the Committee - U Ba Pe, U E Maung and U Thin Maung - disagreed with that conclusion. In a Note of Dissent, they suggested that the Forest Department oppressed villagers by making them pay for produce that was previously free; the official allowances for domestic consumption were inadequate, and thus inequitable, as the poor were forced onto the market. With forests now a transferred subject, it was time to administer them "more in the interests of the sons of the soil".⁴⁷

The failure of the 'moderate' nationalists to modify the forest rules was followed by a more radical response by peasants in the late 1920s. Illegal extraction from the plains reserves increased, boosting dramatically the total number of forest offenses. In 1922-23, there were 6,310 cases; six years later that figure was 10,922. Offenses were also becoming more serious. Teak-related incidents increased as villagers and traders challenged the very essence of colonial (and pre-colonial) policy. There was, in the words of the Chief Conservator, a "lessening respect for teak as a

⁴⁵ Report of the Burma Forest Committee 1925 (Rangoon: Government Printing, 1926). The Committee comprised: J.A. Maung Gyi (Minister), Yamethin U Pu, U E Maung and U Ba Pe (Nationalist Party), A. Anderson (Chamber of Commerce), C.B. Smales (Chief Conservator), Hatim Tai (Forest Service), U Ba Oh (Chamber of Commerce) and Lee Ah Yain (Progressive Party). Yamethin U Pu was later replaced by U Thin Maung.

⁴⁶ Ibid., 24, 27.

⁴⁷ Note of Dissent by U Ba Pe, U E Maung and U Thin Maung, Ibid., 37-38.

royal tree".⁴⁸ Subordinates were also attacked. In 1925, a Forester in Thayetmyo division was murdered, and such violence was not atypical.⁴⁹ The political significance of this turn of events was not lost on British officials. As Chief Conservator H.W.A. Watson observed in 1928:

The actual numbers and results of forest offenses are becoming serious...[a] general gradual increase would under existing conditions be the normal result of expansion of cultivation and population eating into the unclassed forest available for domestic supply; but the sharp increase of the past six years appears to be largely an expression of general lawlessness closely connected with political agitation.⁵⁰

One indication of such politicization was the increasing employment of expert defense lawyers, a trend which forced the Forest Department to turn to the Criminal Investigation Department for help. A public prosecutor was also hired in the Tharrawaddy district, and additional officers were deputed to investigate cases.⁵¹

Such conflict was an integral part of the broader anti-imperial struggle of the 1920s. If the wunthanu movement facilitated peasant resistance to the colonial state, it also prompted an organized and repressive British response: anti-boycott legislation, coercive tax collection and military reprisals. This cycle of repression and resistance culminated

⁴⁸ RFA for 1925-26, 21.

⁴⁹ RFA for 1924-25, 3; RFA for 1925-26, 21. Such violence was part of a broader campaign against Burmese and Indians who cooperated with the British, see Taylor, State in Burma, 194; Adas, "Bandits, Monks, and Pretender Kings," 94-97.

⁵⁰ RFA for 1927-28, 21-22.

⁵¹ RFA for 1928-29, 30.

in the Hsaya San rebellion of 1930.⁵² A district leader of the GCBA, Hsaya San was commissioned by that organization in the late 1920s to investigate popular complaints against the state, including its denial of public access to plains reserves. In 1929, he proposed that the GCBA confront the government on this matter. The right to free timber and bamboo for family use must be recognised or a campaign of non-violent resistance would be started. When the GCBA leadership refused to sanction such a move, Hsaya San began to secretly organize associations based on civil disobedience and armed insurrection.⁵³

The rebellion broke out on 22 December 1930 in Tharrawaddy district but spread to adjoining areas.⁵⁴ As Hsaya San's headquarters was located in the Pegu Yoma east of Tharrawaddy, work in those forests came to a halt.⁵⁵ Moreover, Department employees were attacked: in all, six men were killed and three were wounded during the rebellion. As in 1885-86, a feature of the unrest was "the extensive burning of Forest Department buildings by the rebels": 91 buildings worth 104,479 rupees were destroyed in 1930-31, and property valued at 36,058 rupees was destroyed in the following year.⁵⁶ For their part, foresters participated in the suppression of

⁵² Taylor, State in Burma, 192-99.

⁵³ Maung Maung, "Nationalist Movements," 180-81.

⁵⁴ The rebellion broke out the day after Acting Governor J.A. Maung Gyi refused to reduce taxes in Tharrawaddy district.

⁵⁵ Subordinates assisted in the capture of this rebel stronghold, see Maung Maung, "Nationalist Movements," 187-88. The government learned of the rebellion from a Ranger in Lower Thonze, see RFA for 1930-31, 49.

⁵⁶ RFA for 1930-31, 50; RFA for 1931-32, 46.

the rebellion, and their local knowledge proved invaluable; many were later honoured by a grateful government.⁵⁷

The government was caught off-guard by the rising and troops from India had to be joined with local forces and Karen levies to quell the rebellion.⁵⁸ By 1932 it was essentially 'a thing of the past', and forest work in Lower Burma had been fully resumed. Yet, Karen who worked for the Department in the South Pegu division remained armed, and foresters in the Myitmaka division required armed escorts, as late as 1934-35.⁵⁹

Popular resistance did not end with the defeat of Hsaya San. With the restoration of 'order', forest offenses increased: from 9,298 in 1931-32 to a pre-war peak of 13,192 in 1935-36. In 1933, Conservator A.W. Moodie lamented that plains reserves were being protected in name only: "in fact the growing stock in many reserves is gradually diminishing".⁶⁰ Three years later, 50 per cent of offenses in Lower Burma occurred in these forests.⁶¹ In 1938, twenty-five

⁵⁷ C.G.E. Dawkins to Enid Dawkins, Dawkins Papers, MSS Eur. D. 931/15; F.G. Burgess, "Touring under Difficulties in Burma," Indian Forester 57 (June 1931): 257-64; J.S. Vorley, "The Forest Department and the Burma Rebellion," Indian Forester 62 (January 1936): 9-11; Blanford, "Highlights," 19.

⁵⁸ Maung Maung, "Nationalist Movements," chap. 7. As in 1885-86, the hill Karen were of invaluable assistance to the British, see E.C.V. Foucar, I Lived in Burma (London: Dennis Dobson, 1956), 74; RFA for 1930-31, 47.

⁵⁹ RFA for 1934-35, 65; RFA for 1933-34, 44; Blanford, "Highlights," 19.

⁶⁰ RFA for 1932-33, 23; see also Kyaw Zan, "Choice of Species in the Thitcho Plains Reserve of the Zigon Forest Division," Burmese Forester 2 (March 1952): 21.

⁶¹ Compared with offenses in the hill reserves (22%) and in the unclassified forests (28%). In contrast, offenses in Upper Burma were predominantly in unclassified forests (47%) as opposed to hill reserves (34%) and plains reserves (19%), see

officers were specially employed to speed up the disposal of petty cases.

The Forest Department also sought to diffuse popular anger over the plains reserves. They did so by addressing the local supply question in a more forthright manner. Bowing to political pressure, the government in 1938 raised the radius of free domestic consumption in unreserved forests from ten to twenty miles.⁶² The question of village forest supplies was treated in a series of revised working plans prepared during the 1920s and 1930s.⁶³ If the onset of the Great Depression (and attendant staff retrenchment) quashed the implementation of these plans, they nevertheless were an indication that the Department was finally beginning to acknowledge village needs.⁶⁴ On the eve of the Second World War, the Forest Department even began a campaign to explain its activities to the public.⁶⁵

RFA for 1935-36, 30.

⁶² RFA for 1938-39, 43, 73; Burma Legislature, House of Representatives, Proceedings (henceforth BLHORP), 23 August 1938, 123.

⁶³ Such work was hampered by a general lack of silvicultural knowledge about non-teak forests, see H.W.A. Watson, A Note on the Position of the Province as Regards the Preparation and Revision of Working Plans (Rangoon: Government Printing, 1921), 2; A.H.M. Barrington, Working Plan for North Toungoo Forest Division, 1920-21 to 1928-29 (Rangoon: Government Printing, 1922), 39.

⁶⁴ M.V. Edwards, Working Plan for South Toungoo Forest Division, 1933-34 to 1947-48, vol. 2 (Rangoon: Government Printing, 1938), 5; R.J. Sayres, Working Plan for Pyinmana Forest Division, 1936-37 to 1946-47, vol. 2 (Rangoon: Government Printing, 1937), 100; A.F.R. Brown, Working Plan for Yamethin Forest Division, 1930-31 to 1939-40, vol. 1 (Rangoon: Government Printing, 1932), 63.

⁶⁵ RFA for 1939-40, 69; J. Russell Andrus, Burmese Economic Life (1948; reprint, Stanford: Stanford University Press, 1956), 101.

Despite these efforts, the Department was unable to end conflict over the plains reserves. In November 1919, the demarcation of plains reserves had been effectively frozen by a rule requiring that reservation must not be undertaken without the consent of neighbouring villagers.⁶⁶ But that rule left the status of existing reserves in doubt.⁶⁷ Petitions by peasants and politicians to disforest reserves in favour of permanent cultivation increased in number to such an extent in the 1920s that foresters were devoting much of their time to this issue.⁶⁸ Moreover, illegal extraction eroded the remaining reserves, and efforts to protect them only heightened the Forest Department's unpopularity.

During the 1930s, the Department's ability to protect the plains reserves was weakened still further. As a result of the Great Depression, teak prices and exports fell

⁶⁶ Resolution of the Government of Burma, No. 1R-47, 15 November 1919, Burma Forest Proceedings (henceforth BFP), November 1919, 232-37; Testimony of S.F. Hopwood (Chief Conservator), Royal Commission on Agriculture in India, Evidence taken in Burma, vol. 12 (London: H.M.S.O., 1928), 116.

⁶⁷ A situation scarcely clarified by Forest Department Circular no. 24 of 1935. According to this Circular, 'many' plains reserves were to be disforested and made over to villagers as Village Common Lands. Yet, in 1940 British foresters reported that an application to disforest the Twante-Konda reserve was held up pending a final decision on the plains reserve question. See RFA for 1935-36, 10, 12; D.J. Atkinson and F. Allsop, Working Plan for Insein Forest Division, 1937-38 to 1946-47, vol. 2 (Rangoon: Government Printing, 1940), 121.

⁶⁸ Report of the Burma Forest Committee 1925, 24-25. The case of the Kanyutkwin reserve is instructive. Petitions to disforest the reserve before 1923 were rejected by the government because of its importance as a source of timber. Under dyarchy, however, the reserve was disforested, see H.C. Smith, Working Plan for South Toungoo Forest Division, 1923-24 to 1932-33 (Maymyo: Government Printing, 1923), 47; BLHORP, 4 September 1939, 470, 472.

dramatically.⁶⁹ In turn, forest revenue plummeted: from 21,737,618 rupees in 1926-27, to only 7,999,782 rupees in 1933-34.⁷⁰ In a context of general retrenchment, the government cut forest administration.⁷¹ As Table 7.1 illustrates, positions of all ranks were eliminated.

⁶⁹ During 1930-34, annual teak exports averaged 163,000 tons compared with 234,000 tons in 1925-29, see S.F. Hopwood, "The Influence of the Growing Use of Substitutes for Timber upon Forest Policy with Special Reference to Burma," Indian Forester 61 (September 1935): 562. The price of teak fell from 97.9 rupees per ton in 1928-29 to 40.3 rupees per ton in the early 1930s, see Harry Champion and F.C. Osmaston (ed.), The Forests of India vol. 4 (London: Oxford University Press, 1962), 464.

⁷⁰ As expenditure fell more slowly than revenue, net revenue also declined (Appendix D). Between 1921-31, the forest surplus was 17-23 per cent of total revenue; by 1932-33, it was only 12 per cent, see Report of the Burma Retrenchment Committee 1934 (Rangoon: Government Printing, 1934), 28.

⁷¹ The government was guided by the recommendations of several committees: Report of the Burma Retrenchment Committee 1934; Second Interim Report of the Fiscal Committee 1938 (Rangoon: Government Printing, 1938); Report of the Committee on Expenditure on the Public Services, 1939-40, Part I (Rangoon: Government Printing, 1940). It was reviewing the latter two reports when the Japanese invaded, see BLHORP, 18 February 1941, 57; F.T. Morehead, "Organisation of the Forest Service in Burma with particular reference to the Report of the Fiscal Committee of 1938," BOF M/3/1531; Smith, "Reconstruction in Burma," 2.

TABLE 7.1

STRENGTH OF THE FOREST STAFF 1913-37

	1913-14	1926-27	1936-37
1. Gazetted Staff			
A. IFS/BFS Class I			
CCF/CFs	5	10	8
DCFs/ACFs	58	103	72
Total A	63	113	80
B. BFS Class II	72	106	71
C. Special Staff	-	20	2
Total Gazetted Staff	135	239	155
2. Subordinate Staff			
Rangers	178	230	149
Deputy Rangers	306	482	373
Foresters	1,709	1,885	1,376
Special Staff	-	-	81
Total Subordinate Staff	2,193	2,597	1,979
3. Office Establishment (Clerks; Menials)	612	1,144	867
Total Staff (1-3)	2,940	3,980	3,001

Source: Adapted from Harry Champion and F.C. Osmaston ed., The Forests of India, vol. 4 (London: Oxford University Press, 1962), 441.

Note: Gazetted Staff comprises: (a) the superior service also known as the India Forest Service and Burma Forest Service Class I (Chief Conservator, Conservators, Deputy and Assistant Conservators); (b) the Burma Forest Service Class II (Extra Deputy and Assistant Conservators); (c) Special Staff (Forest Engineers and Timber Assistants).

The total number of staff in 1936-37 (3,001 men) was little more than it had been just prior to the First World War (2,940 men). More importantly, the strength of the subordinate staff was less in the mid-thirties than it had been 1913-14. Whereas in the latter year there were 2,193 foresters, in 1936-37 there were only 1,979 subordinates in service. With fewer Rangers and Foresters, the protection of

all reserves, but particularly the accessible plains reserves, became more difficult. As Conservator C.E. Milner noted in 1934, villagers refused to extract designated trees apparently 'preferring to steal' what they needed, safe in the knowledge that there was little that the Forest Department could do to stop them on a much reduced staff.⁷²

The political changes of the late 1930s only intensified these difficulties. Following the suppression of the Hsaya San rebellion, the link between the peasantry and the urban nationalists was briefly disrupted.⁷³ Whereas the former resumed strategies of everyday resistance, the latter became embroiled in the politics surrounding the proposed constitutional separation of Burma from India.⁷⁴ If politicians such as Dr. Ba Maw and U Saw gained prominence in the early thirties defending the rebels, the general preoccupation of the middle-class nationalists with political and constitutional matters, as well as the dependence of many of these individuals on Indian financing, discredited many of them in the eyes of the peasantry.⁷⁵ In turn, this situation gave rise to new political groups, notably the radical (ie. socialist) group of mostly middle-class youth and students known as the Do Bama Asiayon ('We Burmese' Association). Although this group was based in Rangoon, and did not become prominent until the late 1930s, its emphasis on radical social and economic change - including the nationalization of

⁷² RFA for 1933-34, 22; Thein Lwin, "Why We Had Failed?" Burmese Forester 6 (June 1956): 34-35.

⁷³ Taylor, State in Burma, 195-96.

⁷⁴ Cady, History of Modern Burma, 322-55.

⁷⁵ Ibid., 356-57; Taylor, State in Burma, 187.

control over the country's forest - was probably more in keeping with the aspirations of Burma's hard-pressed peasantry in the 1930s than were the pronouncements of such nationalists as U Ba Pe, U Chit Hlaing, Dr. Ba Maw and U Saw.⁷⁶ However, the real significance of Do Bama Asiayon objectives as they pertained to forestry did not become apparent until after the Second World War.

Of more immediate relevance to the question of the plains reserves was the advent of parliamentary government in April 1937. This change enhanced the ability of the Burmese political elite to intervene in forestry matters. The politicization of forest administration between 1937 and 1942 is discussed more fully below. What needs to be noted here, however, is that applications to disforest reserves were no longer judged according to technical criteria.⁷⁷ Rather, these applications were openly used in the context of a general shortage of agricultural land to advance the interests of the Burmese political elite.⁷⁸ It was for this reason that, after

⁷⁶ Maung Maung, Burma and General Ne Win, 66-67. The relationship between peasants, youth and politicians in late colonial Burma was quite complex. It would be wrong, for example, to suggest that the interests of the youth and peasantry were identical, or for that matter, that the objectives of the youth necessarily or always diverged from those of the established politicians. See Taylor, State in Burma, 163, 202-16.

⁷⁷ Which is not to say that prior to 1937 applications were necessarily always judged according to these criteria, see J.S. Vorley, Working Plan for North Pegu Forest Division, 1936-37 to 1945-46 (Rangoon: Government Printing, 1937), 16. Prior to 1937, however, the application process was only partly politicized.

⁷⁸ After 1930, land alienation accelerated as landowners were unable to pay debts called in by money-lenders. Thus, whereas the total area held by non-agriculturists climbed from 31 per cent in 1929-30 to nearly 50 per cent in 1934-35, the area let to tenants increased during the same period from 46 per cent to 59 per cent, see Michael Adas, The Burma

1937, the fate of applications to disforest plains reserves depended on the views of the Parliamentary Secretary and never on the technical advisers "unless the two happened to agree".⁷⁹ As Conservator H.C. Smith noted, politicians "vied with each other for the 'honour and glory' of being responsible for the disforestation of reserved forests".⁸⁰ Thus, Members of the House of Representatives petitioned the government to disforest reserves in their districts; but if the official objective was to provide land to the rural poor, in practice local notables affiliated with national politicians (and notably U Saw) were often the ultimate beneficiaries of disforestation.⁸¹ Plains reserves were disforested in, among other places, Meiktila, Myingyan and Magwe districts as a result of such political interference.⁸²

There is a paradox in all of this. Never of much economic significance to the colonial state, the plains reserves were created in the late nineteenth and early twentieth century almost as an afterthought by a Department preoccupied with

Delta: Economic Development and Social Change on an Asian Rice Frontier, 1852-1941 (Madison: University of Wisconsin Press, 1974), 188-89. In this context, the pressure to clear residual reserves increased. On plains reserves disforested between 1923 and 1939, see BLHORP, 4 September 1939, 469-73.

⁷⁹ Smith, "Reconstruction in Burma," 6.

⁸⁰ Ibid., 3-4; see also J.W.R. Sutherland, Working Plan for Minbu Forest Division, 1937-38 to 1951-52, vol. 1 (Rangoon: Government Printing, 1938), 17; Tan Chein Hoe, Working Plan for Delta Forest Division, 1947-48 to 1956-57, vol. 2 (Rangoon: Government Printing, 1951), 14; A. Long, "Village or Community Forests," Burmese Forester 2 (March 1952): 28-29; J.B. Carrapiett, "Plains Forests," Burmese Forester 2 (March 1952): 15.

⁸¹ For example, see BLHORP, 23 March 1939, 1362-63; BLHORP, 6 April 1939, 1871-72.

⁸² Thein Lwin, "Why We Had Failed?" 34.

the management of the hill forests. Yet, the closing of the agricultural frontier in Lower Burma, combined with the growth of nationalist sentiment, guaranteed these reserves a high political profile in the 1920s and 1930s. That Europeans were being favoured in the allocation of forest leases and jobs only reinforced the general image of an exploitative and anti-Burmese central state.

Burmanization of the Forest Sector

The plains reserve issue was primarily a concern that related to the peasantry. In contrast, the Burmanization question was of central importance to the urban middle-class. This group generally prospered under colonial rule, but by the 1920s its position was under attack from Indian, Chinese and European interests. The promotion of Burman control of the forest sector was thus part of a broader effort to protect Burmese elite interests in the transition to self-rule.

There were two distinct but interrelated aspects to that process. First, the Burmese elite sought to remove obstacles that prevented Burmese from attaining senior posts in the Forest Department and the European firms. Secondly, it fought for a re-allocation of the teak leases in order to advance Burmese economic interests. The former was designed to ensure the representation of Burmese elite interests within existing state and non-state decision-making structures. In contrast, the latter was an attempt to gradually transform those structures through a reconstitution of teak lease-holdings.

As noted, Burmese Ministers had little opportunity to promote Burmese advancement within the Forest Department

under the dyarchy system. For their part, members of the opposition challenged the government on this issue in the Legislative Council. In 1923, for example, Yamethin U Pu moved that forest expenditure be substantially cut in protest at the lack of Burmans in the superior service. After a heated debate, the resolution was defeated by only a one-vote margin.⁸³ Resolutions were also made in 1924 and 1926 to draw attention to the non-promotion of Burmans (and Anglo-Indians).⁸⁴ In 1932, U Ba Thi (Mandalay) pointed out that the government could save funds, and at the same time promote Burmanization by replacing highly paid Europeans with Burmese.⁸⁵ These legislative manoeuvres were useful in so far as they helped to maintain the Burmanization issue on the political agenda. Yet, they only marginally affected the rate of Burman advancement in the Forest Department and the European firms.

Under the 1937 constitution, the Burmese political elite was better placed to pursue change in this area. The subject of Burman advancement in the European firms was broached by the Ba Maw government in 1938 when it proposed that 25 per cent of the superior service of the European lessees should be Burman within five years.⁸⁶ More importantly, the extent to which each firm complied with this scheme would be taken into

⁸³ BLCP, 21 March 1923, 279-96.

⁸⁴ BLCP, 20 March 1924, 555-57; BLCP, 18 March 1926, 426-29.

⁸⁵ BLCP, 25 February 1932, 460-63; see also Note by M.M. Ohn Ghine and U Shwe Tha, Report of the Burma Retrenchment Committee 1934, 227.

⁸⁶ This proposal was made in light of the report of the 1937 Forest Enquiry Committee which is discussed below.

account in the future disposal of leases.⁸⁷ The issue was later raised again by Premier U Saw. In a meeting with the European firms on 17 September 1941, he urged them to meet a 50 per cent target in return for which they would be awarded a concession on timber royalties. An agreement was reached in principle, but the Second World War interrupted the conclusion of a final deal.⁸⁸

The war also interrupted deliberations that would have led to a more rapid Burmanization of the Forest Department. In November 1941, the U Saw government appointed a committee to enquire into recruitment policy.⁸⁹ Several meetings were held, but the Japanese invasion disrupted the committee's work, and no report was published. Yet, the appointment of the Recruitment Committee signalled the government's impatience with the slow pace of Burman recruitment, and its determination to speed up the process. The Burmese committee members were united in their opposition to further European recruitment; only the two European officials dissented on this issue.⁹⁰ In taking this stance, the Burmese were able to point to the growing number of trained local men: by 1938, 42

⁸⁷ Government press release, "Burma's Forest Reserves, Extraction Policy, Big Lessees and Burmanisation," Rangoon Gazette 27 May 1938, BOF M/3/501; Arthur Bruce, "Burma Recollections," MSS. Eur. E. 362/3.

⁸⁸ Note of the Meeting between Premier U Saw and Lessees, 17 September 1941, BOF M/3/501; Annual Report of the Bombay Burmah Trading Corporation Limited (henceforth ARBBTCL) for 1940-41, 2; Bruce, "Burma Recollections".

⁸⁹ Smith, "Reconstruction in Burma," 14. The Committee comprised: U Kyaw Mya (Chairman), U Lwin (Secretary), U Kyaw Din, U Aye (Government Minister), R. Unwin (Chief Conservator), and H.C. Smith (BFS I).

⁹⁰ Ibid. The U Saw government (1940-42) was committed to the Burmanization of all sectors of government, see BLHORP, 26 September 1940, 1348; BLHORP, 18 February 1941, 57.

individuals had been awarded a Bachelor of Science in Forestry from Rangoon University; all but one had entered the Burma forest service thereby creating an available pool of recruits for senior posts.⁹¹

If politicians attempted to accelerate the Burmanization campaign, they also intervened actively in Department activities. Such intervention reflected frustration at the slow pace of bureaucratic reform. More importantly, it was indicative of the growing politicization of forest administration.

This process was particularly evident during U Saw's term as Forests Minister. Appointed in February 1939, Saw skilfully used the numerous patronage opportunities of the Department to promote his quest for the premiership.⁹² As the Forests Ministry was increasingly "used as a political instrument," the Chief Conservator became marginalised, and political appointees ignored the recommendations of foresters.⁹³ The appointment of Palit Maung Maung - a former Forest Department employee dismissed for corruption - as Saw's personal assistant was particularly significant in this regard as this individual was a senior official in Saw's own Myochit Party.⁹⁴ The Ministry also overruled officials in a

⁹¹ Burma Legislature, Senate Proceedings, 23 February 1938, 6-7.

⁹² Saw retained the Forests portfolio after he became Premier in September 1940, see Taylor, "The Case of U Saw," 179; John LeRoy Christian, Burma and the Japanese Invader (Bombay: Thacker and Co., 1945), 250. On political 'nepotism' prior to Saw's appointment, see BLHORP, 26 August 1938, 318-19.

⁹³ Smith, "Reconstruction in Burma," 5-6; Thein Lwin, "Why We Had Failed?" 37-38.

⁹⁴ BLHORP, 19 March 1941, 1010-11.

move which "undermined the authority of the executive" and interfered with the carriage of justice.⁹⁵ U Thein Lwin, Burma's Director of Forests under the Japanese, relates how on one occasion prior to the war he compounded a forest offence that was committed by a politician. Subsequently, however, he was ordered to withdraw the case by the Minister, but this order was communicated through the accused person.⁹⁶ Free grants of timber for pongyi kyaung (monasteries) were also used to ensure Saw of the support of key religious leaders.⁹⁷ More seriously, control over the subordinate service, which hitherto had rested with senior British foresters, was centralized in the Ministry such that the belief became widespread that "appointments were bought and sold".⁹⁸ In the years immediately prior to the Japanese invasion, a kind of de facto parallel administration thus emerged. Based in the Burman-controlled Secretariat, it linked forest management to party politics as never before, and in the process, undermined the authority of colonial officials.

Not only did the Burmese political elite seek to promote its interests through the Burmanization of the superior

⁹⁵ Smith, "Reconstruction in Burma," 7; BLHORP, 31 August 1939, 320-21.

⁹⁶ Thein Lwin, "Why We Had Failed?" 37; see also BLHORP, 6 April 1939, 1868.

⁹⁷ Taylor, "Case of U Saw," 173; Smith, "Reconstruction in Burma," 51. In 1939-40, timber valued at 52,103 rupees was granted for religious purposes. In addition, 'special' free grants of timber, fuel, and other produce from reserves valued at 183,734 rupees were made in that year, up from 45,707 rupees in the year before, see BLHORP, 18 February 1941, 61.

⁹⁸ Smith, "Reconstruction in Burma," 24; Taylor, "Case of U Saw," 173; Thein Lwin, "Why We Had Failed?" 37.

service of the Forest Department and the European firms. It also demanded that Burmese be allotted a greater share of the teak leases as part of a gradual re-allocation of the leaseholdings. The previous chapter suggested that the consolidation of teak extraction in the hands of the European firms in the early twentieth century was partly designed to impede the development of an indigenous business class. This second aspect of the Burmanization campaign, then, was an attempt to reverse that process.

Ironically, the emergence of a Burmese middle class in the twentieth century was partly based on prior participation in the timber trade. Indeed, a number of leading politicians of the inter-war period owed their privileged social position to success in that trade.⁹⁹ Shwegyin U Pu, who was briefly Premier (1939-40), was born into a family of timber merchants in Shwegyin. The business was sufficiently lucrative to enable him to be educated in England. The grandfather and father of another leading politician, U Chit Hlaing, prospered in the timber business; the family financial legacy was later put to use in the nationalist struggle.¹⁰⁰ U Thin Maung, a Hanthawaddy-based politician and outspoken critic of the Forest Department, had been in the business since before 1923.

Timber money may have contributed to the development of a Burmese middle class under British rule. But with the

⁹⁹ Taylor, State in Burma, 169, 171.

¹⁰⁰ Upon his return from England in 1903, Chit Hlaing had urged his father to get out of the timber trade because "the forest laws were so framed that no [Burman] could escape being penalised." In 1910 Chit Hlaing's father quit forestry for agriculture. See BLHORP, 14 March 1940, 1056.

allocation of the most valuable teak forests to the big European firms under a system of long-term renewable leases after 1907, the possibility that Burmese firms would become strong enough one day to compete with their European counterparts was eliminated.¹⁰¹ In 1925, and again in 1937, the government appointed a committee to review the timber allocation question, but each time, the recommendation was against fundamental change. To be sure, a few Burmese obtained teak leases, some even for extended periods.¹⁰² Many, however, remained confined to short-term contracts, and Burmese as a whole had access to only the least desirable forests.

Burmese nationalists tried to change this situation. In the Legislative Council, they denounced a policy that deprived the Burmese of their rightful share of the teak leases. As U Thin Maung noted in 1923: "Burma is rich in forest produce and yet the timber trade is entirely out of the hands of the Burmese people".¹⁰³ If this allegation was not completely true, the preponderance of the European firms

¹⁰¹ To be sure, Burmese controlled the non-teak trade throughout the colonial era. But the profit from this trade was not as large as that derived from the teak trade.

¹⁰² The principal indigenous lessees (and the length of their leases) included: Saw Po Nyein and Saw Tha Dwe, two Karen traders in Thaton (21 years); Ba Oh and Son, a Burman firm also based in Thaton (21 years); Ah Yu, a Chinese trader in Thayetmyo (16 years); U Ba Thaw, a Burman working in Minbu (11 years); Ba Oh and Co., an Indo-Burman firm with a lease in Insein (16 years); Daw Kyu, a Burman trader operating in Thayetmyo (21 years); U Thin Maung, a Burman trader (and politician) in Thayetmyo (11 years); and U Po Dan and Son, a Burman firm in South Toungoo (11 years). See On Gyaw, "Burma Teak Lease" TMs, [1947], Indian Institute, Oxford; Morehead, Forests of Burma, 43.

¹⁰³ BLCP, 20 March 1923, 243. A similar criticism was voiced by U Bah Oh (another timber trader) in the pre-tyrarchy Legislature in 1921, see BLCP, 9 April 1921, 811-12.

was beyond dispute. Whereas those firms held 28 leases covering an area of 56,926 square miles in 1925, 'native' firms held 15 leases comprising only 1,614 square miles. Unleased forests covered 3,000 square miles but were mostly depleted.¹⁰⁴ Under the system of renewals, the only way that the Burmese could acquire forests from the European firms was if the latter violated the terms of their leases, or could not reach an agreement with the government over royalties. Over the years, there were lease violations by the European firms.¹⁰⁵ Nevertheless, the government rarely revoked their leases, and the allocation of forests remained essentially unchanged during the interwar period.¹⁰⁶

When Burmese obtained teak (and non-teak) leases, they were still at a disadvantage. As noted, with only a few exceptions these traders operated under a system of short-term contracts (one to five years) in which they were required to pay royalties in advance.¹⁰⁷ Originally, a post-payment system was used, but the Forest Department had encountered difficulties with revenue collection and fraud.¹⁰⁸

¹⁰⁴ BLCP, 10 March 1925, 29.

¹⁰⁵ F.A. Leete, "Inspection Note on Teak Fellings and Extraction in the Nawin Forests, Prome Division under the 15 Year Lease dating from 1908-09 held by Messrs. Steel Bros. and Co. Ltd.", BFP (November 1916), 95-128; E.S. Hartnoll and F.T. Morehead, Working Plan for the Kaukkwe Portion of the Bhamo Forest Division, 1935-36 to 1947-48 (Rangoon: Government Printing, 1936), 21.

¹⁰⁶ Maria Serena I. Diokno, "British Firms and the Economy of Burma, with Special Reference to the Rice and Teak Industries, 1917-1937" (Ph.D. diss., University of London, 1983), 215.

¹⁰⁷ Ibid., 180-82.

¹⁰⁸ H.C. Walker, "The Issue of Timber Licenses in Burma," Indian Forester 43 (February 1917): 71.

Yet, as Conservator Herbert Walker acknowledged, pre-payment 'played into the hands' of money-lenders; by 1917, most revenue earned under this system was supplied by these individuals.¹⁰⁹ Burmese operating under one year licenses were in a similar predicament. Before obtaining a license, they were required to pay a security deposit ranging from 500 to 2,500 rupees; and, at the end of the twelve months, the traders paid royalty on all contracted timber whether it was extracted or not.¹¹⁰

Speaking before the Legislative Council in 1932, U Tun Win, a politician from Amherst district, summarized the sense of frustration and anger felt by timber traders in Tenasserim whose declining fortunes were attributed to a policy that accorded European firms preferential treatment:

At one time the Burmese timber traders in Moulmein were very prosperous, and any visitor can see, when he comes to Moulmein, the remains of these glorious days when the Burmese timber traders enjoyed their prosperity. But they are now very poor, in fact you would hardly find any Burmese timber trader doing a good business in Moulmein now. On the other hand, you will find one or two Indians and Europeans doing good business. Why is that? What is the reason for that? I want to explain to the House. The European timber traders or firms are given the best forests with leases extending from 10 to 25 years and they are allowed to extract timber without payment in advance or security, and they settle accounts with the Government once a year. But on the other hand, none of the Burmese traders get a lease or none of them can work the forest without payment in advance. Now, Sir, the European firms doing timber business in these four divisions [ie. Ataran, West Salween, Thaugyin, Thaton] not only get the leases from Government but they work, as I have said, without paying any advance - what advantages they have! When

¹⁰⁹ Ibid., 70-71; see also Diokno, "British Firms," 191-92.

¹¹⁰ U Tun Win, BLCP, 25 February 1932, 451-52; U Ba, BLHORP, 8 March 1938, 759. Between 1937 and 1940, about 20 per cent of contractors failed to extract all the contracted timber on time, see BLHORP, 15 February 1940, 51.

a poor Burman timber trader wishes to work a forest he has got to apply for a license for a year. What kind of timber does he get? He gets timber which is called 'unclassed timber' - rejected by Foucar & Company - they are known as Foucar's rejected timber...¹¹¹

There are at least three instructive features to these remarks. First, U Tun Win reminds his listeners of an earlier time when Burmese timber traders prospered, and Moulmein was a major lumber town. But this golden period was not in pre-colonial times. Rather, it occurred under British rule in the nineteenth century. In this regard, the contrast with the situation of the peasantry is revealing. If, in lamenting access restrictions imposed by the colonial forest service, the peasant was wont to hark back to pre-colonial times when access was 'traditionally' more open and free, the Burmese timber trader, in criticizing twentieth-century forest policy, was liable to invoke an era when British foresters facilitated the forest work of Burmese as well as European firms. This difference in perceptions is significant. Whereas peasants tended to view colonial forest management in uniformly bleak terms (ie. access denied), Burmese timber traders held a more nuanced view. If they condemned the favouritism shown toward the European firms, the Burmese traders nevertheless remembered that it was the colonial state that had facilitated their erstwhile success. As a result, their energies went into lobbying that state to reverse policies favouring the European lessees, and not, as with the peasantry, in attempting to undermine the basis of state forest control.

¹¹¹ U Tun Win, BLCF, 25 February 1932, 451.

Yet, Tun Win's remarks are also interesting because they illustrate the extent to which the Burmese faced an uphill struggle in their campaign to alter forest policy in the 1920s and 1930s. Thus, he observes that while the Burmese have to pay in advance in order to obtain one-year licenses for wood that is often sub-standard ('rejected' timber), the European firms enjoy long leases, are not subject to pre-payment or security rules, and have the right to reject sub-standard timber. This difference in treatment was indicative both of the systematic preference given to the European firms by government (see Chapter 6), as well as the insurmountable commercial advantages it gave those firms vis-a-vis Burmese traders.

Finally, Tun Win's comments are revealing because they capture the sense of nationalist outrage at a policy that discriminated against Burmese in a business in which they had long experience. Thus, he notes that not only Europeans, but also Indians, are doing well in Moulmein. In contrast, Burmese (hitherto well-off) are 'now very poor'. Moreover, they are forced into the humiliating position of having to accept second-rate teak that has already been 'rejected' by the European firms. Having to depend on rejected timber in this manner was undoubtedly as unrewarding financially, as it was demeaning psychologically, to the Burmese timber traders. Above all, it was a perennial reminder of the subordinate position which they now held in the teak industry.

That subordinate position was reinforced by a system of royalties that, once again, treated the Burmese less favourably than it did the Europeans. In general, the rate

was higher for the former than it was for the latter.¹¹² Equally significant, however, was the fact that the government was prepared to reduce the European rates in bad economic times in order to maintain teak production, but was reluctant to extend the same advantage to Burmese traders.¹¹³ Yet, it was precisely because they were less capitalized than their European competitors that Burmese firms were most in need of such a reduction.

The implications of such favouritism were most obvious during the 1930s. On 1 July 1933, the government reduced the royalty rates paid by the long-term lessees by 30 per cent "in order to assist the lessees in maintaining the market for teak by lowering the price and placing it on a competitive basis".¹¹⁴ This decision cost the government 1,450,000 rupees

¹¹² Diokno, "British Firms," 187; BLHORP, 26 February 1937, 132. In Thaton, T.D. Findlay and Sons paid 23 rupees per ton on full-sized timber as compared with 45 rupees per ton by U Bah Oh and Sons and 40 rupees per ton by Saw Tha Dwe and Saw Po Nyein, see W.S. Shepherd, Working Plan for Thaton Forest Division, 1935-36 to 1944-45 (Rangoon: Government Printing, 1937), 6. Rates varied depending on timber accessibility and quality, but these factors do not account for the discrepancy in the European and Burmese rates.

¹¹³ The government assisted the European firms through royalty concessions before the 1930s, see Smith, South Toungoo Forest Division, 17; W.C. Rooke, Working Plan for Minbu Forest Division, 1927-28 to 1936-37 (Rangoon: Government Printing, 1928), 9; A.J.S. Butterwick, Working Plan for South Pegu Forest Division, 1937-38 to 1946-47, vol. 2 (Rangoon: Government Printing, 1938), 4.

¹¹⁴ Hopwood, "Substitutes," 567. This rebate was for 1933-34. In 1934-35, a 15 per cent rebate was granted, which was increased to 30 per cent in 1935-36, before being reduced to 15 per cent in 1936-37. The full rates were restored in 1937-38. The BBTCL welcomed this "broad-minded policy," as a result of which Corporation profits were "rather better" than expected, see ARBBTCL for 1934-35, 3-4; ARBBTCL for 1935-36, 3.

in 1933-34 alone.¹¹⁵ As the European firms virtually monopolized such leases, the reduction was a de facto tax break for them. However, there was no equivalent reduction for Burmese traders.¹¹⁶ In 1936, the Government of India (at the Government of Burma's behest) raised the duty on Siamese teak imported into Burma via the Salween river from 7 per cent to 25 per cent. This move was in response to representations by the European lessees, and was bitterly opposed by Burmese traders in Moulmein whose interests were adversely affected, but who were not consulted on the matter.¹¹⁷ A representation by the Moulmein Timber Traders' Association calling for the repeal of this duty was rejected by the Government of Burma.¹¹⁸

It is hardly surprising, therefore, that Burmese who had once been 'very much engaged' in the timber business, by the

¹¹⁵ The European firms obtained a reduction prior to the rebate by rejecting all but the best teak as 'refuse'. Such timber was then disposed of by the government and the proceeds divided with the firm in question. By increasing the percentage of refuse teak, the European firms reduced the average royalty paid from 25.6 rupees per ton in 1931-32 to 18.9 rupees per ton in 1932-33. See Champion and Osmaston, Forests of India 4: 465-66; A.C. Pointon, The Bombay Burmah Trading Corporation Ltd., 1863-1963 (Southampton: Millbrook Press, 1964), 80-81; Tan Chein Hoe, Working Plan for Allammyo Forest Division, 1937-38 to 1951-52, vol. 2 (Rangoon: Government Printing, 1939), 9.

¹¹⁶ BLCP, 9 February 1933, 37; BLCP, 2 March 1935, 392, 394-95; Aung Tun Thet, Burmese Entrepreneurship: Creative Response in the Colonial Economy (Stuttgart: Steiner-Verlag Wiesbaden, 1989), 63-64. The royalty on non-teak timber was belatedly reduced by 20 per cent, but as U Ba charged the reduction was "so low that it was not possible for the small traders to go on working," see BLHORP, 3 March 1937, 285-86.

¹¹⁷ BLCP, 12 August 1936, 87-91; BLCP, 13 August 1936, 123-24. The BBTCL closed its operations in the Salween forests in 1932-33, see ARBBTCL for 1932-33, 3.

¹¹⁸ BLCP, 17 August 1936, 274-75; BLHORP, 8 March 1937, 425-30.

1930s were becoming increasingly peripheral. As U Thin Maung noted, this trend had much to do with the fact that "the larger firms are quite able to make their points of view heard [by government], but the local traders are not and their opinions are often ignored".¹¹⁹

British foresters denied this allegation. Rather, they pointed to the financial instability and unreliability of indigenous firms. Among Burmese traders, only the work of the Indo-Burmese firm Bah Oh and Company was considered to be "up to the standard of a European firm".¹²⁰ Moreover, teak extraction in remote areas required "far more experience, capital and elephant power than any of [the] existing indigenous traders have yet shown that they possess".¹²¹

In contrast, the European firms had the financial and human resources to do the job. In 1924, their invested capital in Burma amounted to 100,000,000 rupees (£7,500,000), and they employed 55,000 men.¹²² Moreover, as Conservator F.T. Morehead noted:

Teak has had to face periods of acute depression and powerful competition from cheaper timbers and substitutes of all kinds. The fact that it retained its markets in the face of adversity and competition must be attributed not only to its inherent superiority over other timbers, but also in a considerable degree to the very high standard of efficiency and high international reputation to which

¹¹⁹ BLCP, 4 March 1935, 404; see also U Ohn Maung, BLCP, 2 March 1935, 394-95.

¹²⁰ H.R. Blanford, "Distribution of Teak Forests," Note prepared for the Government of Burma, [1936], MSS Eur. D. 689.

¹²¹ Ibid.

¹²² Morehead, Forests of Burma, 43.

these old established firms had brought the Burma teak industry.¹²³

It was the highly capitalized and international European firm, then, and not the small-scale and under-financed Burmese trader, that was best placed to maintain teak production, and thereby provide the government with a stable financial return from its forests. In the context of the Great Depression, this concern was particularly important.

As the government began to negotiate the new teak leases in the mid-1930s, then, it was influenced by conflicting interests and pressures. On the one hand, there was growing pressure from the nationalist movement to increase the Burmese role in that trade. On the other, colonial officials were committed to "maintaining as far as possible the outturn of the five European teak firms".¹²⁴

Yet, this commitment was itself not without complication. By the 1930s, most of Burma's teak forests had been gone over at least once, and in unreserved forests teak had been largely eradicated. Forest officials anticipated that this would lead to a downturn in extraction. But this trend had important implications for the balance of extraction between the European firms. In effect, the downturn would work against the smaller firms and to the advantage of the Bombay Burmah Trading Corporation Limited (BBTCL), thereby reversing a long-standing tenet of forest policy.¹²⁵ Unlike in the early 1900s, however, there were few unworked forests to adjust

¹²³ Ibid.

¹²⁴ Blanford, "Distribution of Teak Forests".

¹²⁵ With its large holdings, the BBTCL held considerable reserves of large trees, see Ibid.

the balance. Reviewing this situation, Chief Conservator H.R. Blanford recommended in 1936 that the existing leases be renewed, but that several unworked forests in Thayetmyo division be given to Macgregor and Company and Steel Brothers. Small and easily accessible forests, meanwhile, would be distributed to indigenous firms on long and short-term contracts.¹²⁶

The lease negotiations became even more complex after the constitutional changes of April 1937 enhanced the power of the Burmese political elite. However, two months before these changes were to take effect, the Government of Burma appointed a five man Committee to review the 1907 policy on the allocation of teak leases, and advise

whether any modification was required special attention being paid to the rights in law and equity of the existing lessees in conjunction with the desirability of meeting the legitimate wishes of Burmans to be more closely associated in the economic development of the timber trade.¹²⁷

The Committee interviewed representatives of the European firms, the principal indigenous traders and the Forest Department; it also issued a questionnaire to which ninety-seven replies were received. If this procedure seemed to the Committee 'sufficient to represent fully all points of view,' the terms of reference limited the scope of issues that could be considered. Many of the replies to the questionnaire, for example, "ventilated grievances, such as methods of

¹²⁶ Ibid.

¹²⁷ Report of the Forest Enquiry Committee 1937 (Rangoon: Government Printing, 1937), i. The Committee included: J. Clague (Financial Commissioner), U Kyaw Min (Forests Secretary), C.E. Milner (Chief Conservator), F.B. Leach (Burma Chamber of Commerce) and U Ba Maung (Burmese Chamber of Commerce).

collection of royalty, which are not the concern of this Committee".¹²⁸ As noted, it was precisely this issue which was of preeminent concern to Burmese traders during the interwar period.

Completed within a matter of weeks, the Committee's Report was submitted to the Governor in April at the same time as the first Burmese government assumed office under the new constitution. This situation was hardly a coincidence. Rather, the intent behind appointing the Committee on the eve of the constitutional changes was to establish an agenda for gradual reform which the politicians upon assuming office would find difficult to alter. From the carefully worded terms of reference to the composition of the Committee (and witnesses), the government's objective was to signal reform in order to avert the possibility of major change.

The Committee's report reflected this delicate balancing act. On the one hand, it supported the continued predominance of the European firms. For the benefit of the incoming Burmese government, the document warned that

any attempt to take away large areas from the existing lessees besides being inequitable would lead to disorganization of the teak trade and would in all probability seriously affect Government revenue.¹²⁹

As a result, it would be 'impossible' to substantially increase the area allocated to indigenous enterprise in the next fifteen-year cycle. On the other hand, in a move designed to placate the new government, the Report recommended that the 1907 Resolution be replaced with a new

¹²⁸ Ibid., 1.

¹²⁹ Ibid., 13.

policy. The latter would have as its central objective the provision of "more and wider opportunities for indigenous enterprise".¹³⁰ To this end, the Committee urged against the inclusion of rights of renewal or first refusal, thereby leaving open the prospect of a future lease re-allocation. In short, they urged a policy that would promote Burmese traders, but in such a manner that both government revenue and the short-term preeminence of the European firms would not be jeopardized.

In April 1937, Dr. Ba Maw became the first premier under the new constitution. One year later, the Ba Maw government confirmed the essential elements of the 1937 Report. Whereas selected accessible forests were to be divided into small blocks for indigenous firms, the major forests would be leased to the European firms for fifteen years. At that stage, the Burmanization issue would play a central part in the re-allocation of leases.¹³¹ According to BBTCL manager Arthur Bruce, this decision by the Ba Maw government indicated that it had the 'good sense' to recognise that "the continued presence of the British long term lessees was indispensable to the economy, for at least another fifteen years".¹³²

¹³⁰ Ibid.

¹³¹ As noted, this did not necessarily entail the elimination of the European firms if they had sufficiently Burmanized their staff. Nevertheless, it seems likely that Burmese firms would have benefited from any subsequent round of allocations. See Government of Burma, "Burma's Forest Reserves, Extraction Policy, Big Lessees and Burmanisation," BOF M/3/501; see also BLHORP, 13 March 1939, 940; BLHORP, 14 March 1940, 1067.

¹³² Bruce, "Burma Recollections," 23-24. For which, Ba Maw was accused of colluding with the British, see BLHORP, 8 March 1938, 751.

This may well have been the case. To be sure, and as Ba Maw and others have pointed out, Burmese politicians between 1937 and 1942 were still restricted in what they could do under the new constitution.¹³³ Burma remained a colony subject to the ultimate control of the British, and this was nowhere more evident than in the extensive powers retained by the Governor. Yet, this chapter has noted how Burmese politicians intervened in forest administration after 1937.

Indeed, it was because the Burmese political elite now controlled forest administration as never before that it had good reason for promoting a gradual re-allocation of the teak leases. Any sudden change would have seriously disrupted government revenue as there were no Burmese firms even remotely in a position to replace the European lessees in the foreseeable future. A disruption in revenue would have limited patronage opportunities in a highly competitive political environment. If the political elite was "intensely keen" to gain access to "the privileges and protections that the mantle of state authority would provide them with in both their intra-elite conflicts and their contest with British officialdom," then it would have been illogical (and

¹³³ Ba Maw, Breakthrough in Burma: Memoirs of a Revolution, 1939-1946 (New Haven: Yale University Press, 1968), 18-19; Trager, Burma: From Kingdom to Independence, 52-53. More significant was the political instability of the post-1937 period. The Ba Maw government (1937-39) was kept in office only with the support of European and ethnic minority groups; these groups would hardly have tolerated radical change on the lease question, see Cady, History of Modern Burma, 386, 389.

impolitic) on their part to in any way limit that authority through precipitous action.¹³⁴

For these reasons, no pre-war Burmese government challenged the short-term predominance of the European firms. If anything, those firms encountered more trouble from British foresters than they did from Burmese politicians.¹³⁵ Negotiations became dead-locked over royalty rates such that the European firms appealed to Financial Advisor James Baxter and Forests Secretary U Tin Tut for their assistance.¹³⁶ In September 1941, the issue was placed before Premier U Saw, and a tentative deal was arranged but never completed owing to the war.

The Second World War ended these efforts of the Burmese political elite to control the forest sector. If the European firms still predominated, Burmese traders could anticipate a gradual re-allocation of the teak leases in their favour. Moreover, the Burmanization campaign had achieved some

¹³⁴ Taylor, State in Burma, 187. The possibility of increasing Department extraction was not considered for two reasons. First, such extraction was only 9-10 per cent of production in the 1930s. The Forest Department was thus hardly better-placed than the Burmese firms to expand its operations on short notice. Secondly, the Burmese political elite (and the wealthy Burmese who financed it) was essentially conservative in outlook. As such, it sought to promote Burmese economic interests through a gradual re-allocation of leases, and not through de facto nationalization. See idem, "Case of U Saw," 166-68; BLHORP, 24 March 1937, 738-39; BLHORP, 13 March 1939, 937-38.

¹³⁵ Bruce, "Burma Recollections," 27; Pointon, Bombay Burmah, 86. However, in the House of Representatives radicals campaigned to nationalize the timber industry, see U Ba Hlaing, BLHORP, 27 February 1939, 500, and BLHORP, 14 March 1940, 1056.

¹³⁶ An English-trained barrister, Tin Tut was the first Burman appointed to the Indian Civil Service in 1921. He played an important role in government until his death in 1948.

success in other areas. The superior service of the Forest Department was beginning to change (albeit slowly) under political pressure. Politicians were achieving a Burmanization of sorts through their assertion of direct political control over that Department.

This chapter has shown how the system of rationalized forest use introduced after 1856 was gradually undermined during the years 1923-42. If the introduction of dyarchy in 1923 did not spell immediate change, it nevertheless focused attention on hitherto neglected issues. No longer could British foresters ignore the local political implications of their actions as had been the case in the pre-dyarchy period.

On the one hand, an increasingly desperate peasantry stepped up its challenge to the colonial state. Through wunthanu athin at the local level, and the GCBA at the national level, peasant grievances were politicized and linked with broader nationalist issues. In the Legislative Council, ambitious politicians sought to win peasant support by attacking the Forest Department over its plains reserves policy, and by emphasizing the adverse social effects of access restrictions on forest land and produce.

On the other hand, and as the Burmanization issue illustrates, the advent of partial self-rule was seized upon by the Burmese middle-class as an opportunity to reverse its declining financial position by asserting its claim to the top forestry jobs and the most valuable timber leases. If, in 1942, the Burmese political elite had yet to achieve its goal of the Burmanization of the European firms and the Forest Department, the 1937 constitutional changes and attendant politicization of forest administration nevertheless

indicated that further power-sharing between Europeans and Burmese was inevitable. For similar reasons, a gradual re-allocation of the teak leases had become a central objective of forest policy in late colonial Burma.

In many respects quite different, the peasant access and Burmanization issues were nonetheless linked in so far as they illustrated a common grievance: Burma's forests were not being managed in the 'best' interests of the Burmese. What those interests were, and who was to define them, was still the subject of debate at the time of the Japanese invasion.

The interplay between everyday forms of popular resistance and broader political processes has been a central concern of this chapter, and of the thesis as a whole. In making sense of that relationship, and its implications for the politics of forest management in colonial Burma, it is useful now to briefly compare the Burmese experience with that of other countries. By contrasting developments in British India, Dutch-ruled Java and autonomous Siam with those in British Burma, it is possible to gain a better understanding of why forests were managed in the way that they were in colonial times.

CHAPTER 8

FORESTS IN COLONIAL TIMES: BURMA'S EXPERIENCE IN COMPARATIVE PERSPECTIVE

This thesis has studied the politics of forest management in colonial Burma. It has examined the manner in which the Forest Department asserted control over forest access and use, and the ways in which others fought such control. This attempt was, of course, not new. In pre-colonial Burma, the monarchical state regulated access. What was new, however, was the method and scale of the attempt, as well as the greater coercive and administrative power of the colonial state. If early colonial forestry was virtually synonymous with teak over-harvesting under laissez-faire, than Brandis' appointment as Superintendent of Forests in 1856 signalled a new approach. As the European doctrine of scientific forestry was introduced, the Forest Department controlled a widening territory and range of activities.

Resistance to such control took various forms and changed over time. Burma's shifting cultivators, peasants and timber traders used strategies of everyday resistance and avoidance protest to circumvent forest rules. In the case of the latter two groups, such opposition was also expressed after the First World War through the nationalist movement. In contrast, early conflict between the Forest Department and the European firms gave way to cooperation based on perceived mutual advantage in the twentieth century. Differences over royalty rates notwithstanding, European predominance in the teak trade was an integral part of the government's system of rationalized forest use. However, the altered political

circumstances of the late colonial era gradually undermined that system.

By examining the forest politics of colonial Burma, this thesis has explored the ambiguities of forest control and conflict. In the end, what emerges is not a picture of 'progress' and 'romance' as colonial foresters would have it. Rather, colonial forest management was at each and every stage a political process in which resource access and use was bitterly contested. The implications of this central theme in the Burmese experience can be compared in a broader colonial context. In a concluding section, the discussion relates colonial developments to contemporary issues.

Forests in Colonial Times

Nowhere was the impact of colonialism more evident than in the forests. Under European direction, indigenous peoples were encouraged to convert jungle into agricultural land, the surplus from which formed part of an expanding global export trade. Forests were also transformed in other ways. In conjunction with European (and Asian) capitalists, colonial states extracted such species as sal, deodar (cedar) and teak for conversion into railway sleepers, ships and other things. Whether viewed as an obstacle to agriculture, or valued for selected species, Asia's forests were transformed by the expansion of European power in the nineteenth and twentieth centuries.

The colonial state played a central role in this transformation. It facilitated agricultural expansion through the remission of taxes and the provision of infrastructure. However, the colonial state also introduced rules to protect

what it considered to be valuable forest. From the mid-nineteenth century, German experts and 'scientific' techniques were deployed in the forests of South and South East Asia to promote long-term timber production. To this end, forest departments were created in, among other places, Burma, India, Java and Siam. This thesis has traced the efforts of one of those departments to assert control over the forests. In doing so, it has shown how such control needs to be understood as a function of the contested nature of the forest resource, the pivotal role of the forest department as a resource manager, and the impact of conflicting perceptions of forest use. In what follows, the Burmese experience is summarized, and then compared with that of India, Java and Siam, in light of these themes.

Contesting the Forest Resource

Conflict was an integral part of British exploitation of Burma's forests. At first, conflict was limited by the colonial state's focus on teak and its relative political and economic weakness. In the mid-nineteenth century, the British imposed fewer restrictions on forest access than did their Burmese predecessors. Prior to the 1870s, Burmese peasants and timber traders enjoyed unprecedented freedom of access to non-teak produce. Only shifting cultivators and European teak traders were seriously disrupted by the new forest policy.

But in the 1870s the Forest Department began to systematically control access. Reserves were created and the non-teak sector was regulated. These measures exacerbated conflict, and forest administration became one of the more

unpopular aspects of colonial rule. The confrontation between foresters and peasants was particularly fierce in the twentieth century as the conversion of low-lying forest to agriculture increased the pressure on the plains reserves. Moreover, the closing of the agricultural frontier and growing peasant deprivation coincided with the emergence of a nationalist movement such that access restrictions on these reserves became a central component of the anti-British struggle.

Forest politics in colonial Burma was an escalating process of control and resistance. The forest bureaucracy grew, but so too did the number and severity of forest offenses. Even before administrative retrenchment and political intervention began to weaken the Forest Department in the 1930s, it could scarcely be said that Burma's forest users were becoming more law abiding.

The nature of this conflict also changed as political, economic and ecological changes re-arranged the 'landscape of resistance'. In the twentieth century, the interests of the Forest Department and the European firms converged even if differences (notably over royalty rates) remained. By affirming the predominance of these firms, the colonial state eliminated the possibility of Burmese control of the teak trade. In the process, it hindered the development of an indigenous business class that might one day have jeopardized British rule. Yet, such favouritism guaranteed that the question of the teak leases would become a central concern of nationalists. Under the dyarchy system, politicians after 1923 sought to advance the economic interests of the Burmese

middle class through a campaign to Burmanize the forestry sector.

In contrast, an increasingly hard-pressed peasantry seized the opportunity presented by the rising nationalist movement to become more militant after the First World War. As Guha observes in the Indian context, "larger historical forces" such as mass nationalism "served to legitimize protests oriented towards forest rights, enabling peasants to claim these rights more insistently and with greater militancy".¹ Through the wunthanu athin, peasants sought to undermine British rule by denying its financial demands at the same time as they rejected the legitimacy of its laws. With the Hsaya San rebellion, such resistance turned into outright revolt. But, if peasants used these occasions to signal in no uncertain terms their opposition to colonialism, they also persisted with safer strategies of everyday resistance when faced with the superior coercive power of the state. As manifested in the inability of the Forest Department to protect the plains reserves from illicit deforestation, those covert strategies could be highly effective indeed.

Conflict between the Forest Department and shifting cultivators followed a different course. In the teak-bearing Pegu Yoma, foresters sought to win over the hill Karen through introduction of the taungya forestry system. But this system represented at best an uneasy compromise between two

¹ Ramachandra Guha, The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya (Delhi: Oxford University Press, 1989), 134. This study in historical sociology explores the social implications of scientific forestry in the Indian Himalaya during the colonial and post-colonial eras.

essentially incompatible land uses, and failed to resolve conflict in non-teak areas. As the catch crisis of the 1890s illustrated, cultivators resisted regulation by illegally felling and burning reserved species. In remote areas, flight remained an option throughout the colonial era.

Shifting cultivators destroyed reserved species in their clearings. Peasants surreptitiously entered reserves at night to steal produce. Burmese traders exceeded the terms of their harvesting licenses or suborned villagers to illicitly remove timber. These activities were ubiquitous in colonial Burma. As such, they are remarkably similar to conflict in other parts of Asia where the introduction of scientific forestry prompted local resistance. As in Burma, the creation of reserves and the multiplication of rules was bitterly contested by a peasantry loath to recognize the restriction of its forest access.

In northern India, for example, the deforestation of sal and deodar forests in the nineteenth century was crucial to the growth of that country's cities and railways, but also led to the creation of the India Forest Department (1864) and the passage of the India Forest Act (1865). These steps marked the advent of a new management system that struck "at the very root of traditional social and economic organization".² Prior to the 1890s, attention focused on demarcating residual sal forest in the Himalayan foothills, but the discovery of improved methods of processing chir pine resin led to an escalating series of restrictions on peasants

² Ibid., 185.

living in the upland Kumaun forests.³ In 1894, eight species (including sal, deodar and chir) were reserved, and rules were framed that limited peasant access to fuel and timber supplies. With the creation of reserves after 1911, customary practices such as tree lopping, grazing and the annual burning of the forest floor (for pasture), were banned. In response, peasants ignored the new rules, and the number of forest offenses soared. Such resistance became increasingly militant, and culminated in 1921, when a strike against compulsory labour (begar) and an incendiary campaign paralysed local forest administration. Shortly thereafter, the government abandoned many reserves in the area.⁴

Elsewhere in British India, a similar dynamic of control and resistance developed. The forests of southern India were originally valued for their teak, but later became an important source of timber and fuel for India's growing cities.⁵ In Uttara Kannada district, for example, forests were reserved for this latter purpose.⁶ But as peasants experienced growing hardship, they resorted to everyday forms

³ Ibid., 43-45; Richard P. Tucker, "The British Colonial System and the Forests of the Western Himalayas, 1815-1914," in Global Deforestation and the Nineteenth-Century World Economy, ed. Richard P. Tucker and J.F. Richards (Durham, N.C.: Duke University Press, 1983), 164-65.

⁴ Guha, Unquiet Woods, chap. 5.

⁵ Forests were also cleared as part of the development of coffee plantations, see C.A. Bayly, Indian Society and the Making of the British Empire. The New Cambridge History of India, vol. 2, part 1 (Cambridge: Cambridge University Press, 1988), 140.

⁶ Vandana Shiva, Ecology and the Politics of Survival: Conflicts over Natural Resources in India (London: Sage, 1991), 94-95; Madhav Gadgil, "India's Deforestation: Patterns and Processes," Society and Natural Resources 3, 2 (1990): 136.

of resistance. In addition, peasants openly contested access restrictions at conferences on forest grievances. As in Burma, however, the inability of these measures to more than marginally alleviate oppression led to increased conflict. Popular opposition turned into open defiance of the colonial state when in 1930 a Jungle Satyagraha (revolt) broke out in this district.⁷ Such resistance was not unlike that of India's tribal minorities who fought restrictions on the practice of jhum (shifting cultivation), both covertly, and when pressed, openly through fituris (small risings).⁸

In Java, Dutch rule produced comparable results. From the 1850s, the Dutch commissioned a trained staff to introduce scientific forestry.⁹ Rules declaring all forest land and teak government property led to a confrontation with Javanese villagers who persisted with wood gathering and grazing practices that were now illegal. That confrontation was particularly severe in teak-forest villages where forest police considered even "the smell of teakwood...as evidence of punishable theft".¹⁰ As with the hill Karen in Burma, Java's teak-forest villagers were favourite targets of the Forest Department because they were considered a major threat

⁷ Shiva, Ecology and the Politics of Survival, 97.

⁸ Ramachandra Guha and Madhav Gadgil, "State Forestry and Social Conflict in British India," Past and Present 123 (May 1989): 153-57; Indra Munshi Saldanha, "The Political Ecology of Traditional Farming Practices in Thana District, Maharashtra (India)," Journal of Peasant Studies 17 (April 1990): 433-43.

⁹ Peter Boomgaard, "Forest Management and Exploitation in Colonial Java, 1677-1897," Forest and Conservation History 36 (January 1992): 10-12; Nancy Lee Peluso, "The History of State Forest Management in Colonial Java," Forest and Conservation History 35 (April 1991): 67-69.

¹⁰ Peluso, "History of State Forest Management," 72.

to the teak monopoly. Not surprisingly, peasant resistance was especially militant in these areas. The millenarian Samin movement that caused the Dutch much trouble around the turn of the century was born, and remained centred, in Java's central teak forests. Like Burma's wunthanu athin, this movement rejected the laws and financial demands of the colonial state, and again, as in Burma, forest access restrictions were a leading source of peasant grievance.¹¹

In the teak forests of north-west Siam, the introduction of scientific forestry coincided with the assertion of royal control in this area in the late nineteenth and early twentieth century. As in the adjoining British-ruled Shan States, conflict at first centred on the struggle between the central authorities and the Chao (hereditary local rulers) for control of these forests.¹² With the assistance of Herbert Slade and other British foresters, the Siamese state prevailed, and a forest department (modelled on the one in Burma) was created in 1896.¹³ Popular access to the teak

¹¹ Nancy Lee Peluso, Rich Forests, Poor People: Resource Control and Resistance in Java (Berkeley: University of California Press, 1992), 69-72. This book traces the evolution of state forest control and popular resistance in colonial and post-colonial Java.

¹² Banasopit Mekvichai, "The Teak Industry in North Thailand: The Role of a Natural-Resource-Based Export Economy in Regional Development" (Ph.D. diss., Cornell University, 1988), 194-223. This thesis draws upon dependency theory to explore the political, economic and ecological effects of an export-oriented teak industry in northern Thailand.

¹³ British foresters experienced "great trouble" in getting local rulers to relinquish forest ownership, see W.F.L. Tottenham, "The Formation of the Forest Department in Siam," Indian Forester 31 (August 1905): 447; see also D. Bourke-Borrowes, "General Thoughts and Observations on Forestry in Siam," Indian Forester 54 (March 1928): 152-54; Malcolm Falkus, "Early British Business in Thailand," in British Business in Asia since 1860, ed. R.P.T. Davenport-Hines and Geoffrey Jones (Cambridge: Cambridge University

forests was then gradually limited. If a 1914 decree allowed villagers free teak for domestic use, the inconvenience and informal costs associated with acquiring a permit led peasants to extract produce illegally.¹⁴ Illegal extraction and agricultural clearance bedeviled Siamese foresters as similar offenses did their counterparts in Burma, Java and India. Moreover, such resistance continued to grow because the more that the teak trade grew, "the less people were allowed to use the resource, whether for private use or for commercial purposes".¹⁵

During the colonial era, British, Dutch and Siamese officials transformed popular forest access. That these changes provoked local opposition to the policies and practices of the forest department was not surprising. In the process, the role of this department as a resource manager came to be contested as bitterly as the forest resource itself.

Resource Management and the Forest Department

To understand forest conflict in colonial times is to appreciate the pivotal role of the forest department in resource management. In Burma, the creation of the forest service in 1856 marked a new phase in state forest control. With this agency, a powerful means of political control was established.

Press, 1989), 144.

¹⁴ David Feeny, "Agricultural Expansion and Forest Depletion in Thailand, 1900-1975" in World Deforestation in the Twentieth Century, ed. John F. Richards and Richard P. Tucker (Durham, N.C.: Duke University Press, 1988), 124, 126.

¹⁵ Mekvichai, "Teak Industry in North Thailand," 252.

The central purpose of the Forest Department was the long-term development of Burma's teak forests. The combination of a functionally-defined department and scientific principles was a felicitous means of promoting that goal. Emphasizing regulation, enumeration and calculation, scientific forestry was ideally suited to the rationalistic outlook of the colonial state. As German experts helped to organize the forest service in Burma, British recruits were sent to Germany and France for training. The result was a professional service that adapted European techniques to the Burmese setting. Teak forests were mapped, enumerated and demarcated as reserves. Subsequently, tree planting, fire-protection and other silvicultural operations were conducted under working plans that promoted the incidence of teak in these areas. By the early twentieth century, the growing complexity of forest management was reflected in the department's greater size and specialist appointments, as well as in its growing emphasis on non-teak timber production and the protection of ecologically-sensitive areas. Bureaucratic development and scientific management were thus linked in a process which enhanced state forest control.

Such control was not unambiguous. The advent of the Forest Department led to programmatic differences between forest and civil officials. A common paternalistic faith and interest in colonial rule meant that such conflict was kept within definite bounds, but differences over jurisdiction were nonetheless important. With the Burma Forest Act (1881), an attempt was made to eliminate such conflict by partially integrating the two services, but inter-departmental

friction, as manifested in the catch and plains reserves issues, remained a feature of colonial rule. Burma may have been run as a 'business concern',¹⁶ but there was not always agreement over which business was to be accorded the most concern.

This image of a 'business concern' is apt for another reason. British foresters were torn between their self-image as stewards of Burma's forests, and their duty to develop those forests in order to maximize revenue. As the administrative retrenchment of the 1930s indicates, senior officials were prepared to sacrifice the former in pursuit of the latter. Even before the Great Depression, however, forest revenue was an overriding concern of government. Scientific forestry may have been generally compatible with the development of a rational state, but in the quest to make financial ends meet, short-term expediency often proved the more powerful policy influence.

In contrast, long-term considerations led government to concentrate control of the teak trade in the hands of the European firms after the turn of the century. As part of a broader rationalization of forest activities, this move simplified forest management, and limited the power of a potentially threatening indigenous business class. In the nineteenth century, European firms had been the bane of the Forest Department. In the twentieth century, they were an essential bulwark of colonial rule.

¹⁶ This imagery is from J.S. Furnivall as noted in Robert H. Taylor, The State in Burma (London: C. Hurst, 1987), 8.

The link between scientific forestry, bureaucratic growth and private enterprise in Burma was an important but complex one. Elsewhere in Asia, that link was also crucial to the political economy of forest use. In Siam, British foresters supervised the introduction of scientific forestry as the Siamese state asserted control over a notoriously chaotic teak trade.¹⁷ Siamese foresters were sent to India and Burma for training just as their British counterparts had once gone to Germany and France. By the Second World War, valuable forests and species were being reserved and protected by a trained staff that was also beginning to address conservation issues.¹⁸ As in Burma, however, the quest to maximize revenue overshadowed this stewardship role.¹⁹

In rationalizing teak extraction, Siamese policy also entrenched the pre-eminence of British firms under a system of long-term leases.²⁰ This move was dictated by political and economic considerations. Whereas in Burma the British sought to eliminate a possible internal challenge to their rule, the Siamese were anxious not to provide any justification for a British invasion (as the Burmese had done in 1885). By affirming British economic power, the Siamese capitalized on Britain's desire "to keep Thailand as an

¹⁷ Mekvichai, "Teak Industry in North Thailand," 196-207.

¹⁸ Feeny, "Forest Depletion in Thailand," 124-25; Kamon Pragtong and David E. Thomas, "Evolving Management Systems in Thailand," in Keepers of the Forest: Land Management Alternatives in Southeast Asia, ed. Mark Poffenberger (West Hartford, Conn.: Kumarian Press, 1990), 169.

¹⁹ Bourke-Borrowes, "Forestry in Siam," 157-60.

²⁰ Falkus, "Early British Business in Thailand," 133-46.

economic colony, if not a political one".²¹ This policy also reflected the fact that the Siamese were in no position at the turn of the century to extract their own timber. As in Burma, the working of remote forests (as a result of the exhaustion of accessible tracts) demanded "an investment of fixed and working capital on a scale that only the major Western companies could provide".²² In the end, the result in early twentieth-century Burma and Siam was the same: the assertion of political and economic control over teak forests by a central state acting in conjunction with private (mainly British) firms.

Unlike Burma, however, Siam was never formally colonized. The significance of this situation only became fully apparent in the 1930s. In Burma, British rule - even under partial self-government - ensured that, in the end, the Burmese political elite was unable to rapidly alter the predominance of the European firms. In contrast, the absence of formal colonial control in Siam meant that indigenous political groups, such as the young military and civilian officials who ended that country's absolute monarchy in the 1932 revolution, had more of an opportunity to challenge European control of the teak trade. The movement to nationalize the teak industry after 1932, for example, signalled a shift in Siam's forest policy that was simply not possible in colonial

²¹ Mekvichai, "Teak Industry in North Thailand," 207. This quasi-colonial status was symbolized in the creation after 1883 of a British Consulate at Chiangmai to protect British interests in the area.

²² Ian Brown, The Elite and the Economy in Siam c. 1890-1920 (Singapore: Oxford University Press, 1988), 118-19; see also Falkus, "Early British Business in Thailand," 135.

Burma at that time.²³ Yet, the importance of Siamese autonomy during the colonial era must not be overrated. Despite the expansion of state logging operations, it was not until 1960 that British domination of the country's teak industry was brought to an end; that is, a decade after the Burmese, who had meanwhile gained their independence in 1948, nationalized their own forest industry.²⁴

If anything, the relationship between state forest control and private enterprise was more ambiguous in Dutch-ruled Java than it was in either colonial Burma or Siam. In the early to mid-nineteenth century, the Dutch colonial state worked the main teak forests, but with the introduction of the 1865 forest regulations that arrangement was phased out. Private enterprise then assumed a growing role until, in 1894, it controlled 95 per cent of the trade.²⁵ But, whereas in Burma the British moved to concentrate extraction in private (European) hands at about this time, the Dutch in Java followed a reverse course: "private enterprise, so important at the turn of the century, was slowly but surely

²³ Mekvichai, "Teak Industry in North Thailand," 227.

²⁴ It should be noted that the Second World War was a major set-back to Siamese efforts to nationalize the teak industry. As a consequence of its alliance with Japan, Siam (or Thailand as it was by then known) was forced to restore British teak concessions by the Allies. It was not until 1953 that the Thai government was able to resume its nationalization programme through expansion of the state-owned Forest Industry Organization, see *Ibid.*, 228-29.

²⁵ Boomgaard, "Forest Management and Exploitation," 12; J.S. Furnivall, Netherlands India: A Study of Plural Economy (1939; reprint, Cambridge: Cambridge University Press, 1967), 201.

crowded out".²⁶ In part, this decision reflected the underdeveloped nature of Dutch capitalism in the forest sector.²⁷ There was no firm in Java of equivalent stature to the Bombay Burmah Trading Corporation Limited (BBTCL) in Burma and Siam.²⁸ But, the decision also reflected the ability of Dutch foresters to exert greater control over Java's compact teak forests than their counterparts elsewhere. As with the British, the Dutch imported German personnel and techniques to assist in the assertion of state forest control.²⁹ Reserves were established and rigorously protected by forest police. The creation of working plans paralleled developments in Burma, and reflected a similar quest to "get full value from the scientific regulation of the forest districts".³⁰ The Dutch may ultimately have forsworn private extraction, but their control of Java's teak forests was, if anything, more

²⁶ Boomgaard, "Forest Management and Exploitation," 12. An 1897 Forest Regulation provided for the gradual exclusion of private enterprise. Thus, whereas in 1900 private firms managed all of Java's teak forests, by 1930 they controlled only 12 per cent of the total area, see Furnivall, Netherlands India, 202, 325.

²⁷ Furnivall, Netherlands India, 201. This situation was in marked contrast to that in the agricultural sector, see Richard Robison, Indonesia: The Rise of Capital (Sydney: Allen and Unwin for the Asian Studies Association of Australia, 1986), 6-10.

²⁸ The BBTCL's attempt to establish operations in Java's teak forests in the early twentieth century was ultimately frustrated by its inability "to come to any satisfactory arrangement with the Dutch Government for a continuity of working rights," see Annual Report of the Bombay Burmah Trading Corporation Limited (henceforth ARBBTCL) for 1911-12, 4; see also ARBBTCL for 1913-14, 4; ARBBTCL for 1906-07, 4-5.

²⁹ Similarly, the Dutch required that officers destined for the superior service be trained in forestry at a university in Europe, see Furnivall, Netherlands India, 325.

³⁰ Peluso, "History of State Forest Management," 71.

pronounced than in Burma. And, while some Dutch officials disapproved of the severe access restrictions imposed on villagers, their protests were "no match for the increasingly efficient state forest protection machine".³¹

In contrast, the assertion of state forest control in nineteenth-century India was the occasion of bitter inter-departmental wrangling. As in Burma, programmatic differences between the Forest and Civil Departments were the source of the problem. Although these differences cropped up in different places and at various times, they were nowhere more evident than in the unwillingness of the Madras government to accede to the India Forest Act (1878). If that government had a 'tradition' of upholding village rights, it also objected to the 'greatly enlarged powers' that the Forest Department would enjoy under the proposed legislation.³² Moreover, civil officials feared that the new law, "by sharply restricting customary usage, would adversely affect the agrarian economy".³³ In early twentieth-century Kumaun, Commissioner Percy Wyndham questioned the wisdom of a Forest Department that acted as if "the world were made for growing trees and men were vermin to be shut in".³⁴ As elsewhere in British India, it was feared that such an attitude would lead to civil unrest.

³¹ Ibid., 72.

³² Ramachandra Guha, "An Early Environmental Debate: The Making of the 1878 Forest Act," Indian Economic and Social History Review 27, 1 (1990): 69-70.

³³ Ibid., 71.

³⁴ Quoted in Guha, Unquiet Woods, 108.

The role of the Forest Department in India was accentuated by the absence of large-scale European firms in the extraction business. In the timber trade of northern India, for example, British merchants after 1860 were rare, and private extraction was "almost entirely in Indian hands".³⁵ However, the Department's role in that trade was also important, and extended to the operation of a resin processing plant.³⁶ As in Burma, forest management became more complex in twentieth-century India. The introduction of working plans led to a more systematic forest exploitation: "a variety of tree species that had previously been considered of no commercial value" were harvested and "new uses for familiar species were developed".³⁷

During the colonial era, Asia's forest departments acquired a knowledge about the forests that was used to rationalize forest activities. An expanding bureaucracy used scientific principles to assert control over valuable forests often, but not always, in conjunction with capitalist enterprise, and typically despite the opposition of civil officials. But forest politics in colonial times was not only about the empowerment of forest departments, and ensuing

³⁵ This trade was controlled by Hindu and Sikh merchant sects, see Tucker, "Forests of the Western Himalayas," 162-63; see also idem, "The British Empire and India's Forest Resources: The Timberlands of Assam and Kumaon, 1914-1950," in World Deforestation in the Twentieth Century, ed. John F. Richards and Richard P. Tucker (Durham, N.C.: Duke University Press, 1988), 107, where it is noted that Calcutta firms were given leases on favourable terms in the 1920s to develop Upper Assam's forests.

³⁶ It was also responsible for railway-sleeper production, see Tucker, "India's Forest Resources," 100.

³⁷ Ibid., 97; see also Madhav Gadgil and Ramachandra Guha, This Fissured Land: An Ecological History of India (Delhi: Oxford University Press, 1992), 136-38.

conflict with diverse forest users. It was also a struggle of ideas that embraced conflicting perceptions of what constituted legitimate forest use.

Conflicting Perceptions of Forest Use

One of the most important colonial legacies in Asia concerned the new ideas that transformed the politics, economics and ecology of the conquered territories. That transformation was particularly evident in Burma where the country's forests bore the imprint of powerful new ideas of social practice. For three decades after the first Anglo-Burmese war (1824-26), the British subjected the Tenasserim forests to unchecked exploitation according to laissez-faire principles. The ensuing degradation only confirmed what scientists had all along predicted: laissez-faire forestry and long-term timber production were incompatible. The acquisition of Pegu in 1852 coincided with an altered imperial context in which new forms of state forest control were possible.

To this end, the British employed German ideas and personnel to manage Burma's forests. The new approach transformed Burmese forest politics as laissez-faire forestry never did. Whereas laissez-faire forestry emphasized freedom of access, scientific forestry was based on strictly limited access. While the former eschewed state intervention, the latter was premised on such action. As such, scientific management was bound to come as a shock to forest users accustomed to erratic or lax forest rules. That shock turned to resistance wherever its impact was felt in Lower Burma (after 1856) and Upper Burma (from 1886). But, if all forest

users felt the bite of the new restrictions, some groups were more adversely affected than others. As the objective of scientific forestry was long-term commercial timber production, it was not surprising that the system ultimately found favour with the European firms (once Department extraction was curtailed after the turn of the century). Indeed, with its emphasis on large-scale production over an extensive and difficult terrain, scientific management was ideally suited to the structure and resources of the BBTCL and other capitalist enterprises.

In contrast, scientific forestry limited indigenous access with few, if any compensating benefits. Burmese traders may have prospered, particularly in the nineteenth century, but the rationalization of the teak trade generally reduced their economic opportunities. To the peasantry, scientific management was an escalating series of restrictions that were all the more acutely felt as unreserved forests were depleted in the early twentieth century. For certain shifting cultivators, such management was, as manifested in the taungya forestry system, an opportunity to minimize state exactions and earn a small income. But, as the struggle to implement this system indicated, these cultivators were well aware that taungya forestry was ultimately based on the elimination of their way of life. Moreover, that system did not embrace all shifting cultivators. In the twentieth century, the campaign against these groups spread even to the remote parts of Burma.

That scientific forestry proved inimical to indigenous interests was only to be expected. It privileged export-

oriented teak production over the domestic forest economy. It also aimed to convert Burma's species-rich forests into uniform stands of high-value timber. Whereas the former were of considerable use value to the Burmese, the latter were not, and in any case, were primarily destined for external markets. Concurrently, foresters showed little interest in peasant needs, as illustrated in their failure to seriously address the local-supply issue and their arbitrary classification of peasant produce as 'minor'.

Scientific forestry was also used to belittle indigenous practices. If long-term commercial timber production was scientific, then subsistence-oriented activity was 'unscientific'. Of course, some practices were considered to be more unscientific than others. The degree of official disapprobation depended on the threat that a given practice posed to commercial timber (and especially teak) production, as well as the general pseudo-anthropological reasoning that shaped European perceptions of indigenous peoples in the colonial era.³⁸ Thus, peasants living on the plains were 'wasteful', but the 'primitive' hill Karen who inhabited the teak-bearing Pegu Yoma were the very antithesis of responsible forest use.

However, the fundamental divide was between Europeans and Burmese. Whereas Europeans were scientific, modern, rational and ecologically-minded, the Burmese were unscientific, backward, irrational and anti-ecological. In

³⁸ Robert H. Taylor, "Perceptions of Ethnicity in the Politics of Burma," Southeast Asian Journal of Social Science 10, 1 (1982): 7-22; E.R. Leach, Political Systems of Highland Burma: A Study of Kachin Social Structure (1954; reprint, London: Athlone Press, 1986).

practice, this perceptual dichotomy had important implications for forest management. Thus, Burmese traders failed to obtain sizable teak leases not because they were the victims of official discrimination, but rather because they were 'inefficient', 'unreliable' and 'wasteful'. Peasants were unable to manage their own village forests not because they were given insufficient powers and opportunity, but rather because they were 'improvident'. Shifting cultivators were to be dissuaded from their lifestyle not because it conflicted with state forest control, but because such a lifestyle was ecologically 'destructive'. In short, because the natives could not manage their own forests, Europeans had an obligation to do it for them.

Scientific forestry was thus a highly paternalistic but useful justification for British rule. In response, peasants could always hark back to a pre-colonial era in which customary usage was reputedly integral to a subsistence-oriented economy. Under the Burmese kings, it was believed, forest access was guaranteed and peasant needs provided for. That such a 'tradition' was largely invented did not detract either from its emotive appeal or its usefulness as a justification for everyday resistance. After the First World War, the rise of Burmese nationalism was an additional means of building an alternative perception of forest use. Thus, access restrictions were not only a violation of traditional rights; they were also fundamentally 'anti-Burmese' in character. It was this combination of perceptions that underlay the events of the 1920s and 1930s which ultimately undermined the colonial system of rationalized forest use.

The British estimation of what was acceptable may have been at odds with Burmese perceptions of what was appropriate, but this situation was hardly unique to colonial Burma. Elsewhere in Asia, the introduction of scientific management represented a belated attempt by the state to rectify the damage caused to valuable forests by earlier laissez-faire policies. In the process, the new management system set forest departments on a collision course with indigenous peoples who resisted the subversion of pre-existing patterns of forest access and use.

In India, as in Burma, scientific forestry was introduced as a response to widespread over-harvesting during the laissez-faire era.³⁹ If in Burma the depletion of Tenasserim's teak forests under early British rule led to the imposition of state forest control in 1856, then in India it was "the large-scale destruction of accessible forests in the early years of railway expansion [that] led to the hasty creation of a forest department" in 1864.⁴⁰

However, as India's Forest Department moved to protect valuable forest, it converted areas that, in many cases, were already communally managed as common property resources into reserves.⁴¹ By 1900, over 20 per cent of India's land area had

³⁹ Rudimentary state forest control was introduced in the Malabar teak forests in 1806 but the protests of timber merchants led to the elimination of such control in 1823, see B. Ribbentrop, Forestry in British India (Calcutta: Government Printing, 1900), 64-66.

⁴⁰ Guha, Unquiet Woods, 37.

⁴¹ On the difference between 'communally managed' and 'open access' common property resources in India (and how the British failed to distinguish between the two), see J.E.M. Arnold and W.C. Stewart, Common Property Resource Management in India, Tropical Forestry Papers No. 24 (Oxford: Oxford Forestry Institute, 1991), 2-5; Gadgil, "India's

been so acquired such that "the working of state forestry could not fail to affect almost every village and hamlet in the subcontinent".⁴² Shifting cultivators were the worst affected, because, as with the hill Karen of Burma, their fields were located in those areas that contained the most valuable timber.⁴³ As in Burma, though, the peasantry was also adversely affected, because as access to common forests was reduced, foresters made no provision for the long-term production of minor forest products. As local forests deteriorated from a lack of management, villagers resented the fact that in nearby reserves "plants that provided their forest resources disappeared under management practices that favored timber species".⁴⁴ While foresters denigrated peasant practices as 'destructive', Indian peasants responded by asserting traditional claims. In Kumaun, for example, the firing of the forest floor noted earlier derived much of its appeal as a resistance strategy from the fact that it reasserted an important traditional practice. The Indian nationalist movement reinforced such rural resistance when it launched a country-wide campaign against British rule after the First World War that linked nationalist objectives to

Deforestation," 131-35.

⁴² Guha and Gadgil, "State Forestry," 147.

⁴³ Ibid., 152.

⁴⁴ Peter S. Ashton, "A Question of Sustainable Use," in People of the Tropical Rain Forest, ed. Julie Sloan Denslow and Christine Padoch (Berkeley: University of California Press, 1988), 191-92. Local forests deteriorated because pre-colonial management had been eliminated and these forests were now treated as an open-access resource, see Gadgil, "India's Deforestation," 134-35.

defiance of the forest regulations.⁴⁵ As in Burma, the assertion of traditional claims combined with nationalist agitation to undermine scientific forestry practices.

The destruction of as much as 30 per cent of Java's teak forests between 1840 and 1870 prompted the introduction of scientific management in that territory.⁴⁶ During these years, the Dutch had imposed the so-called Cultivation System, an arrangement whereby Javanese peasants were required to dedicate a certain amount of land (20 per cent) and labour (66 days per year) to the production of specified commercial crops (notably sugar) grown on the state's behalf.⁴⁷ In the process, however, the demand for timber both as a building material (sugar factories, coffee warehouses, plantation housing), and as a fuel (used in the processing of sugarcane, coffee and tobacco), resulted in teak extraction "without regard for logging regulations".⁴⁸ If, in Burma and India, forest depletion was broadly associated with military-strategic concerns (shipbuilding, railway construction), in mid-nineteenth-century Java, over-harvesting reflected a Dutch concern to boost sugar and other agricultural exports. In Java, as in India and Burma, "the power of other government sectors was sufficient to make the state itself the forests' major enemy".⁴⁹

⁴⁵ Guha and Gadgil, "State Forestry," 161.

⁴⁶ Boomgaard, "Forest Management and Exploitation," 12.

⁴⁷ Robison, Indonesia: The Rise of Capital, 6; David Joel Steinberg et al., In Search of Southeast Asia: A Modern History, rev. ed. (Sydney: Allen and Unwin, 1987), 157-58.

⁴⁸ Peluso, "History of State Forest Management," 68.

⁴⁹ Ibid.

However, state-sanctioned over-harvesting led to fears of a timber famine that prompted the imposition of strict rules after 1870.⁵⁰ Yet, as in the British colonies, the advent of scientific management in Java's teak forests affected indigenous forest users. Subsistence needs were subordinated to the dictates of commercial timber production as the colonial state usurped control over Java's 'unowned' forests. But, rules that required the purchase of wood and fuel only encouraged illicit trade and 'theft' as villagers sought to meet their needs at the same time as they asserted a 'culture of resistance'.⁵¹ Like their British counterparts, Dutch foresters extolled the virtues of scientific forestry. Whereas the demarcation of reserves was beneficial because it protected watersheds, teak planting under a local taungya forestry scheme known as tumpang sari gave employment and temporary forest access to labourers. However, this scheme also gave rise, as in Burma, to "a new kind of forest-dependent proletariat" in which the system's success was premised on the poverty of its labourers.⁵² In Java, official rhetoric notwithstanding, scientific forestry was a doctrine in which basic village needs were given little attention in the quest to maximize timber production. But in a context of effective Dutch repression, no nationalist movement developed in the 1920s and 1930s that could effectively assist peasants

⁵⁰ Furnivall, Netherlands India, 201-2.

⁵¹ Peluso, Rich Forests, Poor People, 12-17.

⁵² Peluso, "History of State Forest Management," 71.

(as in India and Burma) in their challenge to the status quo.⁵³

As adopted in turn-of-the-century north-west Siam, scientific forestry also had a commercial focus. The rapid depletion of the teak forests in the nineteenth century was less a function of government policy (as in Burma, India and Java), as it was a reflection of the absence of central authority in the region. Nevertheless, teak over-harvesting served as a "major excuse" for the Siamese state to extend its rule over "what were previously vassal states".⁵⁴ In 1899, the region's forests were formally claimed by the central state, and responsibility for their management was transferred to the Royal Forest Department. This move not only marginalized the local Chao, it also made the practice of shifting cultivation in highland forests illegal.⁵⁵ However, the Department was too weak to stop such practices, and in any event, focused on the teak trade until the 1930s.⁵⁶ Lacking the administrative and coercive powers of the British and Dutch, the Siamese were unable to attain more than an imperfect control over the forest sector. As a result, the impact of scientific forestry on the subsistence economy was not as pronounced during the colonial era in Siam, as it was in Burma, India and Java. Nevertheless, there was, and still is, a "considerable tension between the traditional Thai

⁵³ Steinberg et al., In Search of Southeast Asia, 309.

⁵⁴ Mekvichai, "Teak Industry in North Thailand," 207-8.

⁵⁵ Peter Kunstadter, "Hill People of Northern Thailand," in People of the Tropical Rain Forest, ed. Julie Sloan Denslow and Christine Padoch (Berkeley: University of California Press, 1988), 103.

⁵⁶ Feeny, "Forest Depletion in Thailand," 124-25.

villager's view of forests and forest products as common property resources and official government policy".⁵⁷

It is the impact of scientific forestry (itself a response to earlier laissez-faire policies) on pre-existing indigenous practices that is at the heart of Asia's colonial forest politics. If there is a danger of romanticizing 'traditional' practices by accepting "honeyed grandmothers' tales",⁵⁸ it is nevertheless apparent that the growing commercialization of the forests during the colonial era transformed access and use. In many respects, this process simply repeated what had occurred in early modern Europe where forests were enclosed and peasants dispossessed of their rights.⁵⁹ In seventeenth-century England, for example, labourers who were "notoriously better off in woodland areas" fought enclosure, but were forced to give way as their needs "conflicted with the rational exploitation of woods for the production of timber".⁶⁰ A similar pattern of events unfolded in Germany where by the end of the eighteenth century "no State organization was more hated...than the forest police".⁶¹ However, the advent of scientific forestry in Asia occurred

⁵⁷ Ibid., 125-26.

⁵⁸ Lenin quoted in Peter Linebaugh, "Karl Marx, the Theft of Wood, and Working Class Composition: A Contribution to the Current Debate," Crime and Social Justice 6 (Fall-Winter 1976), 13.

⁵⁹ Guha, Unquiet Woods, 186-89; E.P. Thompson, Whigs and Hunters: The Origin of the Black Act (London: Allen Lane, 1975).

⁶⁰ Keith Thomas, Man and the Natural World: Changing Attitudes in England 1500-1800 (Harmondsworth, Middlesex: Penguin, 1983), 200.

⁶¹ Endres cited in Franz Heske, German Forestry (New Haven: Yale University Press, 1938), 254; Linebaugh, "Theft of Wood," 9-14.

in a different context in which resource extraction was tailored to the needs of the European powers. The effects of the colonial legacy are still in evidence today. By briefly noting those effects by way of conclusion, it may be possible to better appreciate the contemporary significance of a crucial period in global forest politics.

Conclusion: The Post-Colonial Legacy

With few exceptions, colonialism's collapse after the Second World War did not alter the basic dynamic of central political control and global economic integration that transformed Asia's forests in colonial times. To be sure, certain countries (including Burma) rejected Western capitalism in favour of Soviet-style state socialism. But, as its name implies, this alternative presumed a centralization of political and economic power that was potentially more disruptive of forest rights than under capitalism.⁶² Moreover, capitalist and socialist states have shared a common faith in economic 'development'. In practice, this has meant the intensified exploitation of natural resources in the quest to industrialize.⁶³ Deforestation has been the predictable result.

In the process, Third World states have relied on colonial techniques of forest control. Forest departments reserve land and species, and restrict popular access, as before. And yet, altered political and economic circumstances

⁶² Melanie Beresford and Lyn Fraser, "Political Economy of the Environment in Vietnam," Journal of Contemporary Asia 22, 1 (1992): 3-19.

⁶³ Gadgil and Guha, This Fissured Land, 185-207.

have reduced the ability of many departments to sustainably manage the resource. If revenue creation was always central to colonial policy, in the post-colonial era, the quest for development (and the exigencies of debt repayment) have led to even greater pressures to produce a forest surplus. Moreover, timber harvesting has become so politicized that 'cronyism' is endemic in such countries as Malaysia, Indonesia, the Philippines and India.⁶⁴ As in late colonial Burma, corruption is an obstacle to forest management. In this regard, Third World politicians are not unlike those opportunistic English landlords of the eighteenth century who cleared forests because trees were regarded as "an excrescence of the earth, provided by God for the payment of debts".⁶⁵

Third World elites thus often prevent sustainable forestry in their haste to maximize timber production. They have also left in place access restrictions that were the source of peasant complaint under colonial rule. As a result, conflict has not only persisted, it has intensified, as agricultural clearance and logging increase the pressure on residual forests. By enshrining commercial extraction at the heart of forest management, post-colonial states subvert, as

⁶⁴ James Rush, The Last Tree: Reclaiming the Environment in Tropical Asia (New York: Asia Society, 1991), 35-47; Victor T. King, "Politik Pembangunan: The Political Economy of Rainforest Exploitation and Development in Sarawak, East Malaysia", and Amador A. Remigio Jr., "Philippine Forest Resource Policy in the Marcos and Aquino Governments: A Comparative Assessment," both in "The Political Ecology of South East Asia's Forests: Transdisciplinary Discourses," ed. Raymond L. Bryant, Philip Stott and Jonathan Rigg, Global Ecology and Biogeography Letters (Special Issue, forthcoming).

⁶⁵ Second Earl of Carnarvon, cited in Thomas, Man and the Natural World, 200.

did their colonial predecessors, the subsistence economy on which poor peasants depend.

As in colonial times, shifting cultivators are the worst affected by access restrictions. Scapegoats for others' actions, they have experienced persistent harassment, and in many areas face the loss of their way of life. Following the Burmese example, certain states have tried taungya forestry as a means of cheaply re-stocking forests and gradually eliminating a detested agricultural practice. The system has been attempted in Asia (Thailand, Indonesia, India) and Africa (Nigeria, Tanzania, Kenya); in the process, 'taungya' has become part of the international foresters' lexicon.⁶⁶ Its continued use is further proof of the contemporary influence of colonial ideas and practices.⁶⁷

Given that influence, it is imperative to understand the historical development of those inter-linked political and economic forces that are transforming Third World forests. The political-ecology literature discussed in Chapter 1 has begun to address this process, but more work needs to be

⁶⁶ Dusit Banijsbatana, "Forest Policy in Northern Thailand," in Farmers in the Forest: Economic Development and Marginal Agriculture in Northern Thailand, ed. Peter Kunstadter, E.C. Chapman and Sanga Sabhasri (Honolulu: University Press of Hawaii, 1978), 57-58; K.G. Tejwani, "Agroforestry Practices and Research in India," in Agroforestry: Realities, Possibilities and Potentials, ed. Henry L. Gholz (Dordrecht: Martinus Nijhoff, 1987), 113-15; R.G. Lowe, "Development of Taungya in Nigeria," in *Ibid.*, 137-54; S.A.O. Chamshama, G.C. Monela, K.E.A. Sekiete and A. Persson, "Suitability of the Taungya System at North Kilimanjaro Forest Plantation, Tanzania," Agroforestry Systems 17, 1 (1992): 1-11; K.F.S. King, Agri-Silviculture: The Taungya System (Ibadan: Department of Forestry, University of Ibadan, 1968).

⁶⁷ Stephen M.J. Bass, "Building from the Past: Forest Plantations in History," in Plantation Politics: Forest Plantations in Development, ed. Caroline Sargent and Stephen Bass (London: Earthscan, 1992), 41-75.

done. In light of this study, what are some of the general implications for analysis that may be derived from an understanding of forest politics in colonial Burma?

One central finding concerns the central role of the state in forest politics. As the Burmese experience illustrates, the colonial state facilitated the growth of capitalist enterprise. But it also pursued its own distinctive, if variable interests. This was most evident in its efforts to balance revenue creation with long-term timber production. The advent of scientific forestry was critical in this regard. But the colonial state was also deeply concerned about the assertion of political control - in the remote but economically important Pegu Yoma, for example.⁶⁸ These interests did not always coincide with those of capitalist enterprise. Even the twentieth-century predominance of the European firms was as much a reflection of the state's own political and economic interests as it was the result of business influence in government. In the pursuit of those interests, the colonial state drew upon its unique role as a resource manager to enhance control over society and resources.

However, the colonial state was not monolithic. Undoubtedly, colonialism encouraged social cohesion and a particular mind-set that was reflected in the attitudes and

⁶⁸ For an analysis of how the contemporary Indonesian state uses social forestry programmes to maintain political control in rural Java, see Charles Victor Barber, "The State, the Environment, and Development: The Genesis and Transformation of Social Forestry Policy in New Order Indonesia" (Ph.D. diss., University of California, Berkeley, 1989).

actions of European officialdom.⁶⁹ But there were also differences of perception and interest which, at times, threatened the internal unity of the state. As noted, programmatic differences were at the heart of conflict between forest and civil officials in colonial Burma. Such conflict was most intense in the 1870s when the forest service was rapidly expanding its activities and forest legislation was being debated. It nevertheless persisted throughout the colonial era, albeit at a much reduced level in later years. It is thus important to recognize not only the centrality of state interests, but also the bureaucratic politics that shaped the determination of those interests.

This thesis has also demonstrated the ability of everyday forms of peasant resistance to frustrate state forest control. To be sure, there are limits to such resistance. Yet, everyday resistance is particularly effective as a means of circumventing forest access restrictions. Partly, this is because forests provide perfect cover for clandestine action. But its efficacy also derives from the fact that it is in forests that elite control is usually weakest.⁷⁰ In a sense, the argument here comes full circle with a point made in Chapter 1. There, it was suggested that the colonial state was anxious to define (or 'imagine') forests because control in these areas was most tenuous. As this thesis has shown,

⁶⁹ George Orwell, Burmese Days (1935; reprint, Harmondsworth, Middlesex: Penguin, 1987). On the social differentiation of colonial elites, see Ann Laura Stoler, "Rethinking Colonial Categories: European Communities and the Boundaries of Rule," Comparative Studies in Society and History 31 (January 1989): 134-61.

⁷⁰ James C. Scott, Domination and the Arts of Resistance: Hidden Transcripts (New Haven: Yale University Press, 1990), 189.

however, despite the best efforts of foresters to map, enumerate, demarcate and patrol reserves, peasants were often able to frustrate their attempts. Given the need to police an extensive area with a limited staff, what is surprising is not that the Forest Department failed to achieve the desired control, but rather that it was able to achieve any control at all.

Finally, this thesis has highlighted the ambiguous relationship between colonialism and the emergence of modern indigenous politics on the one hand, and scientific forestry, access control and conservation on the other. As Chapter 7 noted, Burmese nationalists attacked colonial forest policy in the 1920s and 1930s for not being in the best interests of the Burmese. Whereas peasants were denied access to produce or land, the urban middle class was deprived of opportunities in government and business. Hence, Burma's forests were not only being run as a 'business concern'. They were, above all, being managed as a European business concern, complete with European doctrines of management (scientific forestry) and economics (capitalism).

Yet, the championing of peasant rights and nationalist principles notwithstanding, the Burmese political elite failed to articulate a comprehensive alternative strategy. No effort was made, for example, to suggest how popular forest access was to be balanced with long-term conservancy under indigenous rule.⁷¹ The implications of this lacuna in the nationalist programme became readily apparent after 1937

⁷¹ But see the remarks of Senator U Kyaw concerning the protection of plains reserves, Burma Legislature, Senate Proceedings, 1 March 1938, 96, and 4 March 1940, 104-5.

when the Burmese elite gained additional powers under the last pre-war constitution. In a pattern that has subsequently repeated itself in many post-colonial Third World states, forest management in late colonial Burma came to be associated with political opportunism: the manipulation of forest rules and access for the benefit of the incumbent elite. Forest management was largely brought under indigenous control, and political expediency became the order of the day.

In 1876, one of the principal architects of state forest control in British India, B.H. Baden-Powell, argued that all conservancy measures were "necessarily disliked...the fact of restriction, reasonable or not, is what the popular mind feels".⁷² In this view, forest conservancy and public opinion were inevitably at odds. Regrettably, the subsequent record of forest politics in colonial Burma did little to invalidate this observation.

But as this thesis has shown, it could hardly have been otherwise. Given imperial interests, forest conservancy was linked to access restrictions and long-term timber production in such a manner that the interests of Burmese peasants, shifting cultivators and timber traders were neglected. The system of rationalized forest use that was introduced after 1856 was, after all, a colonial creation, and was seen as such by the Burmese. Not surprisingly, then, the advent of partial self-rule marked a new phase in forest politics in which that system was gradually undermined. If an alternative system had not emerged at the time of the Japanese invasion

⁷² B.H. Baden-Powell, "Forest Conservancy in its Popular Aspect," Indian Forester 2 (July 1876): 3-4.

in 1942, colonial forest policy had nevertheless been irrevocably altered. Founded on the ascendancy of British interests, that policy in the late colonial period was finally beginning to respond to Burmese demands. A new forest politics was thus developing in which the local political implications of forest management were of central concern. The forest resource continued to be contested, but under new circumstances.

APPENDIX A

GLOSSARY

- Bobabaing. Ancestral lands; used by peasants and traders as a means to circumvent colonial restrictions on cutch production.
- Chao. Hereditary local rulers in north-west Siam (see also Sawbwa).
- Compound. To inflict an on-the-spot fine for a violation of the forest rules.
- Cutch. Water extract of the sha tree used for tanning and dyeing purposes in the nineteenth and early twentieth centuries.
- Disforest. To clear a reserve of forest cover in order to facilitate permanent cultivation.
- Do Bama
Asiayon. 'We Burmese' Association; 1930s political group of youth and students.
- Fire-trace. An area of varying width on which vegetation is cut and burned so as to facilitate the protection from fire of a designated area.
- Girdling. Method of killing a tree by removing a ring of bark and sapwood around its base; used as a means to regulate teak extraction.
- Improvement
fellings. Silvicultural technique involving selective tree removal in order to facilitate the growth of teak and other designated species.
- Kyo-waing. Reserved Forest.
- Linear
valuation
survey. Technique pioneered by Dietrich Brandis in 1856 to obtain an estimate of the incidence of teak in a given area.
- Ma-bap. 'Sole parent' or guardian; paternalistic perception of the relationship between a European civil official and the Burmese peasants under his charge.
- Ma-hout. Timber elephant manager; occupation popular with the Karen in southern Burma.
- Myo-ok. Township officer under British rule.

Myo-wun. Provincial governors appointed by the Burmese monarchy.

Nat. Animistic beings or spirits thought to control most aspects of human life.

Pongyi kyaung. Monastery; Buddhist school.

Sanad. Treaty (as between the British government and Sawbwa).

Sawbwa. Hereditary local rulers in the Shan States.

Sit-tans. Pre-colonial administrative records.

Taik-thu-gyi. Headman of a sparsely settled township.

Taungya. Dry hill cultivation by shifting cultivators.

Taungya forestry. Reforestation method whereby shifting cultivators plant teak and other species in their clearings.

Teak selection system. Harvesting based on the selective extraction of teak.

Thu-gyi. Headman (usually of a village).

Uniform system. Timber extraction by clear felling followed by natural regeneration.

Working plan. Document detailing timber extraction and regeneration operations in a forest reserve or division.

Wunthanu athin. Village nationalist organizations of the 1920s and 1930s.

Ya-thit. Undersized teak log.

Yoma. Range of hills.

APPENDIX B

A NOTE ON FOREST LANDS AND SPECIES

As a result of differing conditions of geology, climate and elevation, Burma's forests are characteristically diverse. From the mangrove swamps of the Irrawaddy delta to the pine groves of the Shan hills, these forests embrace a wide variety of forest types. Scholars have described Burma's forests in detail, but for this thesis a general and selective schema is appropriate.¹

TABLE B.1

SELECTED BURMESE FOREST TYPES
BY CHIEF LOCATION AND DISTINGUISHING FEATURES

Forest Type	Location	Features
1. Tropical		
* Evergreen Rainforest	Tenasserim	<80" rain
* Mangrove Swamp	Delta	Tidal/flood
* Mixed Evergreen and Deciduous	Pegu Yoma	40-80" rain >3,500'
* Dry Deciduous and Scrub	Dry Zone	>50" rain
2. Subtropical	Shan States	3,500-7,500'
3. Temperate	North Burma	<6,000'

Source: Adapted from John H. Davis, The Forests of Burma (Gainesville, Flor.: University of Florida, 1960), 2-3.

¹ For example, see H.G. Champion, "A Preliminary Survey of the Forest Types of India and Burma," Indian Forest Records (n.s.), Silviculture, 1, 1 (1936): 1-286; M.V. Edwards, "Burma Forest Types (according to Champion's Classification)," Indian Forest Records (n.s.), Silviculture, 7, 2 (1950): 135-73; L. Dudley Stamp, The Vegetation of Burma from an Ecological Standpoint (Rangoon: University of Rangoon, 1924); Sulpice Kurz, Preliminary Report on the Forest and other Vegetation of Pegu (Calcutta: Baptist Mission Press, 1875).

Thus, Burma's forests contain evergreen and deciduous trees, and may be divided into tropical, subtropical and temperate forest types. In this study, it is the tropical forests that are of primary interest.

Table B.2 illustrates why this was so. From a commercial perspective, the temperate and subtropical forests of the sparsely settled north and north-east are of minimal importance when compared with the tropical forests situated in the more densely populated central and southern regions.

TABLE B.2
DISTRIBUTION OF COMMERCIAL SPECIES BY FOREST TYPE
IN BURMA

Forest Type	Importance	Key Species
1. Tropical		
* Evergreen Rainforest	High	Kanyin, Thingan, Thitkado
* Mangrove Swamp	Moderate	Kanazo
* Mixed Evergreen and Deciduous	Highest	Kyun, Pyinkado, Thingan, Padauk, Pyinma
* Dry Deciduous and Scrub	High	In, Kyun, Sha
2. Subtropical	Low	Tinyu
3. Temperate	-	-

Source: Derived from John H. Davis, The Forests of Burma (Gainesville, Flor.: University of Florida, 1960), 5-19; F.T. Morehead, The Forests of Burma (London: Longmans, Green and Co., 1944), 5-13.

This list is far from complete. It nevertheless highlights the commercial importance of the tropical forests.

Above all, it is the tropical forests of the Pegu Yoma that are the most valuable. Indeed, this compact range of hills was described in 1931 as "one of the most valuable

forests in the world".² Separating the Irrawaddy and Sittang rivers, the Pegu Yoma begins thirty-five miles north of Rangoon, and runs north for two-hundred miles until it ends at Yamethin on the edge of the Dry Zone. In terms of forest type, this range of hills is characterized by rainforest in its southern extremity, which gives way to mixed evergreen and deciduous forest, before petering out as dry deciduous forest and scrub in the north. With an average width of only thirty miles, this rectangular-shaped stretch of forest land is about six thousand square miles in area. Yet, it accounted for 50 per cent of the country's total annual teak outturn in the early twentieth century, and about 60 per cent of its total net forest revenue. In recognition of this fact, the Pegu Yoma was largely demarcated as reserved forest by the Forest Department. As this thesis shows, the region (including the surrounding plains forest) was the main battleground of colonial forest politics.

Conflict centred on a handful of commercial species.³ The most important such species was teak (kyun). One of the premier timbers in the world, teak (Tectona grandis) has been an important economic resource since pre-colonial times. Its role in ship-building is noted in Chapter 2, but the durability of teak ensured that it was also in demand for use in the construction of houses, public buildings, pongyi kaung, furniture, bridges, railway carriages and for

² C.W. Scott, "Lecture on the Forest Geography of Burma," Indian Forester 57 (May 1931): 245. This paragraph is based on this source.

³ The following discussion is drawn from Alex Rodger, A Handbook of the Forest Products of Burma (1921; reprint, Rangoon: Government Printing, 1951).

conversion into sleepers. A tree which can reach a height of 150 feet and a girth of 12-14 feet in the mixed evergreen and deciduous forests that form its favoured habitat, teak is also found in dry deciduous forests. Wherever found, teak rarely comprises more than 10 to 12 per cent of the forest crop, and it is this fact, along with its long commercial maturation (150 years), that was so important in the development of colonial forest policy.

Such a policy, however, was not always synonymous with teak management. Thus, colonial officials devoted considerable attention to the management of cutch, a water extract of the sha tree (Accacia catechu) used for tanning and dyeing purposes (Chapter 5). A native of the dry deciduous and scrub forest, sha attains a height of only 30-40 feet and a girth of 4 to 5 feet, and is thus eminently suited to extraction by small-scale traders. Primarily important as the source of cutch, sha was also used for agricultural implements, carts, wheels and fuel.

Next to teak, the key species from a British viewpoint was pyinkado or Burmese iron-wood. As its English name attests, pyinkado (Xylia dolabriformis) is a tree renowned for its strength and durability. These qualities made it the preferred timber for railway sleepers, but it was also used in bridges and jetties. Growing to 120 feet and a girth of 12 feet, the wood is associated with teak in upper mixed evergreen and deciduous forest, but is frequently found in rainforests that are devoid of teak. In Arakan, it was the preeminent commercial species, and its use was regulated from 1863.

Less well-known than teak and pyinkado, padauk (Pterocarpus macrocarpus) was valuable to the British primarily for use in gun-carriage wheels. Among the Burmese, however, the wood was widely used: in cart wheels and axles, boat frames, boxes, furniture, ploughs, house-building and musical instruments. A tree of medium height (60-80 feet) and girth (5-8 feet), padauk is most commonly found in the upper mixed evergreen and deciduous forest, but also grows in dry deciduous forest.

Species without military-strategic and commercial value to the British were nevertheless important to the indigenous economy. Promoted by the Forest Department in Europe (Chapter 6), in (Dipterocarpus tuberculatus) remained a wood that was primarily used locally in cheap housing, carts, boats and other purposes. A tree of between 70 and 110 feet and 5 to 10 feet in girth, it is found through much of the country, but particularly in the dry deciduous 'indaing' forests of central Burma. Kanyin (Dipterocarpus spp.), a name applied to various species of dipterocarpus, is a wood of inferior quality to in, but is used for similar purposes.

Thitka (Pentace burmanica) and thitkado (Cedrela toona) are trees of comparable size, range and utility to in and kanyin. Thitka and thitkado were thus in demand for use in boats, houses, as well as masts and oars; and, as with in, were the focus of a sporadic imperial export campaign. It was partly for this reason that these two woods were the first non-teak species reserved by the British in 1873 (Chapter 3).

Thingan (Hopea odorata) is another general purpose timber. Found primarily in the Tenasserim rainforests and

the lower mixed evergreen and deciduous forests of Pegu, thingan is especially sought after by boat-builders because it is not susceptible to attack by white ants. The wood is also used for masts, piles, carts and furniture. Although pyinma (Lagerstroemia flos-reginae) is not immune from attack by white ants, it too is used in the construction of houses and boats. Growing to 100 feet, this tree is found throughout Burma, but prefers flat alluvial ground and stream banks.

If the discussion so far has focused on general purpose construction timbers, it is because these species were the most valuable. However, Burma's forests have also been the source of a other timber and non-timber products. In the mangrove swamp forests, for example, the medium-sized kanazo tree (Heritiera fomes) became valuable as a source of fuel for Rangoon, and other towns in Lower Burma in the late nineteenth and early twentieth century. Such woods as dahat (Tectona hamiltoniana), tauukyan (Terminalia tomentosa) and myaukchaw (Homalium tomentosum) served as fuelwoods in other parts of the country.

In contrast, the thitsi tree (Melanorrhoea usitata) is important primarily because it yields the varnish known as thitsi. Found in the dry deciduous forests, thitsi is tapped for its resin which is used in Burmese lacquer ware. The pine (tinyu) tree of the Shan States was also tapped for its resin (used for turpentine), but the general inaccessibility of these forests limited the development of this industry.

The preceding discussion illustrates the economic importance of Burma's tropical forests. Moreover, it gives some indication of why access restrictions were the source of so much conflict in colonial Burma.

APPENDIX C

RESERVED FORESTS 1870-1940
(Area in square miles)

Year	Area	Year	Area
1870-71	108	1906-07	21,575
1871-72	134	1907-08	22,858
1872-73	134	1908-09	23,581
1873-74	279	1909-10	25,691
1874-75	563	1910-11	26,077
1875-76	614	1911-12	26,136
1876-77	640	1912-13	27,023
1877-78	650	1913-14	27,332
1878-79	1,410	1914-15	28,239
1879-80	1,612	1915-16	28,567
1880-81	2,288	1916-17	29,110
1881-82	3,274	1917-18	29,116
1882-83	3,427	1918-19	29,336
1883-84	3,759	1919-20	29,874
1884-85	3,942	1920-21	29,935
1885-86	4,471	1921-22	30,086
1886-87	4,788	1922-23	27,416a
1887-88	5,091	1923-24	27,890
1888-89	5,111	1924-25	28,227
1889-90	5,574	1925-26	28,372
1890-91	5,638	1926-27	28,647
1891-92	6,674	1927-28	29,061
1892-93	8,059	1928-29	29,190
1893-94	10,351	1929-30	29,487
1894-95	11,479	1930-31	29,834
1895-96	12,817	1931-32	31,282
1896-97	14,058	1932-33	31,516
1897-98	14,706	1933-34	31,533
1898-99	15,669	1934-35	31,608
1899-1900	17,153	1935-36	31,487
1900-01	17,836	1936-37	31,339
1901-02	18,606	1937-38	31,375
1902-03	19,708	1938-39	31,407
1903-04	20,038	1939-40	31,637
1904-05	20,411		
1905-06	20,544		

Source: Progress Report of Forest Administration in Burma
(various years).

a. Henceforth, Federated Shan States excluded.

APPENDIX D

FOREST DEPARTMENT REVENUE AND EXPENDITURE 1856-1940
(Amount in rupees)

Year	Revenue	Expenditure	Surplus
1856-57a	86,243	156,329	-70,086
1857-58a	80,620	255,112	-174,492
1858-59	502,285	260,360	241,925
1859-60	261,594	198,406	63,188
1860-61	336,984	289,481	47,503
1861-62	396,885	322,335	74,550
1862-63	353,487	309,930	43,557
1863-64	765,619	235,700	529,919
1864-65	936,233	263,239	672,994
1865-66	898,629	312,066	586,563
1866-67	424,054	285,135	138,919
1867-68	647,590	328,388	319,202
1868-69	816,171	422,172	393,999
1869-70	984,773	421,462	563,311
1870-71	818,124	400,738	417,386
1871-72	772,399	378,450	393,949
1872-73	827,469	336,024	491,445
1873-74	1,068,621	474,531	594,090
1874-75	1,074,802	662,638	412,164
1875-76	1,779,020	814,750	964,270
1876-77	1,551,468	1,005,044	546,424
1877-78	1,603,023	855,816	747,207
1878-79	1,137,562	718,401	419,161
1879-80	1,180,189	753,489	426,700
1880-81	1,516,613	712,568	804,045
1881-82	2,231,804	1,150,222	1,081,582
1882-83	2,503,896	1,228,955	1,274,941
1883-84	2,509,275	1,217,823	1,291,452
1884-85	1,670,981	1,212,233	458,748
1885-86	1,973,859	1,150,953	822,906
1886-87	2,106,741	1,078,018	1,028,723
1887-88	2,515,773	1,153,846	1,361,927
1888-89	4,189,233	1,965,851	2,223,382
1889-90	4,940,785	1,606,643	3,334,142
1890-91	4,321,968	1,388,789	2,933,179
1891-92	4,185,414	1,643,598	2,541,816
1892-93	5,473,058	1,818,480	3,654,578
1893-94	5,825,093	1,817,655	4,007,438
1894-95	5,595,886	1,864,501	3,731,385
1895-96	5,590,376	1,913,138	3,677,238
1896-97	6,659,847	2,081,454	4,578,393
1897-98	7,209,903	2,178,878	5,031,025
1898-99	8,291,927	2,373,079	5,918,848
1899-1900	7,987,298	2,697,010	5,290,288
1900-1901	7,706,324	2,644,612	5,061,712
1901-02	5,951,334	2,820,311	3,131,023
1902-03	6,737,825	2,963,316	3,774,509
1903-04	8,519,404	3,500,311	5,019,093
1904-05	10,961,494	3,514,997	7,446,497
1905-06	9,445,134	3,863,894	5,581,240
1906-07	8,639,549	3,634,766	5,004,783
1907-08	8,833,420	3,594,633	5,238,787

Year	Revenue	Expenditure	Surplus
1908-09	9,125,131	3,724,264	5,400,867
1909-10	9,145,466	3,680,541	5,464,925
1910-11	10,539,615	3,936,961	6,602,654
1911-12	9,430,615	4,169,195	5,261,420
1912-13	11,576,622	4,046,537	7,530,085
1913-14	11,408,980	4,516,620	6,892,360
1914-15	9,046,982	4,688,511	4,358,471
1915-16	9,664,346	4,762,257	4,902,089
1916-17	12,709,169	5,091,082	7,618,087
1917-18	12,676,458	5,285,752	7,390,706
1918-19	12,947,787	5,993,465	6,954,322
1919-20	16,567,281	6,474,006	10,093,275
1920-21	16,779,225	6,034,499	10,744,726
1921-22	22,116,786	9,083,094	13,033,692
1922-23b	18,318,478	9,827,356	8,491,122
1923-24	17,829,565	9,973,685	7,855,880
1924-25	18,184,904	9,243,571	8,941,333
1925-26	20,961,805	8,429,399	12,532,406
1926-27	21,737,618	8,375,111	13,362,507
1927-28	20,814,746	8,898,606	11,916,140
1928-29	16,079,198	7,968,087	8,111,111
1929-30	18,540,178	7,812,198	10,727,980
1930-31	14,407,775	7,563,551	6,844,224
1931-32	10,643,868	6,228,712	4,415,156
1932-33	8,745,897	6,504,850	2,241,047
1933-34	7,999,782	6,196,009	1,803,773
1934-35	11,444,707	5,684,361	5,760,346
1935-36	13,308,654	5,419,526	7,889,128
1936-37	14,264,626	5,540,216	8,724,410
1937-38	16,039,511	5,782,143	10,257,368
1938-39	14,270,010	5,961,066	8,308,944
1939-40	14,393,210	5,967,509	8,425,701

Source: Progress Report of Forest Administration in Burma
(various years).

a. Pegu only.

b. Henceforth, Federated Shan States excluded.

APPENDIX E

LIST OF CHIEF CONSERVATORS 1905-42

Name			Dates	Position	Held
F. Beadon Bryant	...	...	01-1905	...	03-1908
J.H. Lace	...	...	03-1908	...	05-1910
M. Hill	...	...	05-1910	...	05-1911
J.H. Lace	...	...	05-1911	...	07-1913
C.G. Rogers	...	...	07-1913	...	10-1919
F.A. Leete	...	...	10-1919	...	05-1922
C.B. Smales	...	...	05-1922	...	11-1922
F.A. Leete	...	...	11-1922	...	03-1924
C.B. Smales	...	...	03-1924	...	11-1924
H.W.A. Watson	...	...	11-1924	...	05-1930
S.F. Hopwood	...	...	05-1930	...	06-1935
H.R. Blanford	...	...	06-1935	...	10-1936
C.E. Milner	...	...	10-1936	...	09-1937
A.W. Moodie	...	...	09-1937	...	05-1939
R. Unwin	...	...	05-1939	...	04-1942

Source: Burmese Forester 6 (June 1956): 3.

REFERENCES

A. Periodicals

The following periodicals have been used extensively:

Burmese Forester, Rangoon, 1951-63.

Guardian, Rangoon, 1955-78.

Indian Forester, Dehra Dun, 1876-1946.

B. Archival and Annual Reports

Note: Located in the India Office Library and Records (London), unless otherwise noted.

Annual Report of the Bombay Burmah Trading Corporation Limited, 1863-1942. Guildhall Library, London.

Blanford, H.R. "Distribution of Teak Forests." Note prepared for the Government of Burma, [1936]. MSS Eur. D. 689.

Bruce, Arthur. "Burma Recollections." MSS Eur. E. 362/3.

Burma Forest Proceedings, 1884-1924.

Burma Office Files, 1938-44.

Clague Papers. MSS Eur. E. 252/3.

Dawkins Papers. MSS Eur. D. 931.

India Forest Letters, 1867-79.

India Forest Proceedings, 1864-84.

On Gyaw, "Burma Teak Lease." TMs, [1947]. Indian Institute, Oxford.

Progress Report on Forest Administration in Burma, 1863-1940.

Selections from Despatches to India, 1865-76. School of Oriental and African Studies, London.

Selections from the Records of the Bengal Government, 1852.

Selections from the Records of the Government of India (Foreign Department), 1855-68.

Selections from the Records of the Government of India (Public Works Department), 1862.

Upper Burma Proceedings, 1886-87.

C. Government Documents

Note: Published by the Superintendent of Government Printing and Stationary (Calcutta, Rangoon or Maymyo) unless otherwise noted.

1. Forestry Working Plans

Atkinson, D.J. and F. Allsop. Working Plan for Insein Forest Division, 1937-38 to 1946-47. Vol. 2 Rangoon: 1940.

Barker, A.N. Working Plan for Meiktila Forest Division, 1929-30 to 1958-59. Vol. 1 Rangoon: 1931.

Barrett, H.B. Working Plan for Bassein Forest Division, 1929-30 to 1938-39. Vol. 1 Rangoon: 1930.

Barrington, A.H.M. Working Plan for North Zamayi Reserve. Rangoon: 1919.

_____. Working Plan for North Toungoo Forest Division, 1920-21 to 1928-29. Rangoon: 1922.

_____. Working Plan for North Toungoo Forest Division, 1920-21 to 1928-29. Rangoon: 1925.

_____. Working Plan for Allanmyo Forest Division, 1927-28 to 1936-37. Rangoon: 1928.

Blanford, H.R. The Mohnyin Working Plan. Rangoon: 1911.

Blanford, H.R. and D. Ellis. Working Plan for the Yoma Reserves in the Tharrawaddy Division. 3 vols. Rangoon: 1918-19.

Brown, A.F.R. Working Plan for Yamethin Forest Division, 1930-31 to 1939-40. Vol. 1 Rangoon: 1932.

Burgess, F.G. and C.R. Robbins. Working Plan for Pyinmana Forest Division, 1927-28 to 1936-37. Vol. 1. Rangoon: 1929.

Burnside, P. and C.H. Thompson. Working Plan for Thayetmyo Forest Division, 1931-32 to 1940-41. Vol. 1 Rangoon: 1933.

Butterwick, A.J.S. Working Plan for South Pegu Forest Division, 1937-38 to 1946-47. Vol. 2 Rangoon: 1938.

Carter, H. Working Plan for Shwele Forests. Calcutta: 1893.

_____. Working Plan of the Kabaung Reserve. Rangoon: 1895.

Corbett, G.Q. Working Plan for Taungnyo Forests. Simla: Government Central Printing Office, 1891.

Davis, A.P. Working Plan for Indaung Working Circle. Rangoon: 1918.

- Edwards, M.V. Working Plan for South Toungoo Forest Division, 1933-34 to 1947-48. Vol. 2 Rangoon: 1938.
- Griffiths, D.T. Working Plan for Southern Shan States Forest Division, 1940-41 to 1949-50. 2 vols. Rangoon: 1949.
- Hartnoll, E.S. and F.T. Morehead. Working Plan for the Kaukkwe Portion of the Bhamo Forest Division, 1935-36 to 1947-48. Rangoon: 1936
- Hopwood, S.F. Working Plan for Thingadon-Yama and Patolon Working-Circles. Rangoon: 1915.
- _____. Working Plan for North and South Gangaw Working Circles. Rangoon: 1916.
- Kermode, C.W.D. Working Plan for Henzada Forest Division, 1929-30 to 1938-39. Vol. 1 Rangoon: 1929.
- Lawton, W. Working Plan for Upper Thaungyin Working Circle. Rangoon: 1918.
- Moodie, A.W. Working Plan for Delta Forest Division, 1924-25 to 1933-34. Vol.1. Maymyo: 1924.
- Oliver, J.W. Working Plan of the Thonze Reserve. Rangoon: 1885.
- Philipp, C.H. Working Plan for Yinke Working Circle. Rangoon: 1921.
- Rodger, A. Working Plan for East Yoma, Satsuwa and Tindaw Reserves. Maymyo: 1907.
- Rooke, W.C. Working Plan for Minbu Forest Division, 1927-28 to 1936-37. Rangoon: 1928.
- Ross, A.E. Working Plan for Lower Thaungyin Working Circle. Rangoon: 1909.
- Sayres, R.J. Working Plan for Pyinmana Forest Division, 1936-37 to 1946-47. Vol. 2 Rangoon: 1937.
- Scott, C.W. Working Plan for Insein Forest Division, 1927-28 to 1936-37. Rangoon: 1928.
- Shepherd, W.S. Working Plan for Thaton Forest Division, 1935-36 to 1944-45. Rangoon: 1937.
- Smith, H.C. Working Plan for South Toungoo Forest Division, 1923-24 to 1932-33. Maymyo: 1923.
- Sutherland, J.W.R. Working Plan for Minbu Forest Division, 1937-38 to 1951-52. Vol. 1 Rangoon: 1938.
- Tan Chein Hoe. Working Plan for Allammyo Forest Division, 1937-38 to 1951-52. Vol. 2 Rangoon: 1939.

- _____. Working Plan for Delta Forest Division, 1947-48 to 1956-57. Vol. 2 Rangoon: 1951.
- Troup, R.S. Working Plan for Satpok, Sitkwin and Thindawyo Working Circles. Rangoon: 1905.
- Vorley, J.S. Working Plan for Prome Forest Division, 1930-31 to 1939-40. Vol. 1 Rangoon: 1935.
- _____. Working Plan for North Pegu Forest Division, 1936-37 to 1945-46. Rangoon: 1937.
- Vorley, J.S. and C.H. Thompson. Working Plan for Magwe Forest Division, 1927-28 to 1957-58. Vol. 1 Rangoon: 1928.
- Watson, H.W.A. Working Plan for Pyu-chaung and Pyu-kun Reserves. Rangoon: 1902.
2. Other Forestry Documents
- Baden-Powell, B.H. The Forest System of British Burma. Calcutta: 1873.
- _____. Memorandum on the Supply of Teak and Other Timbers in the Burma Markets. Calcutta: 1873.
- _____. "On the Defects of the Existing Forest Law (Act VII of 1865) and Proposals for a New Forest Act." In Report of the Proceedings of the Forest Conference, 1873-74, ed. B.H. Baden-Powell and J.S. Gamble, 3-30. Calcutta: 1874.
- _____. A Manual of Jurisprudence for Forest Officers. Calcutta: 1882.
- Baden-Powell, B.H. and J.S. Gamble, ed. Report of the Proceedings of the Forest Conference, 1873-74. Calcutta: 1874.
- Barrington, A.H.M. Forest Administration in the Arakan Forest Division. Rangoon: 1918.
- Blanford, H.R.. "Regeneration with the Assistance of Taungya in Burma." Indian Forest Records 11, 3 (1925): 81-121.
- Brandis, Dietrich. Rules for the Administration of Forests in the Province of Pegu. Rangoon: Pegu Press, 1859.
- _____. Memorandum on the Forest Legislation proposed for British India other than the Presidencies of Madras and Bombay. Simla: Government Central Branch Press, 1875.
- _____. Suggestions regarding Forest Administration in British Burma. Calcutta: 1876.
- Burma Forest Act 1881. Rangoon: 1884.

Burma Forest Committee. Report of the Burma Forest Committee 1925. Rangoon: 1926.

Burma Forest Department. Review of Forest Administration in Burma during the five years 1909-10 to 1913-14. Rangoon: 1916.

_____. Departmental Instructions for Forest Officers in Burma. Rangoon: 1919.

_____. Manual of Standing Orders for Forest Subordinates. Rangoon: 1919.

_____. Working Plans Manual Burma. 3rd. ed. 1938; reprint, Rangoon: 1948.

Champion, H.G. The Problem of the Pure Teak Plantation. Calcutta: 1932.

_____. "A Preliminary Survey of the Forest Types of India and Burma." Indian Forest Records (n.s.), Silviculture, 1, 1 (1936): 1-286.

Edwards, M.V. "Burma Forest Types (according to Champion's Classification)," Indian Forest Records (n.s.), Silviculture, 7, 2 (1950): 135-73.

Forest Enquiry Committee. Report of the Forest Enquiry Committee 1937. Rangoon: 1937.

Government of Burma. The Burma Forest Manual. Rangoon: 1922.

Government of India. Seasoning of Timber by Girdling previous to Felling. London: H.M.S.O., 1868.

_____. Copy of Enclosures of Forests Despatch from the Government of India, no. 14. Calcutta: 1874.

_____. Code of Instructions for the Conduct of Office Business and for the Regulation of Accounts in the Forest Department. Calcutta: 1886.

Hart, G.S. Note on a Tour of Inspection in Burma. Simla: Government Central Branch Press, 1914.

_____. Note on a Tour of Inspection in the Forests of Burma. Simla: Government Central Branch Press, 1918.

Hill, H.C. Memorandum on the Forest Laws in Force in Upper Burma. Rangoon: 1889.

India Forest Research Institute. 100 Years of Indian Forestry 1861-1961. Vol.1. Dehra Dun: India Forest Research Institute, 1961.

Leete, F.A. Memorandum on Departmental Extraction v. Cooperation with Traders for the Development of Trade in Burma Hardwoods. Rangoon: 1923.

Proceedings of the First Burma Forest Conference held at Maymyo between the 13th and 20th June 1910. Rangoon: 1910.

• Ribbentrop, B. Forestry in British India. Calcutta: 1900.

Rodger, Alex. Forest Reservation in Burma in the Interests of an Endangered Water-Supply. Calcutta: 1909.

_____. A Handbook of the Forest Products of Burma. 1921; reprint, Rangoon: 1951.

Scott, C.W. Measurements of the Damage to Teak Timber by the Beehole Borer Moth. Rangoon: 1932.

Sindall, R.W. Report on the Manufacture of Paper and Paper Pulp in Burma. Rangoon: 1906.

Troup, R.S. Burma Padauk. Calcutta: 1909.

_____. Burmese In Wood. Calcutta: 1909.

Watson, H.W.A. Note on Departmental Extraction of Teak in Prome, Zigon and Tharrawaddy Divisions. Rangoon: 1917.

_____. A Note on the Position of the Province as Regards the Preparation and Revision of Working Plans. Rangoon: 1921.

_____. A Note on the Pegu Yoma Forests. Rangoon: 1923.

_____. A Note on Forest Administration and Policy in the Federated Shan States. Rangoon: 1929.

3. Other Government Documents

Aitchison, C.U. A Collection of Treatises, Engagements and Sanads relating to India and Neighbouring Countries. Vol. 2. Calcutta: 1909.

Binns, B.O. Amherst District Gazetteer. Rangoon: 1935.

Bribery and Corruption Enquiry Committee. Report of the Bribery and Corruption Enquiry Committee 1940. Rangoon: 1941.

Burma Legislative Council Proceedings. Rangoon: 1901-21.

Burma Legislative Council Proceedings. Rangoon: 1923-36.

Burma Legislature, House of Representatives Proceedings. Rangoon: 1937-41.

Burma Legislature, Senate Proceedings. Rangoon: 1937-40.

Burma Reforms Committee. Report and Appendices, and Record of Evidence. 4 vols. Rangoon: 1922.

- Burma Retrenchment Committee. Report of the Burma Retrenchment Committee 1934. Rangoon: 1934.
- Butler, J. Gazetteer of the Mergui District. Rangoon: 1884.
- Committee on Expenditure on the Public Services. Report of the Committee on Expenditure on the Public Services, 1939-40. Part 1. Rangoon: 1940.
- Craddock, Reginald. Speeches by Sir Reginald Craddock, Lieutenant-Governor of Burma, 1917-1922. Rangoon: 1924.
- Dawson, G.W. Bhamo District Gazetteer. Rangoon: 1912.
- Fiscal Committee. Second Interim Report of the Fiscal Committee 1938. Rangoon: 1938.
- Furnivall, J.S. and W.S. Morrison. Syriam District Gazetteer. Rangoon: 1914.
- Further Correspondence Relating to Burmah. No. 3. London: Eyre and Spottiswoode for H.M.S.O., 1886.
- Government of Burma. Thayetmyo District Gazetteer. Rangoon: 1911.
- _____. Village Manual. Rangoon: 1940.
- Grantham, S.G. Tharrawaddy District Gazetteer. Rangoon: 1920.
- Great Britain. Minutes of Evidence taken before the Royal Commission upon Decentralization in India. Vol. 3. London: H.M.S.O., 1908.
- _____. Indian Statutory Commission. Memorandum submitted by the Government of Burma to the Indian Statutory Commission. Vol. 11. London: H.M.S.O., 1930.
- Hardiman, J.P. Lower Chindwin District Gazetteer. Rangoon: 1912.
- Hertz, W.A. Myitkyina District Gazetteer. Rangoon: 1912.
- Neild, Ralph and J.A. Stewart. Kyaukse District Gazetteer. Rangoon: 1925.
- Owens, F.C. Pakokku District Gazetteer. Rangoon: 1913.
- Page, A.J. Pegu District Gazetteer. Rangoon: 1917.
- Proceedings of the Council of the Governor General of India. Calcutta: 1878-81.
- Royal Commission on Agriculture in India. Evidence Taken in Burma. Vol. 12. London: H.M.S.O., 1928.
- Scott, J. George, and J.P. Hardiman. Gazetteer of Upper Burma and the Shan States. Vol. 2, Part 1 Rangoon: 1900.

Selected Correspondence of Letters Issued from and Received in the Office of the Commissioner, Tenasserim Division for the Years 1825-26 to 1842-43. Rangoon: 1916.

Spearman, H.R. The British Burma Gazetteer. Vol. 1. Rangoon: 1880.

Thompson, T.S. Soil Erosion and its Control in the Shan States, Burma. n.p., 1944.

U.K. Parliament. "Return of Contract between the Secretary of State for India and the Bombay-Burma Trading Corporation referring to the Teak Forests of Upper Burma, and Correspondence relating thereto." Sessional Papers (Commons), Accounts and Papers - 12, vol. 58, 24 August 1889.

Wilkie, R.S. Yamethin District Gazetteer. Rangoon: 1934.

D. Secondary Works: Books, Articles, Theses

Adams, W.M. Green Development: Environment and Sustainability in the Third World. London: Routledge, 1990.

Adas, Michael. The Burma Delta: Economic Development and Social Change on an Asian Rice Frontier, 1852-1941. Madison: University of Wisconsin Press, 1974.

_____. "From Avoidance to Confrontation: Peasant Protest in Precolonial and Colonial Southeast Asia." Comparative Studies in Society and History 23 (April 1981): 217-47.

_____. "Bandits, Monks, and Pretender Kings: Patterns of Peasant Resistance and Protest in Colonial Burma, 1826-1941." In Power and Protest in the Countryside: Studies of Rural Unrest in Asia, Europe, and Latin America, ed. Robert P. Weller and Scott E. Guggenheim, 75-105. Durham, N.C.: Duke University Press, 1982.

_____. "Colonization, Commercial Agriculture, and the Destruction of the Deltaic Rainforests of British Burma in the Late Nineteenth Century." In Global Deforestation and the Nineteenth-Century World Economy, ed. Richard P. Tucker and J.F. Richards, 95-110. Durham, N.C.: Duke University Press, 1983.

_____. "From Footdragging to Flight: The Evasive History of Peasant Avoidance Protest in South and South-east Asia." Journal of Peasant Studies 13 (January 1986): 64-86.

_____. Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance. Ithaca: Cornell University Press, 1989.

Albion, Robert Greenhalgh. Forests and Sea Power: The Timber Problem of the Royal Navy 1652-1862. Cambridge, Mass.: Harvard University Press, 1926.

- Anderson, Benedict R. O'G. "Old State, New Society: Indonesia's New Order in Comparative Historical Perspective," Journal of Asian Studies 42 (May 1983): 477-96; reprinted in Language and Power: Exploring Political Cultures in Indonesia, Benedict R. O'G. Anderson, 94-120. Ithaca: Cornell University Press, 1990.
- _____. Imagined Communities: Reflections on the Origin and Spread of Nationalism, rev. ed. London: Verso, 1991.
- Andrews, Ernest. The Bombay Burmah Trading Corporation Limited in Burmah, Siam and Java. 3 vols. (n.p., 1930-31).
- Andrus, J. Russell. Burmese Economic Life. 1948; reprint, Stanford: Stanford University Press, 1956.
- Arnold, J.E.M. and W.C. Stewart. Common Property Resource Management in India, Tropical Forestry Papers No. 24. Oxford: Oxford Forestry Institute, 1991.
- Ashton, Peter S. "A Question of Sustainable Use." In People of the Tropical Rain Forest, ed. Julie Sloan Denslow and Christine Padoch, 185-96. Berkeley: University of California Press, 1988.
- Atkinson, D.J. "Forests and Forestry in Burma." Journal of the Royal Society of Arts 96 (1948): 478-91.
- Aung Tun Thet. Burmese Entrepreneurship: Creative Response in the Colonial Economy. Stuttgart: Steiner-Verlag Wiesbaden, 1989.
- Ba Maw. Breakthrough in Burma: Memoirs of a Revolution, 1939-1946. New Haven: Yale University Press, 1968.
- Banijbatana, Dusit. "Forest Policy in Northern Thailand." In Farmers in the Forest: Economic Development and Marginal Agriculture in Northern Thailand, ed. Peter Kunstader, E.C. Chapman and Sanga Sabhasri, 54-60. Honolulu: University Press of Hawaii, 1978.
- Barber, Charles Victor. "The State, the Environment, and Development: The Genesis and Transformation of Social Forestry Policy in New Order Indonesia." Ph.D. diss., University of California, Berkeley, 1989.
- Barrington, A.H.M. "Forest Development in Burma." Empire Forestry 4, 2 (1925): 251-60.
- Bass, Stephen M.J. "Building from the Past: Forest Plantations in History." In Plantation Politics: Forest Plantations in Development, ed. Caroline Sargent and Stephen Bass, 41-75. London: Earthscan, 1992.
- Bayly, C.A. Indian Society and the Making of the British Empire. The New Cambridge History of India Vol. 2, Part 1 Cambridge: Cambridge University Press, 1988.

- Beresford, Melanie and Lyn Fraser. "Political Economy of the Environment in Vietnam." Journal of Contemporary Asia 22, 1 (1992): 3-19.
- Blaikie, Piers. The Political Economy of Soil Erosion in Developing Countries. London: Longman, 1985.
- Blaikie, Piers and Harold Brookfield ed. Land Degradation and Society. London: Methuen, 1987.
- Blanford, H.R. "Forest Management and Preparation of Working Plans in Burma." Empire Forestry 4, 1 (1925): 54-65.
- Blower, John and James Paine, with Saw Hahn, Ohn, and Harold Sutter, "Burma (Myanmar)." In The Conservation Atlas of Tropical Forests: Asia and the Pacific, ed. N. Mark Collins, Jeffrey A. Sayer, and Timothy C. Whitmore, 103-10. London: Macmillan, 1991.
- Boomgaard, Peter. "Forest Management and Exploitation in Colonial Java, 1677-1897." Forest and Conservation History 36 (January 1992): 4-14.
- Brandis, Dietrich. "The Burma Teak Forests." Garden and Forest 9 [1895]: 1-32.
- _____. Indian Forestry. Woking: Oriental University Institute, 1897.
- Braund, H.E.W. Calling to Mind: Being some account of the First Hundred Years (1870 to 1970) of Steel Brothers and Company Ltd. Oxford: Pergamon Press, 1975.
- Brookfield, Harold. "The New Great Age of Clearance and Beyond." In People of the Tropical Rain Forest, ed. Julie S. Denslow and Christine Padoch, 209-24. Berkeley: University of California Press, 1988.
- Brown, Ian. The Elite and the Economy in Siam c. 1890-1920. Singapore: Oxford University Press, 1988.
- Bryant, Raymond L. "Putting Politics First: The Political Ecology of Sustainable Development." Global Ecology and Biogeography Letters 1 (November 1991): 164-66.
- _____. "Political Ecology: An Emerging Research Agenda in Third-World Studies." Political Geography 11 (January 1992): 12-36.
- Bunker, Stephen G. Underdeveloping the Amazon: Extraction, Unequal Exchange, and the Failure of the Modern State. Urbana: University of Illinois Press, 1985.
- Cady, John F. A History of Modern Burma. Ithaca: Cornell University Press, 1958.
- Champion, Harry and F.C. Osmaston (ed.). The Forests of India. Vol. 4. London: Oxford University Press, 1962.

- Chamshama, S.A.O., G.C. Monela, K.E.A. Sekiete and A. Persson. "Suitability of the Taungya System at North Kilimanjaro Forest Plantation, Tanzania." Agroforestry Systems 17, 1 (1992): 1-11.
- Christian, John LeRoy. Burma and the Japanese Invader. Bombay: Thacker and Co., 1945.
- Craddock, Reginald. The Dilemma in India. London: Constable and Co., 1929.
- Crosthwaite, Charles. The Pacification of Burma. London: Edward Arnold, 1912.
- Curtin, Philip D. Death by Migration: Europe's Encounter with the Tropical World in the Nineteenth Century. Cambridge: Cambridge University Press, 1989.
- Dalby, Simon. "Ecopolitical Discourse: 'Environmental Security' and Political Geography." Progress in Human Geography 16 (October 1992): 503-22.
- Davis, John H. The Forests of Burma. Gainesville, Flor.: University of Florida, 1960.
- Diokno, Maria Serena I. "British Firms and the Economy of Burma, with Special Reference to the Rice and Teak Industries, 1917-1937." Ph.D. diss., University of London, 1983.
- Donnison, F.S.V. Public Administration in Burma: A Study of Development during the British Connexion. London: Royal Institute of International Affairs, 1953.
- Dunleavy, Patrick. Democracy, Bureaucracy and Public Choice: Economic Explanations in Political Science. London: Harvester Wheatsheaf, 1991.
- Dunleavy, Patrick and Brendan O'Leary. Theories of the State: The Politics of Liberal Democracy. New York: Meredith Press, 1987.
- Elliott, Geoffrey K. "Ecology, Economics and the End of Forestry in the Tropics." Asian Affairs 23 (October 1992): 315-21.
- Elliott, Jenny. "Environmental Degradation, Soil Conservation and the Colonial and Post-Colonial State in Rhodesia/Zimbabwe." In Colonialism and Development in the Contemporary World, ed. Chris Dixon and Michael J. Hefferman, 72-91. London: Mansell, 1991.
- Evans, Julian. Plantation Forestry in the Tropics. Oxford: Clarendon Press, 1982.

- Evans, Peter B., Dietrich Rueschemeyer and Theda Skocpol. "On the Road toward a More Adequate Understanding of the State." In Bringing the State Back In, ed. Peter B. Evans, Dietrich Rueschemeyer and Theda Skocpol, 347-66. Cambridge: Cambridge University Press, 1985.
- Falkus, Malcolm. "Early British Business in Thailand." In British Business in Asia since 1860, ed. R.P.T. Davenport-Hines and Geoffrey Jones, 117-56. Cambridge: Cambridge University Press, 1989.
- Falla, Jonathan. True Love and Bartholomew: Rebels on the Burmese Border. Cambridge: Cambridge University Press, 1991.
- Feeny, David. "Agricultural Expansion and Forest Depletion in Thailand, 1900-1975." In World Deforestation in the Twentieth Century, ed. John F. Richards and Richard P. Tucker, 112-43. Durham, N.C.: Duke University Press, 1988.
- Foucar, E.C.V. I Lived in Burma. London: Dennis Dobson, 1956.
- Furnivall, J.S. "Land as a Free Gift of Nature." Economic Journal 19 (1909): 552-62.
- _____. "The Fashioning of Leviathan: The Beginnings of British Rule in Burma." Journal of the Burma Research Society 29 (April 1939); reprint, ed. Gehan Wijeyewardene, Canberra: Department of Anthropology Occasional Paper, Research School of Pacific Studies, Australian National University, 1991.
- _____. Netherlands India: A Study of Plural Economy. 1939; reprint, Cambridge: Cambridge University Press, 1967.
- _____. Colonial Policy and Practice: A Comparative Study of Burma and Netherlands India. 1948; reprint, New York: New York University Press, 1956.
- _____. "Safety First: A Study in the Economic History of Burma." Journal of the Burma Research Society 40 (June 1957): 24-38.
- Gadgil, Madhav. "India's Deforestation: Patterns and Processes." Society and Natural Resources 3, 2 (1990): 131-43.
- Gadgil, Madhav and Ramachandra Guha. This Fissured Land: An Ecological History of India. Delhi: Oxford University Press, 1992.
- Geary, Grattan. Burma After the Conquest. London: Sampson Low, Marston, Searle, and Revington, 1886.
- Giddens, Anthony. Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis. London: Macmillan, 1979.

- Grove, Richard. "Threatened Islands, Threatened Earth: Early Professional Science and the Historical Origins of Global Environmental Concerns." In Sustaining Earth: Response to the Environmental Threats, ed. David J.R. Angell, Justyn D. Comer and Matthew L.N. Wilkinson, 15-29. London: Macmillan, 1990.
- Guha, Ramachandra. The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya. Delhi: Oxford University Press, 1989.
- _____. "Saboteurs in the Forest: Colonialism and Peasant Resistance in the Indian Himalaya." In Everyday Forms of Peasant Resistance, ed. Forrest D. Colburn, 64-92. London: M.E. Sharpe, 1989.
- _____. "An Early Environmental Debate: The Making of the 1878 Forest Act." Indian Economic and Social History Review 27, 1 (1990): 65-84.
- Guha, Ramachandra and Madhav Gadgil. "State Forestry and Social Conflict in British India." Past and Present 123 (May 1989): 141-77.
- Hall, Anthony L. Developing Amazonia: Deforestation and Social Conflict in Brazil's Carajas Programme. Manchester: Manchester University Press, 1989.
- Hall, D.G.E. ed. The Dalhousie-Phayre Correspondence 1852-1856. London: Oxford University Press, 1932.
- _____. A History of South-East Asia. 4th ed. London: Macmillan, 1981.
- Harvey, G.E. British Rule in Burma, 1824-1942. London: Faber and Faber, 1946.
- Headrick, Daniel R. The Tools of Empire: Technology and European Imperialism in the Nineteenth Century. Oxford: Oxford University Press, 1981.
- Helfer, John William. "Third Report on Tenasserim." Journal of the Bengal Asiatic Society 8 (December 1839): 973-1005.
- Heller, Michael. "The Politics of Telecommunications Policy in Mexico." D.Phil Thesis, University of Sussex, 1990.
- Heske, Franz. German Forestry. New Haven: Yale University Press, 1938.
- Hong, Evelyne. Natives of Sarawak: Survival in Borneo's Vanishing Forests. Penang: Institut Masyarakat, 1987.
- Horowitz, Michael M. "Ideology, Policy, and Praxis in Pastoral Livestock Development." In Anthropology and Rural Development in West Africa, ed. Michael M. Horowitz and T.M. Painter, 251-72. Boulder: Westview Press, 1986.

- Howard, Alexander L. "Commercial Prospects of Burma Woods." Asiatic Review 19 (July 1923): 396-401.
- _____. "The Forests and Timbers of Burma." Journal of the East India Association (n.s.) 15 (1924): 139-51.
- Htin Aung. Epistles Written on the Eve of the Anglo-Burmese War. The Hague: Martinus Nijhoff, 1968.
- Hurst, Philip. Rainforest Politics: Ecological Destruction in South-East Asia. London: Zed Books, 1990.
- James, N.D.G. A History of English Forestry. Oxford: Basil Blackwell, 1981.
- Jenkins, Bill and Andrew Gray. "Bureaucratic Politics and Power: Developments in the Study of Bureaucracy." Political Studies 31 (June 1983): 177-93.
- Johnston, R.J. Environmental Problems: Nature, Economy and State. London: Belhaven Press, 1989.
- Keeton, Charles Lee III. King Thebaw and the Ecological Rape of Burma: The Political and Commercial Struggle between British India and French Indo-China in Burma, 1878-1886. Delhi: Manohar, 1974.
- Keyes, Charles F. "The Karen in Thai History and the History of the Karen in Thailand." In Ethnic Adaptation and Identity: The Karen on the Thai Frontier with Burma, ed. Charles F. Keyes, 25-61. Philadelphia: Institute for the Study of Human Issues, 1979.
- Khin Maung Kyi. "Western Enterprise and Economic Development in Burma." Journal of the Burma Research Society 53 (June 1970): 25-51.
- King, K.F.S. Agri-silviculture: The Taungya System. Ibadan: Department of Forestry, University of Ibadan, 1968.
- King, Victor T. "Politik Pembangunan: The Political Economy of Rainforest Exploitation and Development in Sarawak, East Malaysia." In "The Political Ecology of South East Asia's Forests: Transdisciplinary Discourses," ed. Raymond L. Bryant, Philip Stott and Jonathan Rigg, Global Ecology and Biogeography Letters (Special Issue, forthcoming).
- Koenig, William J. The Burmese Polity, 1752-1819: Politics, Administration, and Social Organization in the Early Konbaung Period. Michigan Papers on South and Southeast Asia, no. 34. Ann Arbor: University of Michigan, 1990.
- Komkris, Thiem. "Forestry Aspects of Land Use in Areas of Swidden Cultivation." In Farmers in the Forest: Economic Development and Marginal Agriculture in Northern Thailand, ed. Peter Kunstadter, E.C. Chapman and Sanga Sabhasri, 61-70. Honolulu: University Press of Hawaii, 1978.

- Kunstadter, Peter. "Hill People of Northern Thailand." In People of the Tropical Rain Forest, ed. Julie Sloan Denslow and Christine Padoch, 93-110. Berkeley: University of California Press, 1988.
- Kurz, Sulpice. Preliminary Report on the Forest and other Vegetation of Pegu. Calcutta: Baptist Mission Press, 1875.
- Laarman, Jan G. "Export of Tropical Hardwoods in the Twentieth Century." In World Deforestation in the Twentieth Century, ed. John F. Richards and Richard P. Tucker, 147-63. Durham, N.C.: Duke University Press, 1988.
- Langham-Carter, R.R. "Burmese Rule on the Toungoo Frontier." Journal of the Burma Research Society 27 (1937): 15-32.
- Lawson, A.A. Life in the Burmese Jungle. Sussex: Book Guild, 1983.
- Leach, E.R. Political Systems of Highland Burma: A Study of Kachin Social Structure. 1954; reprint, London: Athlone Press, 1986.
- Lieberman, Victor B. Burmese Administrative Cycles: Anarchy and Conquest, c.1580-1760. Princeton: Princeton University Press, 1984.
- _____. "Secular Trends in Burmese Economic History, c. 1350-1830, and their Implications for State Formation." Modern Asian Studies 25 (February 1991): 1-31.
- Linebaugh, Peter. "Karl Marx, the Theft of Wood, and Working Class Composition: A Contribution to the Current Debate." Crime and Social Justice 6 (Fall-Winter 1976): 5-16.
- Lohmann, Larry. "Peasants, Plantations, and Pulp: The Politics of Eucalyptus in Thailand." Bulletin of Concerned Asian Scholars 23 (October-December 1991): 3-17.
- _____. "Land, Power and Forest Colonization in Thailand." In "The Political Ecology of Southeast Asia's Forests: Trans-disciplinary Discourses," ed. Raymond L. Bryant, Philip Stott and Jonathan Rigg, Global Ecology and Biogeography Letters (Special Issue, forthcoming).
- Lowe, R.G. "Development of Taungya in Nigeria." In Agroforestry: Realities, Possibilities and Potentials, ed. Henry L. Gholz, 137-54. Dordrecht: Martinus Nijhoff, 1987.
- MacGillivray, A.W. "Forest Use and Conflict in Burma 1750-1990." M.Sc. diss., University of London, 1990.

- Mann, Michael. "The Autonomous Power of the State: Its Origins, Mechanisms and Results." In States in History, ed. John A. Hall, 109-36. Oxford: Basil Blackwell, 1986.
- Marshall, Harry I. "Karen Bronze Drums." Journal of the Burma Research Society 19 (April 1929): 1-14.
- _____. The Karen People of Burma: A Study in Anthropology and Ethnology. Columbus: Ohio State University, 1922.
- Mather, Alexander S. Global Forest Resources. London: Belhaven Press, 1990.
- Maung Maung. Burma's Constitution, 2nd ed. The Hague: Martinus Nijhoff, 1961.
- _____. Burma and General Ne Win. London: Asia Publishing House, 1969.
- Maung Maung. "Nationalist Movements in Burma, 1920-1940: Changing Patterns of Leadership: From Sangha to Laity." M.A. thesis, Australian National University, 1976.
- McCrae, Alister. Scots in Burma: Golden Times in a Golden Land. Edinburgh: Kiscadale, 1990.
- Mekvichai, Banasopit. "The Teak Industry in North Thailand: The Role of a Natural-Resource-Based Export Economy in Regional Development." Ph.D. diss., Cornell University, 1988.
- Mills, J.A. "Burmese Peasant Response to British Provincial Rule 1852-1885." In Peasants and Politics: Grass Roots Reaction to Change in Asia, ed. D.B. Miller, 77-104. London: Edward Arnold, 1979.
- Moore, Mick. "Competition and Pluralism in Public Bureaucracies." IDS Bulletin 23 (October 1992): 65-77.
- Morehead, F.T. The Forests of Burma. London: Longmans, Green and Co., 1944.
- Morris, Jan. The Spectacle of Empire: Style, Effect and Pax Britannica. London: Faber and Faber, 1982.
- Moscotti, Albert D. British Policy and the Nationalist Movement in Burma 1917-1937. Asian Studies at Hawaii, No. 11. Honolulu: University Press of Hawaii, 1974.
- Murphy, Raymond. Social Closure: The Theory of Monopolization and Exclusion. Oxford: Clarendon Press, 1988.
- Myo Myint. "The Politics of Survival in Burma: Diplomacy and Statecraft in the Reign of King Mindon, 1853-1878." Ph.D. diss., Cornell University, 1987.
- Nisbet, Hugh. Experiences of a Jungle-Wallah. St. Albans: Gainsborough Press, 1936.

- Nisbet, John. Burma under British Rule and Before. 2 vols. Westminster: Archibald Constable, 1901.
- _____. "The Development and Trade of Burma." Imperial and Asiatic Quarterly Review 25 (1908): 73-97.
- Ogilvie, G.H. "A Forestry Officer's Life in Burma." Sylva (Edinburgh) 14 (1934): 20-21.
- Ooi Jin Bee, "The Tropical Rain Forest: Patterns of Exploitation and Trade," Singapore Journal of Tropical Geography 11 (December 1990): 117-42.
- Orwell, George. Burmese Days. 1935; reprint, Harmondsworth, Middlesex: Penguin, 1987.
- Pearn, B.R. A History of Rangoon. Rangoon: American Baptist Mission Press, 1939.
- Peluso, Nancy Lee. "The History of State Forest Management in Colonial Java." Forest and Conservation History 35 (April 1991): 65-75.
- _____. Rich Forests, Poor People: Resource Control and Resistance in Java. Berkeley: University of California Press, 1992.
- _____. "The Political Ecology of Extraction and Extractive Reserves in East Kalimantan, Indonesia." Development and Change 23 (October 1992): 49-74.
- Pelzer, Karl J. "Swidden Cultivation in Southeast Asia: Historical, Ecological, and Economic Perspectives." In Farmers in the Forest: Economic Development and Marginal Agriculture in Northern Thailand, ed. Peter Kunstadter, E.C. Chapman and Sanga Sabhasri, 271-86. Honolulu: University Press of Hawaii, 1978.
- Peters, P.E. "Struggles over Water, Struggles over Meaning: Water and the State in Botswana." Africa 54 (1984): 29-49.
- Perree, W.F. "Indian Forest Administration." Asiatic Review 23 (April 1927): 241-58.
- Poffenberger, Mark. "The Evolution of Forest Management Systems in Southeast Asia." In Keepers of the Forest: Land Management Alternatives in Southeast Asia, ed. Mark Poffenberger, 7-26. West Hartford, Conn.: Kumarian, 1990.
- Pointon, A.C. The Bombay Burmah Trading Corporation Ltd., 1863-1963. Southampton: Millbrook Press, 1964.
- Pollack, Oliver B. Empires in Collision: Anglo-Burmese Relations in the Mid-Nineteenth Century. Westport, Conn.: Greenwood Press, 1979.

- Pragtong, Kamon and David E. Thomas, "Evolving Management Systems in Thailand." In Keepers of the Forest: Land Management Alternatives in Southeast Asia, ed. Mark Poffenberger, 167-86. West Hartford, Conn.: Kumarian Press, 1990.
- Redclift, Michael. Sustainable Development: Exploring the Contradictions. London: Methuen, 1987.
- Remigio, Amador A. Jr. "Philippine Resource Policy in the Marcos and Aquino Governments: A Comparative Assessment." In "The Political Ecology of Southeast Asia's Forests: Transdisciplinary Discourses," ed. Raymond L. Bryant, Philip Stott and Jonathan Rigg, Global Ecology and Biogeography Letters (Special Issue, forthcoming).
- Repetto, Robert and Malcolm Gillis, ed. Public Policies and the Misuse of Forest Resources. Cambridge: Cambridge University Press, 1988.
- Ricardo, David. The Principles of Political Economy and Taxation. 1817; reprint, London: John Murray, 1821.
- Richards, John F. and Richard P. Tucker, ed. World Deforestation in the Twentieth Century. Durham, N.C.: Duke University Press, 1988.
- Richards, Paul. Indigenous Agricultural Revolution. London: Hutchinson, 1985.
- Robison, Richard. Indonesia: The Rise of Capital. Sydney: Allen and Unwin for the Asian Studies Association of Australia, 1986.
- Rueschemeyer, Dietrich and Peter B. Evans, "The State and Economic Transformation: Toward an Analysis of the Conditions Underlying Effective Intervention." In Bringing the State Back In, ed. Peter B. Evans, Dietrich Rueschemeyer and Theda Skocpol, 44-77. Cambridge: Cambridge University Press, 1985.
- Rush, James. The Last Tree: Reclaiming the Environment in Tropical Asia. New York: Asia Society, 1991.
- Saldanha, Indra Munshi. "The Political Ecology of Traditional Farming Practices in Thana District, Maharashtra (India)." Journal of Peasant Studies 17 (April 1990): 433-43.
- Sargent, Caroline and Stephen Bass ed. Plantation Politics: Forest Plantations in Development. London: Earthscan, 1992.
- Schmink, Marianne and Charles H. Wood. "The 'Political Ecology' of Amazonia." In Lands at Risk in the Third World: Local-level Perspectives, ed. Peter D. Little and Michael M. Horowitz, 38-57. Boulder: Westview Press, 1987.

- Scott, C.W. "Forestry in Burma." Journal Oxford University Forest Society, 3rd ser. 1 (1946): 24-34.
- Scott, James C. "Patron-Client Politics and Political Change in Southeast Asia." American Political Science Review 66 (March 1972): 91-113.
- _____. The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia. New Haven: Yale University Press, 1976.
- _____. Weapons of the Weak: Everyday Forms of Peasant Resistance. New Haven: Yale University Press, 1985.
- _____. Domination and the Arts of Resistance: Hidden Transcripts. New Haven: Yale University Press, 1990.
- Shein. Burma's Transport and Foreign Trade 1885-1914. Rangoon: Department of Economics, University of Rangoon, 1964.
- Shein, Myint Myint Thant and Tin Tin Sein. "'Provincial Contract System' of British Indian Empire, in Relation to Burma: A Case of Fiscal Exploitation." Journal of the Burma Research Society 52 (December 1969): 1-27.
- Shirley, G.S. "Growing of Timber so far as Forest Villages and Taungyas are Concerned (Burma)." Third British Empire Forestry Conference Papers (1928): 612-15.
- Shiva, Vandana. Ecology and the Politics of Survival: Conflicts over Natural Resources in India. London: Sage, 1991.
- Shway Yoe [J. George Scott]. The Burman: His Life and Notions. 1882; reprint, Edinburgh: Kiscadale, 1989.
- Simmonds, P.L. "The Teak Forests of India and the East, and Our British Imports of Teak." Journal of the Society of Arts 33 (February 1885): 345-55.
- Skocpol, Theda. States and Social Revolutions: A Comparative Analysis of France, Russia, and China. Cambridge: Cambridge University Press, 1979.
- _____. "Bringing the State Back In: Strategies of Analysis in Current Research." In Bringing the State Back In, ed. Peter B. Evans, Dietrich Rueschemeyer and Theda Skocpol, 3-37. Cambridge: Cambridge University Press, 1985.
- Slym, M.J. Memorandum on Jungle Fires. Maulmain: Tenasserim Press, 1876.
- Smeaton, Donald Mackenzie. The Loyal Karens of Burma. London: Kegan, Paul, Trench and Co., 1887.
- Smith, Adam. An Inquiry into the Nature and Causes of the Wealth of Nations, 2 vols. ed. R.H. Campbell and A.S. Skinner. 1776; reprint, Oxford: Clarendon Press, 1976.

- Smith, Martin. Burma: Insurgency and the Politics of Ethnicity. London: Zed Books, 1991.
- Spencer, J.E. Shifting Cultivation in Southeastern Asia. Berkeley: University of California Press, 1966.
- Stamp, L. Dudley. The Vegetation of Burma from an Ecological Standpoint. Rangoon: University of Rangoon, 1924.
- Stebbing, E.P. The Forests of India. 3 vols. London: John Lane for the Bodley Head, 1922-26.
- _____. "The Teak Forests of Burma," Nature 160 (13 December 1947): 818-20.
- Steinberg, David Joel (ed.) with David P. Chandler, William R. Roff, John R.W. Smail, Robert H. Taylor, Alexander Woodside and David K. Wyatt. In Search of Southeast Asia: A Modern History, rev. ed. Sydney: Allen and Unwin, 1987.
- Stewart, A.T.Q. The Pagoda War: Lord Dufferin and the Fall of the Kingdom of Ava 1885-6. London: Faber and Faber, 1972.
- Stoler, Ann Laura. "Rethinking Colonial Categories: European Communities and the Boundaries of Rule." Comparative Studies in Society and History 31 (January 1989): 134-61.
- Taylor, Robert H. "Politics in Late Colonial Burma: The Case of U Saw." Modern Asian Studies 10 (April 1976): 161-93.
- _____. "Perceptions of Ethnicity in the Politics of Burma." Southeast Asian Journal of Social Science 10, 1 (1982): 7-22.
- _____. An Undeveloped State: The Study of Modern Burma's Politics. Melbourne: Monash University Centre of Southeast Asian Studies Working Paper No. 28, 1983.
- _____. The State in Burma. London: C. Hurst, 1987.
- Tejwani, K.G. "Agroforestry Practices and Research in India." In Agroforestry: Realities, Possibilities and Potentials, ed. Henry L. Gholz, 109-36. Dordrecht: Martinus Nijhoff, 1987.
- Thomas, Keith. Man and the Natural World: Changing Attitudes in England 1500-1800. Harmondsworth, Middlesex: Penguin, 1983.
- Thompson, E.P. Whigs and Hunters: The Origin of the Black Act. London: Allen Lane, 1975.
- Trager, Frank N. Burma: From Kingdom to Independence: A Historical and Political Analysis. London: Pall Mall Press, 1966.

- Trager, Frank N. and William J. Koenig. Burmese Sit-tans 1764-1826: Records of Rural Life and Administration. Tucson: University of Arizona Press, 1979.
- Troup, R.S. "Forestry in India." Calcutta Review 273 (July 1913): 305-15.
- _____. The Silviculture of Indian Trees. Vol. 2. Oxford: Clarendon Press, 1921.
- Tucker, Richard P. "The British Colonial System and the Forests of the Western Himalayas, 1815-1914." In Global Deforestation and the Nineteenth-Century World Economy, ed. Richard P. Tucker and J.F. Richards, 146-66. Durham, N.C.: Duke University Press, 1983.
- _____. "The British Empire and India's Forest Resources: The Timberlands of Assam and Kumaon, 1914-1950." In World Deforestation in the Twentieth Century, ed. John F. Richards and Richard P. Tucker, 91-111. Durham, N.C.: Duke University Press, 1988.
- Tucker, Richard P. and J.F. Richards, ed. Global Deforestation and the Nineteenth-Century World Economy. Durham, N.C.: Duke University Press, 1983.
- Walker, K.J. "The State in Environmental Management: The Ecological Dimension." Political Studies 37 (1989): 25-38.
- Weber, Max. Economy and Society: An Outline of Interpretative Sociology, 3 vols., ed. Guenther Roth and Claus Wittich. New York: Bedminster Press, 1968.
- Williams, J.H. Elephant Bill. London: Rupert Hart-Davis, 1950.
- Winters, Robert K. The Forest and Man. New York: Vantage Press, 1974.