Breaking New Ground? Gifford Pinchot and the Birth of 'Empire Forestry' in the Philippines, 1900–1905

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ABSTRACT

Professional forest management in the Philippines is largely attributed to the ideas and endeavours of American foresters such as Gifford Pinchot, George Ahern and Henry Graves who were instrumental in establishing the Insular Bureau of Forestry in 1900 and in passing the forestry laws of 1904 and 1905. These men, however, did not so much transfer American forest management directly to the archipelago let alone blindly implement empire forestry policies developed in other colonial settings such as British India. Instead, they pragmatically improvised new methods of forest management that were a blend of European, American and local expertise, 'hybrid practices' more suited to an administratively and scientifically unstable tropical setting.

KEYWORDS

Forestry, Philippines, Gifford Pinchot, utilitarian conservation

Environment and History **15** (2009): 369–393. doi: 10.3197/096734009X12474738236078

Modern forestry in the United States is haunted by an unlikely colonial spectre, that of British India. The system of revenue-raising government reserves managed by professionally-trained forest conservators that characterises American forestry in the late nineteenth and early twentieth century is said to have its origins in the forestry practices of the Sub-Continent. The 'empire forestry' model first advocated by Governor-General Lord Dalhousie in 1855 and subsequently codified by the Forest Act of 1878 spread from India to other British colonies in Africa, Australasia and Canada and constituted a practical application of German and French notions of scientific forest management to a non-European imperial context.[1] That this 'imperial mantle' also fell over the United States is somewhat ironic given that nation's British colonial past and its early twentieth century pretensions of aggrandisement.[2] If empire forestry in the United States successfully resolved the tensions between romantic preservationist notions about the natural environment and more laissez-faire attitudes toward its unfettered utilisation, America had also acquired its own tropical backyard by 1898 where colonial officials experimented in their own right and did not just emulate the policies of others. In the Philippines, moreover, Americans foresters inherited a small but active Spanish forestry department whose employees were already well versed in French and German traditions. In the first decade of the twentieth century, key figures in the development of forestry in the United States visited the archipelago for shorter or longer periods and were instrumental in establishing the Insular Bureau of Forestry there and in the passage of the Forestry Acts of 1904 and 1905. While not diminishing the significance of British India on American forestry practice, its influence, perhaps, needs reconsidering and the role that America's own empire of islands played demands more recognition.

The fate of the 500 million acres of forest land still in federal government hands that proved so divisive in late-nineteenth and early-twentieth century U.S. politics did not have its counterpart in America's erstwhile colony across the Pacific. In the Philippines, the colonial context somewhat simplified matters. Only the state stood between sawmill-operators, mineral companies, plantation owners and the like and their unfettered designs upon the extensive forests that still covered large areas of the archipelago. But far from facilitating unrestricted access to all this timber**,** the nascent colonial administration had already been captured by proponents of the creed of utilitarian conservation and it was in America's Asian colony that the Progressive-era state was able to implement its reformist agenda virtually unopposed.[3] The Insular Bureau of Forestry was largely established along lines advocated by Gifford Pinchot, the 'father' of professional forestry in the United States and his associates, Henry Graves, dean of the Yale Forest School, and George Ahern, chief of the forestry service in the Philippines.[4] Consequently, the Bureau's policies and agents sought to promote the lumber potential of the islands in such a manner that yields might be sustainable and the forest made to pay for its own maintenance. That involved both imposing limits on felling through the enforcement of a licensing system

and learning how to conserve species through a study of their properties. The novel setting that Pinchot and the others found themselves in meant that they did not so much transfer American forestry practice directly to the colony let alone blindly implement empire forestry policies developed elsewhere. Instead, they pragmatically improvised new ones that were a blend of European, American and local expertise, 'hybrid practices' more suited to an administratively and scientifically unstable tropical setting. It was a challenge, however, that Pinchot and his colleagues welcomed convinced that Americans were engaged on 'the finest piece of work … the Anglo-Saxon people are trying to do'.[5]

FORESTRY FROM THE DECK OF A SHIP

In 1902, Gifford Pinchot took leave from his official duties as head of the Division of Forestry in Washington D.C. and embarked for America's new colony, the Philippines. His tour took place at a critical moment in the history of the forestry services both in the United States and in the Philippines. Over a few short years until 1910, Pinchot oversaw the consolidation of the U.S. forest service and the rapid expansion of its responsibilities and personnel under his direction. The moment was no less auspicious in the Philippines where George Ahern, an army captain, had been charged with the task of heading the newly formed Insular Bureau of Forestry in 1900. Ahern had a long association with Pinchot and so it was only natural that he should turn to his mentor for support and advice.[6] Pinchot arrived in Manila on 26 October and was lodged as a guest of Governor-General William Howard Taft, who even put his official yacht, the *USS General Alava*, a commodiously fitted-out gunboat of 1,400 tons, at his disposal.

The eminent Dutch historian, Jacob van Leur decried Western historiography as being 'observed from the deck of a ship' to denote a particular ethnocentric and littoral-minded perspective on South-east Asia.[7] Perhaps no such single episode so exemplifies what the historian had in mind than Pinchot's six-week, 2,300 mile odyssey about the islands on a converted naval vessel that symbolised the technological know-how and military might of a nation still busy with the task of 'pacifying' its newly acquired subjects. Except it was trees and not 'natives' that principally excited the forester as he steamed past partially verdant but sometimes still hostile shores, landing from time to time to make excursions into the hinterland. This, indeed, was forestry from the deck of a ship, giving him 'the opportunity to see a good deal of islands from the ocean'! And what he observed impressed him deeply: 'This was my first real sight of tropical forest', he wrote to his father on 6 November, 'and consequently it was full of the keenest interest, although somewhat bewildering to be dropped into the midst of a forest not one tree of which I knew'.[8]

Sailing south from Manila, Pinchot and his party first made its way along the western coast of Luzon, skirted around the principal islands of the Visayas

to reach Mindanao and returned by way of the Sulu archipelago, Sandakan in British North Borneo, and the east coast of Palawan. Once back in the capital, Pinchot rested for a few days before embarking once more on his gunboat. This time he turned northward following the coastline as far as the extreme north-east of Luzon before finally leaving Philippine waters altogether for Japan and home (figure 1).[9] This itinerary gave Pinchot a reasonable impression of the

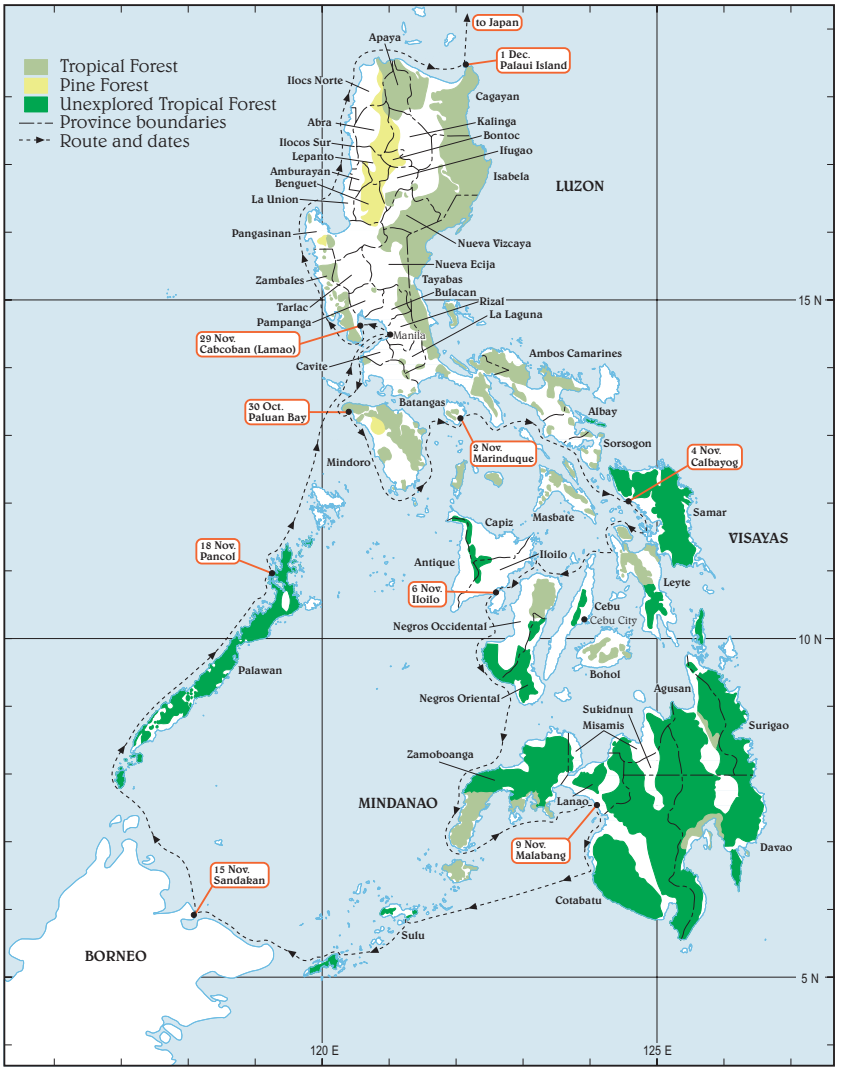

FIGURE 1. Route taken by Gifford Pinchot, October–December 1902.

archipelago's forests and the extent of deforestation. He estimated that 50 per cent of the forest had already been lost, a figure very much out of keeping with official statistics that calculated remaining forest cover at 65–70 per cent.[10] He was also accompanied on his travels by those best able to inform him about the nature of tropical forests: Ahern as Insular Bureau chief, Regino García, a botanist formerly employed by the Spanish forestry service, and various of the newly appointed American district foresters.

Despite being limited by both time and mode of transport, what Pinchot saw impressed him greatly. This was tropical forest, the real thing, and there was much to elicit his amazement and wonderment. In many places, the forest came right down to the water's edge, overhanging the high-water mark and giving the shoreline 'an enormously interesting and enormously fascinating appearance'. The trees were of an extraordinary size with many diameters in excess of three feet but he was too unfamiliar with the species to get any correct idea of their distribution. On shore, he was struck, too, by the vigour of the life about him. As the trip proceeded, however, his observations became more 'scientific'. He was surprised to find the tallest, finest and best-sized timber on the slopes and not in the valleys where he would have expected the wash to have made the soil richer. There were also many different kinds of trees, over 700 species already known to science. Moreover, the composition of the forest changed from island to island and even from day to day. Beginning at the coast, the forest passed through gradual transformations: The trees were shorter, smaller in diameter and less valuable immediately at the water's edge than they were even slightly farther inland. The finest timber with the best logs was always on the steepest slopes but the forest began to diminish again the higher one climbed. The great variation throughout the islands made it 'very difficult in so rapid a survey … to get any thoroughly reliable general rules'. However, it was clear that there were still great tracts of merchantable timber despite the extensive forest clearing that had already occurred.[11]

This forest world was not only one of potential riches, it was also one filled by perils: Strange sights, unknown species, wild upheavals, deadly fevers, and primitive peoples akin to what historian David Arnold calls *tropicality*, a threat-laden, nineteenth-century discourse about tropical regions. More than denoting simply a physical space, this sense of otherness was as much a conceptual one.[12] The forest that Pinchot saw from the deck of the *General Alava* as it steamed among the islands or in the twilight world he walked within during his short, periodic forays on land conjured up just such threatening allusions.

It started with the fabric of the forest itself with images of some species like balete (*Ficus elastica*) as 'tree-eaters', ones that 'devoured' their fellows. But it was the forest undergrowth more than the trees that were more menacing: The vines, ferns, rattans and bamboos that sprang up wherever the overhead canopy was disturbed and that grew to an immense size. Often the tangle of plant life was so dense that 'a man would be practically useless off a trail, without a bolo'.

Pinchot's chief concern, however, was not with the inconvenience but with the forest's ability to regenerate. As the growth of 'these forest weeds' was so much faster than that of the trees, they 'choked out' a large proportion of the saplings. And there were predators in this forest world, too. Not the wildlife that one senses Pinchot found slightly disappointing but the *anay*, the white ants who were the real masters of the shade beneath the forest canopy. So significant was their impact on the forest that only 30 to 40 of the many hundred different species that grew in the islands were regularly used by indigenous people, a selection largely made by 'what trees the natives knew the white ant would eat'. Over hundreds of years, the effect of felling only a few species was the 'complete exhaustion in certain provinces of the best kind of timber'.[13]

If all this were not enough to make the forest a strange and perilous environment, there was also the land on which the trees stood and the air above its canopy to contend with. The Philippines is one of the most seismically active land masses in the world as well as being subjected to frequent typhoons. Fever and disease stalked the land with forests, in particular, held to harbour certain diseases. Cholera was a scourge and, in rural areas, there was something worse – leprosy. Nor were people the only ones struck down by disease: Rinderpest, the bovine viral disease, and surra, an equine infection carried by biting flies (*Tabani striati*), decimated carabao, cattle and horse herds, while plagues of locusts ravaged the fields.[14] To complete the somewhat apocalyptic vision he drew of this hazardous environment, Pinchot noted that the country was still at war with the United States and that often 'the forests were the refuge of the disaffected'. In the mountains, of course, which one forester described as 'a hundred miles beyond all signs of Civilization' there were the inevitable head-hunters whose presence necessitated an escort of six soldiers 'to come out safely'.[15]

THE SPANISH INHERITANCE

Did the uncertain perils of the forest put off men like Gifford Pinchot, George Ahern and Henry Graves? Not in the least. They believed wholeheartedly in the benefits of science to both protect the well-informed man and to manage resources wisely in the public interest. Moreover, it was not simply the lure of the forest wealth all around them that drove on men such as these as they were embarked on a mission to better the world. 'The work that we are doing out there', Pinchot told an audience of young foresters in a series of lectures at Yale shortly after his return from the Philippines in March 1903, 'is in many ways the finest piece of work that I have been in contact with. I have never been as proud of being an American as I was after finding out what our men are doing in the Islands'. Not only were there unparalleled prospects for forestry but those who went out there had the opportunity to become part of 'this superb machine' that had been created to do 'this splendid thing'. For some, the undertaking

went even deeper. Pinchot recounts a dinner conversation he held shortly after his arrival in Manila with Brigadier General Franklin Bell, infamous for his concentration policy in Southern Luzon, in which the latter affirmed that 'we came here because the Lord had work here for us to do'. Though a deeply religious man, Pinchot's motives were not as devout as these though he was no less zealous. When they acquired the Philippines from Spain, Americans had placed themselves under an obligation to put these immense timberlands under 'some sort of management adapting the ideas we had developed in the U.S. to the very different conditions that were to be found in the islands'.[16]

Distinct from the other colonising powers in South-east Asia, the Americans in the Philippines inherited both a commercial market for timber as well as an existing modern forestry department.[17] A commercial market emerged during the second half of the nineteenth century fuelled in particular by the repeated devastations of Manila through earthquake (1863 and 1880) and fire (1870) that necessitated the partial rebuilding of the city on each occasion. This new commercialism was seen in the capital's timber yards, in the professionalism of local contractors, in the abuse of indigenous customary rights, and above all in state attempts to raise revenue from forests. If this commoditisation was not complete by the end of the Spanish colonial period, the process that transformed the archipelago's extensive forests from useful but 'valueless' wood into marketable lumber sold for a profit was well underway. Nor after 1898 did the nature of this market change substantially. While the volume of timber cut increased markedly especially after 1918, three-quarters of the timber cut during the American colonial period went to supply the domestic market just as it had done under the previous administration. Moreover, the Spanish forest service, the *Inspección General de Montes*, established in 1863, was as much a modern agency informed by the principles of scientific forestry as was its successor, the Insular Bureau of Forestry.[18]

American attitudes towards Spanish forestry were ambivalent, a combination of grudging respect for its intent but outright condemnation of its practices, especially the apparent inability of the state to enforce its own decrees. 'The forestry laws and regulations in force in August 1898', wrote Ahern in a report dated 15 August 1900, 'are found to be excellent, practicable, and in line with the most advanced forestry legislation of Europe.' Unfortunately, as the testimony of former officials showed, scientific forestry was more honoured in its breach than in its observance nor were the laws and regulations properly enforced. 'Licensees cut any and everything; trees to be felled were not selected; any tree, no matter how small could be felled; valuable rubber, gutta percha and ylang-ylang trees were taken and the most valuable woods used as firewood.' Under the previous administration, it was all a matter of revenue, Ahern inferred, and 'the officers began their work after the tree left the forest, and not before'. Pinchot noted, too, that forestry still laboured under 'great difficulties' due to the loss of carabao

from disease and war, and affirmed that 'both the logging and the manufacture of lumber in the Islands is in an extremely primitive state'.[19]

Existing methods were inefficient, slow, destructive, wasteful and uneconomic, and the forest had only escaped further devastation because of the difficulties posed by terrain. Trees were felled by axe, 'a clumsy affair' with a narrow bit that still could be quite effective 'in the hands of a good lumberman'. Saws were mainly reserved for the most valuable timbers. After squaring a log, small holes were cut in one end through which ropes were attached and the under-surface 'sniped' to remove protrusions.[20] Short round rollers facilitated hauling timber to the nearest river but the sharp decline in the number of draft animals, and the location of the best stands on steep slopes where their use was often impractical, made such operations considerably more difficult.[21] In many cases, contractors were forced to fall back on manpower and to rely on the use of ropes and pulleys. Pinchot noted how it took twenty men to pull a single log across a little ravine and observed that 'they were making slow progress'.[22]

Location within a mile of water was a prime consideration in timber selection. Logs were floated down river to a common rafting place and then dragged out as far as possible at low tide to be collected by lighter weeks or even months later. Cutting was dependent on the agricultural cycle to ensure labour availability and waterways unobstructed by temporarily constructed irrigation dams. Full lighters were then towed to Manila where most lumberyards and sawmills were located.[23] Machines were rarely able to compete profitably with Chinese labourers so most logs were cut manually. 'In two or three cases', commented Pinchot, 'I saw a mill shut down and the yard filled with Chinamen sawing logs by hand because it paid them better'. The quality of the resultant boards, however, left much to be desired: 'A lot of the lumber I saw in Manila was so badly manufactured that it was a perfect outrage that anyone should put such stuff on the market'.[24]

Sawn timber was not only roughly hewn but it reached the market in insufficient quantities to meet local demand and so was expensive. As Pinchot, Ahern and many others recognised the principal problem apart from the issue of poor transportation was wastage. The amount of wood needlessly or heedlessly lost during squaring logs and cutting boards was as high as 75 per cent. One of the principal American timber contractors in Manila, Mr Cadwallander, went so far as to blame the high costs of logs on the manner in which they were prepared for market: 'In very rough shape, squared by hand, disfigured in handling and in transportation, full of windshakes, sapwood, and other deformities'. This waste might be reduced, he continued, if the timber was handled according to modern methods. Later Pinchot visited Cadwallander at his mill to confirm such views for himself. 'I had not conceived that logs could be so mutilated and distorted', he wrote, 'and I thought it all the more remarkable because these logs represented the woods regarded by the natives to be the choicest varieties'.[25]

Such timber practices were also highly destructive of the environment. Most trees were cut six feet above the ground to make felling easier. The rollers used in hauling logs, the stakes required for chutes and the scaffolding needed for cutting platforms were all constructed from young trees growing nearby, including 'good [ie valuable] species'. Where stands were dense, such practices involved cutting 'almost every pole' in the vicinity. The whims of men and the vagaries of the market meant that many trees were simply abandoned after felling and left to rot on the forest floor. Even valuable woods such as molave (*Vitex parviflora*) were treated in this way.[26] Other areas were cleared of all trees, big and small, making regeneration unlikely and turning the forest into scrub or cogon (*Imperata cylindrica*). Despite the steep slopes and primitive appliances, Pinchot was still unable to account for the extreme destructiveness of the methods employed. Reflecting on a barren patch of two to three acres, the work of the Philippine Development and Lumber Company in western Mindanao, he remarked: 'I have never seen a more complete slash, because it is impossible to make one. Everything was destroyed'. Practices like this led to severe erosion that rendered soils 'totally unfit for agriculture'.[27] It was not only the loggers, however, who were deemed responsible for destroying the forest. Americans (like Spaniards before them) were ignorant of the sound ecological principles behind shifting agriculture and blamed native farmers for widespread forest destruction.[28]

All this, of course, was not destined to continue; it had to change and change soon. After all, that was the reason why men such as Ahern were out in the Philippines and it was the *raison d'être* behind Pinchot's and later Henry Graves's trips. Both the latter two men's visits were pivotal in establishing the structure and purpose of American forest policy in the Philippines. Pinchot's report formed the basis of the draft legislation of the rules and regulations of the Insular Bureau of Forestry that were put into practice as the Forestry Organic Law of 7 May, 1904, and Graves's recommendations led to the bureau's further reorganisation under the act of 25 October, 1905. Nor should Ahern's contribution be minimised, at least in the initial legislation. He accompanied Pinchot on his inspection of the archipelago and even went as far as Japan on board the *General Alava* with the chief forester, noting in his journal how 'A. and I plugged away on our report' during the entire crossing. Ahern had also been the instigator behind both men's visits and was the man on the ground, remaining as head of the Bureau until his retirement in 1914. In large part, therefore, he was principally responsible for the implementation of these laws.[29]

EMPIRE FORESTRY

Professional forestry in the Philippines, empire or not, does not originate with the American administration. Peter Vandergeest and Nancy Lee Peluso have

documented how forest management in South-east Asia was not simply some applied biological blueprint from Europe unvaryingly extended to a colonial setting but was rather a network of hybrid practices drawing on diverse, decentred forestry models evolved in a number of neo-colonial or colonial settings.[30] Americans, too, had their own variant of modern forestry based on German, French and British Indian models as applied to the specific conditions of the continental United States. In the post-1898 Philippines, this blend of experience and pre-conceived ideas then meshed with existing Spanish forest practices, themselves evolved from local interactions over time. The result was a form of empire forestry, certainly, but not one that blindly emulated other models as foresters in British India were the first to recognise, noting how 'our American cousins have imported some of their characteristic dash and up-to-datedness into their newly acquired possession'.[31]

Actually, surprisingly few forestry practices had changed since the Spanish by the time of Pinchot's arrival. The *Inspección General de Montes* may have gone but many of its methods of doing business remained given the imperatives to maintain forestry operations. Later, too, it was found difficult to change such practices 'both because of the training of the Filipino clerks and because of rules and methods prescribed during the military occupation'.[32] Wounded in the leg during the Spanish-American War in Cuba, Ahern was posted to the Philippines where he was first detailed to investigate the islands' forests before appointed to head the newly created Insular Bureau of Forestry on 14 April 1900. Given the uncertainty of the situation, with military operations still ongoing, Ahern's remit was vaguely defined. Initially, only a small staff of eight men was assigned to his command though the number of employees expanded rapidly to reach 224 within three years. Even so, there were only a few trained foresters. Ahern visited the forest schools at Cornell, Yale and Biltmore while on leave in the summer of 1901 and managed to secure seven graduates for the forestry service (six from Cornell), four of whom were on station by the end of the year. Recruitment, however, was slow. Many graduates were reluctant to go overseas when there were plenty of jobs in the expanding forestry service at home and some, who did accept the challenge, chose not to remain long. Even in 1904, there were still only nine professional personnel: six district foresters trained in the United States, one more assigned as an assistant inspector and two roving inspectors to cover the areas 'where considerable lumbering is now going on'.[33]

The general scarcity of personnel and their scattered distribution mainly in the principal towns left the Insular Bureau open to the same accusation that Americans had levelled against their Spanish predecessors, namely that the forester was 'practically only a timber inspector and a collector of duties'. Timber duties were still only collected at points where there were markets and there was no supervision of actual cutting practices in the forests and so little opportunity to implement forest management practices. 'The organisation', noted a disappointed Pinchot on his return to the United States, 'is consequently, as

yet, largely a machine for inspecting the sales of timber or rather of collecting the money from the sales of timber'. Initially, the Bureau was a military responsibility but subsequently placed under the control of Dean Worcester as Secretary of the Interior with a central office in Manila. From here, foresters and inspectors were posted to the provinces for shorter or longer spells, returning to the capital only to write their annual reports during the rainy season, between June and October. Field parties were dispatched to important timber cutting areas in 1901 and 1902, to Bataan, Camarines Sur, Mindoro and Tayabas and the data collected used to draw up preliminary management plans. Later, foresters were stationed on a semi-permanent basis in newly created forestry districts where logging activities were intensive. Many of these locations were far from Manila and the principal centres of colonial life, giving rise to acute feelings of loneliness and isolation.[34] Matters were only exacerbated by a policy that restricted communication to official correspondence, made no provision for field inspections, and discouraged officers from making personal visits to the central office. When one district forester came to Manila on his own initiative, the time his journey took was docked from his annual leave entitlement.[35] Already, too, an ethnic hierarchy was firmly established. 'White men', Americans, filled all the positions as trained foresters and inspectors, and 'those rangers who live permanently at any station in the provinces of the Islands are, without exception, either Filipinos or Spaniards).[36] Some attempt was also made to recruit experienced staff from the previous forestry service and at least one Spanish botanist, Regino García, worked for the Bureau.[37]

As a manager, too, Ahern may not always have been the easiest of men to work alongside. On the one hand, he had a major run-in with his superior, Dean Worcester, adamantly resisting the latter's proposal to allocate 75 per cent of forestry revenues to municipal and provincial governments. He accused Worcester of influence-buying, 'the old story of the individual trying to use his position to make profit for himself and his friends' that he likened to 'Tammany'.[38] Ahern was so worried that Worcester would use the opportunity of his prospective absence in the United States to have him removed from his post that he pleaded with Pinchot to put in a good word for him with Taft and the Philippine Commission.[39] With his subordinates, on the other hand, Ahern was often very over-bearing and demanding. Many of the newly arrived foresters were manifestly ill-prepared to deal with the conditions they encountered in tropical islands far from home and still in a state of insurrection where 'it was almost sure death for any American to be outside the range of US soldiers' rifles'. Under these circumstances, the chief forester's attempt to impose 'unwise economies and restrictions' fostered resentment among his staff and his numerous 'immature plans', often soon abandoned only further burdened an already overstretched workforce. As a consequence, therefore, there was little *esprit de corps*. Field officers were denied discretionary powers and felt their opinions were not valued. Personal misunderstandings also proliferated where

face to face contact was rare. At the time of Graves's visit in early 1905, one forester had just resigned due to a disagreement with his superior and another, deeply offended by a letter he had received from central office, was only talked out of doing so by the good offices of his visitor. Graves could only record how 'practically every officer whom I met was dissatisfied with his relations with the head office'.[40] Reflecting on his own experiences in the islands, Ahern's deputy, Ralph Bryant, still wondered how:

> The men who first went to the Islands accomplished as much as they did in establishing a forest department. A forest worker in this country can hardly appreciate the conditions as they existed in the Islands in 1901 so far as the forest was concerned. There were, for instance, no records of any sort regarding the forest resources of the Islands, no reliable literature on the forest botany of the region; no ready means for the identification of trees, coupled with this the men were unfamiliar with the language and customs of the people among whom they had to work, and the methods of living and transportation that were best adapted to the country. [41]

This was the situation that Pinchot encountered on his arrival in the Philippines though it is unclear just how much he really appreciated the level of discontent existing in the Insular Bureau from his privileged but isolated vantage point aboard the converted gunboat. Often accompanied by Ahern, the employees that Pinchot encountered were naturally somewhat reluctant to criticise openly their superior. In this respect, Graves's later report is more telling as his visit coincided with the chief forester's absence in the United States and most censures of Ahern are contained in his correspondence. Besides, Pinchot was more interested in the bigger picture, on laying solid foundations for the forestry service. For that, stable and effective legislation was required and, while he conceded that some progress had been made under military rule, much still needed to be done with the inauguration of civil government. 'Affairs had improved a bit more by the time I made my trip', he wrote, 'BUT THE need for legislation on the basis of my report was still great.'[42]

The report that Pinchot and Ahern 'plugged away' at all the way to Japan proved to be a large one that provided considerable detail on how the Insular Bureau of Forestry should be reorganised. Great emphasis was laid on labour-saving methods and eliminating red tape. He recommended that trained personnel pay particular attention to marking timber for cutting, inspecting lumbering operations on the ground, and conducting studies into forest reproduction. 'To meet the urgent needs inherent in the present situation', he advocated a rapid expansion in the number of personnel, a regularisation of their career and salary structures, and the provision of a small steamer to expedite movements about the archipelago. He advised, too, that the forest laws and regulations be revised to better reflect modern management practice and the newly collected data on tropical conditions. Meanwhile, he counselled caution, suggesting that the

number of timber licenses granted be limited until the nature of all these new species was better understood. He proposed that stumpage, the duties collected by the forestry service be used as a means of directing which areas were logged. He directed that an average tariff of six per cent be levied on cut timber, an amount less than half the corresponding rate in United States, and that the rate on valuable logs be set considerably higher to deter felling and 'to divert the lumber business to other regions, or other species'. Lastly, he stressed the need to strictly enforce the regulations prohibiting unauthorised swidden farming and to enlist the cooperation of local authorities in apprehending violators.[43]

A bill closely following these recommendations was duly presented to Governor Taft and the Philippine Commission and formed the basis of the forestry law enacted in 1904. Through its provisions, Pinchot believed he had achieved his aims of greatly improving the position of the Insular Bureau, clarifying and facilitating forestry operations, and giving added impulse to forest conservation. He was greatly struck, he told an interviewer shortly after his return to Washington, by the different attitude displayed by the colonial administrations in British North Borneo and the Philippines. In the former, the single object seemed to be the extraction of revenue for the Company, while in the latter: 'Our government in all its acts is apparently working to benefit the Filipino people and for the benefit of the country they live in'.[44]

At Ahern's suggestion, Pinchot later asked Henry Graves to go to the Philippines to investigate how the new laws and regulations had been implemented and to familiarise himself with tropical conditions 'in order to provide instruction for Americans who wish to enter the forest service'. A close friend and associate of Pinchot and his successor as chief of the U.S. Forest Service, Graves set out in early December 1904. Once in the Philippines, he spent his time talking to staff in the central office and examining actual forest conditions. He, too, only had a little more than a month in which to complete his investigation and so chose to confine his fieldwork to provinces close to Manila, mainly Bataan, Tayabas and Mindoro. Government cutters and launches were accordingly placed at his disposal, though on occasion he resorted to *banca* (native canoe). He also claimed to have covered at least 120 miles on foot.[45]

Although it was not his original intention to suggest any changes to the new law, Graves was confronted with glaring deficiencies that required prompt, systematic correction 'before a satisfactory condition of affairs can be brought about'.[46] He found the Bureau 'distinctly disorganised' a condition he blamed on a lack of effective leadership, on a continuing shortage of trained personnel, and on defects in both the organisation and administration of the forestry service. In particular, the system of conducting business solely by correspondence meant that central office had little firsthand information on what was happening in the provinces. It was possible, therefore 'for a weak man to drift into slovenly work or to create a bad influence for the Bureau among the natives, and become demoralized by drink or association with native women'.[47] A lack of forthright

communication also encouraged head office into making many decisions that were either impractical or unenforceable at the local level, causing delays that hampered the work of district officers and creating unnecessary hardship to licensees. The results were far from what Pinchot had originally intended. On the one hand, the new rules and regulations were generally considered by lumbermen and wood-dealers to be fair and satisfactory. According to Pinchot, Ahern had even been able to enlist their cooperation and goodwill 'in a very remarkable and satisfactory way', suggesting a growing accommodation or even partnership between colonial state and expatriate private enterprise. But the implementation of the legislation, on the other hand, was becoming 'every day more unpopular' and it was 'a common saying that the next insurrection will be largely due to the Bureau of Forestry'.[48]

Graves was openly critical of Ahern both with respect to his personality and his methods, though he was careful never to mention him by name. Instead, he complained of the lack of 'a strong mind in Manila' and the absence of clear direction to staff in the field. Bryant, however, was less circumspect. While he conceded Ahern may have been a very useful man to have had at the helm during the reconstruction period, now someone with more technical training was required who could provide 'a most helpful stimulus to the work'.[49] Graves was particularly concerned about the effects of Ahern's personality on the organisation and functioning of the Bureau. He criticised him for his failure to lay down 'the foundation for a strong permanent forest service' and for having 'apparently entirely overlooked the personal side of the problem'. Apart from stronger leadership, he also considered that a permanent service of from eight to 12 foresters was needed, men who were trained in tropical forestry and who proposed to make their career in the Islands. Many of the present 'floating personnel' remained only a short time and it took two years to fully train a replacement. He also drew unflattering comparisons with the forestry service in British India that was able to recruit 'good men' by offering an out-of-door lifestyle with 'fine opportunities for shooting', and high salaries and the prospect of a pension. Almost the reverse situation existed in the Philippines and matters were only made worse by a Civil Service Commission that seemed to take every opportunity 'to discourage its employees by irritating exactions instead of encouraging them in every possible way'. 'Under the present conditions', Graves concluded, 'I am frank to say that I would advise no man to enter the Philippine Forest Service.'[50]

Graves went on to recommend major changes in the way the Bureau operated. He proposed that the existing management by correspondence system be done away with and that it be replaced with senior staff inspections of the provinces on a regular basis. Not only would the central office be kept in touch with field operatives by this means, but district foresters would have the opportunity to present their views and opinions to the chief forester or his deputy personally, providing valuable local input and doing much to revive morale in the service.

Unfavourable public opinion of the Insular Bureau might also be improved if local government officials, lumbermen, and others with grievances were able to bring their complaints directly to the attention of senior forestry officials for speedy redress. These changes, moreover, might even be made with only a modest increase in central office staff.[51]

In reviewing Pinchot's earlier report, Graves was less sanguine than his mentor, discovering that the draft shown him by Pinchot had been altered to accommodate the interests of both lumbermen and insular administrators. 'Although the law has been in force only a short time', Graves wrote, 'many defects and inconsistencies [have] become manifest.' Instead, what impressed him most was how the Bureau was 'becoming every day more unpopular, and the laws more distasteful'. His recommendations led to the supplementary Forest Law of 25 October, 1905 that reorganised the Insular Bureau of Forestry along the lines he had so carefully prescribed. However, the change that proved to be of greatest value, at least in Pinchot's eyes (though it was not part of the confidential report) was the transfer of revenue collection to the Bureau of Internal Revenue, leaving foresters with 'more time FOR forest investigation and practical work'.[52]

BREAKING NEW GROUND?

The insular forestry service is not a pale reflection of its metropolitan counterpart suitably adapted to colonial conditions as, say, Baguio, the American's summer retreat, was of Daniel Burnham's City Beautiful plans for Washington D.C.[53] Nor is it simply the application of a British Indian model based on European scientific forestry traditions, if such a uniform imperial blueprint ever existed, to the Philippines. Forest conservation in the United States was a venture of cooperative federalism involving a complex set of relationships that included the federal government, states' rights and industry. Nor could it completely ignore public opinion in the form of individuals and pressure groups such as John Muir and the Sierra Club. Instead, in many ways, the Insular Bureau of Forestry anticipated similar changes in America. The Philippine forestry laws of 1904 and 1905 predate or coincide with the major reforms that occurred in the United States with the establishment of a nationwide professional forestry service and the transfer of responsibility for forest reserves to it from the Land Office.[54] As to the British Indian influence, when in England both Pinchot and Graves visited Sir Dietrich Brandis, the architect of forest management in Burma and India and the world's recognised leading authority on scientific forestry. However, Pinchot's formal training in forestry was brief, barely a year spent in Europe, a circumstance that Brandis continued to admonish him for, referring to him as little more than a 'better informed amateur'. Certainly, Pinchot was fulsome in his praise of forestry in British India but his admiration was chiefly reserved for the results, the financial returns, rather than its methods.[55] Graves,

too, on his way to the Philippines headed first for England to consult with the great man at Kew Gardens before heading on to India where he toured selected forests in both the Bombay Presidency and United Provinces, visited the forest school at Dehra Dun and conferred with the Inspector-General in Calcutta and other forestry officials. European and British Indian forestry models were significant influences on these men's thinking but as Pinchot wrote to his mother in 1890, he saw 'no reason why our Forestry system should not be as unlike and as superior in the end to the European as our Agricultural methods are.'[56]

Instead, the Insular Bureau of Forestry was a unique development moulded by geography, circumstance, opportunity and, perhaps, even personality, a subregional variant as distinctive as say the forestry services in Burma, Siam, the Netherlands East Indies or Tanganyika were from their parent organisations in British India, the Netherlands or Germany.[57] And in contrast to the situation in the United States, those in charge of the forestry service in the Philippines had uncontested authority over the whole enterprise. They had a direct channel to executive power that, at least initially, was little answerable to local interests and seldom restrained by the voice of industry or public opinion, despite Graves's reservations, both of which were muted by U.S. military operations.[58] The archipelago was a professional forester's dream come true: vast stretches of still largely 'untouched' primary forest with no one to stop foresters from doing what they thought was needed in the way they thought was best.

But what was it that Pinchot and his associates so ardently advocated? What was this 'new ground' that required breaking and after which the chief forester titled his autobiography? Scientific forestry in the United States took the form of utilitarian conservation, a practical philosophy promoting the wise management of nature for the benefit and use of humanity that was able to reconcile commercial activity in nature with legislation to ensure its long term sustainability. As such, its aims were not incompatible with those of large-scale corporate interests in ranching, mining or logging. Nor was it invariably aligned with the homesteader or common man.[59] What made this variant of scientific forestry so 'American', however, was its particular sensibility to the rhetoric of the market, the need to demonstrate to businessmen as well as political leaders that forestry was 'a paying practical proposition'.[60] Its chief promoter was Pinchot who claimed to have coined the word 'conservation' while out riding one morning in Washington's Rock Creek Park. Pinchot believed in the scientific management of renewable resources to prevent waste and guarantee their continuing availability. 'Conservation', he wrote in his autobiography, 'is the foresighted utilization, preservation, and/or renewal of forests, waters, and lands and minerals for the greatest good of the greatest number for the longest time.'[61]

Under the new American administration, these were to be the guiding precepts for forestry in the archipelago. All three men espoused such ideas, as did the foresters they appointed. Ahern spoke of the need for what he termed 'rational forestry'. To Graves, the problem of forestry was to ascertain 'how the

production of high grade trees may be kept up'. For Pinchot, it was all a matter of 'liberalising the rules' so as to give 'added impulse to forest development'.[62] Harking on a theme that Pinchot raised as early as 1904 and was to reiterate many times in the years ahead, he claimed that the sale of insular timber already paid for more than twice the cost of the forest protection service. 'The soil is rich', Pinchot asserted in a 1903 interview, 'the timber grows rapidly and the climate is favourable to such reproduction so that the United States can count on a perpetual revenue, of size, from the forest lands it holds in the Philippines'.[63] To make the forest pay for its own conservation, two courses of action required immediate implementation: silvicultural studies to discover what actually went on there; and the creation of detailed local maps to make the whole enterprise scientifically and financially practical.

On one level, utilitarian conservation in the Philippines was mainly a matter of reproduction. 'The time has come now', Pinchot told his Yale audience, 'when real forest work is going on, chiefly through studies of reproduction'.[64] How long did it take valuable hardwood trees to grow to maturity and, perhaps, more importantly how long did it take them to grow back? Which conditions favoured re-growth and which hindered it? Did clear-felling or selective-felling favour sustainable yields and what interval of time was required before a forest was harvestable again? These and similar questions could only be answered by means of meticulous and laborious observation of individual species, planting them from seed and watching them grow in specially designated reserves that included every terrain and all possible elevations. Until such detailed research had been carried out and forest management under tropical conditions had become something more than informed guess work, logging was to be restricted and the number of timber licences limited 'until cutting can proceed without forest destruction'.[65] Already a start had been made with the designation of Lamao on the Bataan peninsula as a forest reserve. The site comprised nursery beds where the growth rate of trees was measured and recorded at four different elevations ranging from sea-level to 2,000ft. Other plans proposed the creation of a Division of Forest Products where the individual properties and commercial uses of different species of wood and timber products might be investigated. A forest training school was also suggested but not realisation till 1910 when one was established in the Philippine College of Agriculture at Los Baños with Ahern appointed as its first Chair of Forestry.[66]

What was needed was a detailed on-the-ground knowledge of Philippine forests to put this soon to be acquired data to any practical advantage. And for that maps were required. Graves argued that a series of reconnaissance maps were a more urgent priority than even extensive silvicultural research. 'Until these maps are prepared', he wrote, 'the inspection work will be hampered and proper control of the forests will be impossible.' Citing the British experience in India, he noted how control over the subcontinent's forests was dependent 'practically entirely on maps'. Exercising control over cutting areas was more

critical than elaborate calculations of the volume logged – supervision that was not possible without accurate maps prepared by trained foresters.[67] Describing and mapping the various forest types 'preparatory to their use in practical forestry' became an important feature of the general strategy devised for the Philippines.[68] Over the next few years, lines of rangers under the guidance of trained foresters literally walked the length and breadth of the archipelago's forests, identifying the species and noting down the size of the trees they encountered.[69] 'A special point', too, was made in training foresters at Yale in this kind of work and progress about practices regularly reported in the School's specialised forestry journal.[70]

All this was utilitarian conservation in operation, as it was conceived to be, without any of the compromises, trade-offs or acts of political sleight-of-hand that were needed to effect similar measures in the United States. If the Insular Bureau's particular emphasis on market rhetoric betrayed its American roots, the application of empire forestry in the archipelago owed as much to British Indian and Spanish models that were themselves local variants based on German and French methods of scientific forestry. The Americans in the Philippines evolved their own particular brand of empire forestry, one that even spread to Republican China whose forestry regulations were modelled after those of the Philippines.[71] And what put these insular foresters in such a fortunate position to determine their own policies? Colonialism! It was the colonial condition that gave Pinchot, Ahern, Graves, and their subordinates the freedom to put their ideas into practice virtually unopposed by any other interest groups. As Pinchot admitted to Yale foresters that evening in March 1903:

> The Philippine Government has this great advantage for the preliminary condition in which it is placed, that a majority of eight men can make any law any time they please. There are eight men on the Commission, five Americans, and three Filipinos, and they decide what legislation there should be, and they pass laws when they need them. The Commission is exceedingly favourable to forest work in the Islands and has done everything it could to help the Bureau of Forestry'.[72]

As for Pinchot himself, what further part did he have to play directly or indirectly in the Philippines? As long as Ahern remained insular bureau chief till 1914, utilitarian conservation remained the paramount methodology. Pinchot was to remain what he termed 'an interested party', an adviser but one whose principal work was done. He continued to know more about the situation of forestry in the archipelago than most others in the United States but he was now content to be 'merely an observer on the fringe of the battle'.[73] More importantly, from his perspective, he now had a wider canvas on which to play out his ideas about forestry and conservation than the colonial Philippines. In the years between his 1902 Philippine tour and his controversial dismissal in 1910, Pinchot is regarded as having laid the foundation of modern forestry in the United States.

He oversaw the transfer of more than 60 million acres of forest reserves from the Land Office to his newly formed Forest Service, their designation as national forests eventually comprising over 150 million acres, a staff that grew from nine employees to 150 foresters, and a budget that rose from $20,000 a year to nearly $400,000.[74] This is the 'new ground' that Pinchot is usually credited with 'breaking' but it is not often realised that he was also one of the chief architects of empire forestry in the Philippines.[75]

NOTES

[1] There are several classic accounts of forestry in British India: Berthod Ribbentrop, *Forestry in British India* (Calcutta: Government of India Press, 1902) and E.P. Stebbing, *The Forests of India*, 3 vols. (London: John Lane, 1922–27). On more contemporary scholarship, see: K. Sivaramakrishnan, 'Colonialism and Forestry in India: Imagining the Past in Present Politics', *Comparative Studies in Society and History* 37, 1 (1995): 3–40; Mahesh Rangarajan, *Fencing the Forest: Conservation and Ecological Change in India's Central Provinces 1860–1914* (New Delhi: Oxford University Press, 1996); K. Sivaramakrishnan, *Modern Forests: Statemaking and Environmental Change in Colonial Eastern India* (Delhi: Oxford University Press, 1999); Gregory Barton, 'Keepers of the Jungle: Environmental Management in British India, 1855–1900', *The Historian* 62, 3 (2000): 557–74; and Ravi Rajan, *Modernizing Nature: Forestry and Imperial Eco-Development, 1800–1950* (Oxford: Oxford University Press, 2006). On empire forestry, see Gregory Barton, *Empire Forestry and the Origins of Environmentalism* (Cambridge: Cambridge University Press, 2002).

[2] Gregory Barton, 'Empire Forestry and American Environmentalism', *Environment and History* 6 (2000): 187–203.

[3] On the Progressive era policies, see: Gabriel Kolko, *The Triumph of Conservatism: A Reinterpretation of American History, 1900–1916* (New York: Free Press of Glencoe, 1964); Richard McCormick, *The Party Period and Public Policy: American Politics from the Age of Jackson to the Progressive Era* (New York and Oxford: Oxford University Press, 1986), 263–88.

[4] T. H. Watkins, 'Father of the Forests,' *American Heritage* 42, 1 (1991): 86–98.

[5] Peter Vandergeest and Nancy Lee Peluso, 'Empires of Forestry: Professional Forestry and State Power in Southeast Asia, Part 2', *Environment and History* 12 (2006): 359–93; XII Philippines, Pinchot Papers, Box 640, File: Philippines, John Lydenberg's Account of Gifford Pinchot, Library of Congress, Washington D.C.

[6] Stephen Fox, 'Gifford Pinchot and his Place in the American Conservation Movement', *Theodore Roosevelt Association Journal* (Summer 1987): 7–10; George Ahern to Gifford Pinchot, Manila 18 February 1902, Pinchot Papers, Box 640, File: Philippine Island Trip Letters 1, Library of Congress, Washington D.C.; Gifford Pinchot to William Taft, 6 April 1901, Pinchot Papers, Box 640, File: 1902, No. 3, Library of Congress, Washington D.C.; Gifford Pinchot, *Breaking New Ground* (Washington D.C. & Covelo, California: Island Press, 1998), 213. The latter was originally published in 1947.

[7] Jacob van Leur, *Indonesian Trade and Society* (The Hague: W. Van Hoeve, 1955), 261.

[8] Lecture on Forests and Forest Work in the Philippines, 16 March 1903, Yale Forest School, Pinchot Papers, Box 640. File: 1902, No. 9, Library of Congress, Washington D.C.; Gifford Pinchot to James Pinchot, 6 November 1902, Pinchot Papers, Box 640, File: 1902, Library of Congress, Washington D.C.

[9] On Pinchot's itinerary around the islands, see: Pinchot, *Breaking New Ground*, 223–34; Richard Tucker, *Insatiable Appetite: The United States and the Ecological Degradation of the Tropical World* (Berkeley, Los Angeles and London: University of California Press, 2000), 368–70.

[10] Lecture on Forests and Forest Work in the Philippines Second Half, 16 March 1903, Yale Forest School, Pinchot Papers, Box 640, File: 1902, No.10, Library of Congress, Washington D.C.; Greg Bankoff, 'One Island Too Many: Reappraising the Extent of Deforestation in the Philippines Prior to 1946', *Journal of Historical Geography* 33, 2 (2007): 314–34.

[11] XII Philippines, 101; Philippine Islands, Pinchot Papers, Box 640, File: Philippine Islands, Library of Congress, Washington D.C., 12, 16, 26, 65; Lecture on Forests and Forest Work in the Philippines Second Half.

[12] David Arnold, 'Tropical Medicine Before Manson', in *Warm Climates and Western Medicine: The Emergence of Tropical Medicine, 1500–1930*, ed. David Arnold (Amsterdam and Atlanta: Rodopi, 1996), 6, 7–8, 10.

[13] Lecture on Forests and Forest Work in the Philippines; Lecture on Forests and Forest Work in the Philippines Second Half; Lecture on Forests and Forest Work in the Philippines First Half, 16 March 1903, Yale Forest School, Pinchot Papers, Box 640. File: 1902, No.10., Library of Congress, Washington D.C.; G. van Wickle, Division of Forest Management, Forest District of Camarines 1904, Pinchot Papers, Box 587, File: Forestry, Philippine Islands, Reports, Library of Congress, Washington D.C.; Philippine Islands, 22.

[14] Greg Bankoff, *Cultures of Disaster: Society and Natural Hazard in the Philippines* (London: RoutledgeCurzon Press, 2003); Donald Pisani, 'Forests and Conservation, 1865–1890', in *American Forests: Nature, Culture, and Politics*, ed. Char Miller (Lawrence: University of Kansas Press, 1997), 21; XII Philippines; Rey Ileto, 'Hunger in Southern Tagalog, 1897–1898', in *Filipinos and their Revolution: Event, Discourse, and Historiography* (Quezon City: Ateneo de Manila Press, 1998), 113–15; Marshall McLennan, *The Central Luzon Plain: Land and Society on the Inland Frontier* (Quezon City: Alemar-Phoenix Publishing House, 1980), 169; Greg Bankoff, '*Bestia Incognita*: The Horse and Its History in the Philippines 1880–1930', *Anthrozoös* 17, 1 (2004): 3–25.

[15] XII Philippines.

[16] XII Philippines, 2.1; Lecture on Forests and Forest Work in the Philippines First Half; Timothy Deady, 'Lessons from a Successful Counterinsurgency: The Philippines 1899–1902', *Parameters* (Spring 2005), 56.

[17] For overviews of colonial forestry in South-east Asia, see: Lesley Potter, 'Forests versus Agriculture: Colonial Forest Services, Environmental Ideas and the Regulations of Land-use Change in Southeast Asia', in *The Political Ecology of Tropical Forests in Southeast Asia: Historical Perspectives*, ed. Lye Tuck-Po, Wil de Jong and Abe Ken-ichi (Kyoto and Melbourne: Kyoto University Press and Trans Pacific Press, 2003), 29–71;

Peter Vandergeest and Nancy Lee Peluso, 'Empires of Forestry: Professional Forestry and State Power in Southeast Asia, Part 1', *Environment and History* 12 (2006): 31–64; and Vandergeest and Peluso, 'Empires of Forestry ..., Part 2'.

[18] Greg Bankoff, 'Almost an Embarrassment of Riches: Changing Attitudes to the Forests in the Spanish Philippines', in *A History of Natural Resources in Asia: The Wealth of Nature*, eds. Greg Bankoff and Peter Boomgaard (New York: Palgrave Macmillan, 2007), 103–22.

[19] XII Philippines. The various gutta percha trees (*Dichopsis gutta*, *Isonandra gutta*, *Palaquium gutta* and *Dichopsis oblongifolia*) contain a thick resin used to coat transoceanic cables. Ylang-ylang (*Camnanga odorata*) meaning 'flower of flowers' in Tagalog exudes an oily perfume used in hair preparations. Lecture on Forests and Forest Work in the Philippines; J. Whalplay Interview with Gifford Pinchot, Washington January, 1903, Pinchot Papers, Box 640, File: Philippine Islands, Trip Letters 1, Library of Congress, Washington D.C.

[20] Philippine Islands, 52–3; Lecture on Forests and Forest Work in the Philippines; William Maule Division of Forest Management, Forest District of Bataan and Zambales, 1904, Pinchot Papers, Box 587, File: Forestry, Philippine Islands, Reports, Library of Congress, Washington D.C.

[21] The caribao (*Bubalus bubalis*) is the only effective 'heavy-duty' draft animal in the archipelago as the local breed of horse is too small for heavy haulage. Greg Bankoff, 'A Question of Breeding: Zootechny and Colonial Attitudes towards the Tropical Environment in Late Nineteenth Century Philippines', *Journal of Asian Studies* 60, 2 (2001): 419–20.

[22] Philippine Islands, 52–3.

[23] Philippine Islands, 52–3; Lecture on Forests and Forest Work in the Philippines; William Maule Division of Forest Management, Forest District of Bataan and Zambales. Chinese owned most timber yards in the late nineteenth century. Edgar Wickberg, *The Chinese in Philippine Life 1850–1898* (New Haven and London: Yale University Press, 1965).

[24] Lecture on Forests and Forest Work in the Philippines Second Half; Lecture on Forests and Forest Work in the Philippines.

[25] Lecture on Forests and Forest Work in the Philippines Second Half; Philippine Islands, 29, 110–11.

[26] It was debateable, however, just how damaging this method really was. On Mindanao, Pinchot was amazed to see that 'nearly every' lauan (*Shorea contorta*) and tanguile (*Shorea polysperma*) felled only six months earlier had at least one healthy growth sprouting from its bowl. Philippine Islands, 27, 127; Ralph Bryant Division of Forest Management, Report of the Division of Forest Management for the Year 1903–1904, Pinchot Papers, Box 587, File: Forestry, Philippine Islands, Reports, Library of Congress, Washington D.C.; William Maule Division of Forest Management, Forest District of Bataan and Zambales.

[27] Philippine Islands, 52–3, 56–7

[28] XII Philippines. Shifting or *kaiñgin* agriculture was regarded as a major cause of forest degradation by foresters in the Philippines and in other South and Southeast Asian colonies who did not fully appreciate the inherent sustainability of this mode of cultivation, assuming sufficient fallow time nor the link between periodic conflagrations and forest regeneration. Potter, 'Forests versus Agriculture', 29–71.

[29] XII Philippines; George Ahern to Gifford Pinchot, Washington 20 September 1901, Pinchot Papers, Box 586, File: Forestry, Philippine Islands, Correspondence, Library of Congress, Washington D.C.; Lawrence Rakestraw, 'George Patrick Ahern and the Philippine Bureau of Forestry, 1900–1914', *Pacific Northwest Quarterly* 58, 3 (1967): 142–50; Dennis Roth, 'Philippine Forests and Forestry: 1565–1920', in *Global Deforestation and the Nineteenth-Century World Economy*, eds. Richard Tucker and John Richards (Durham: Duke Press Policy Studies, 1983), 41–6; Tucker, *Insatiable Appetite*, 367–71.

[30] Vandergeest and Peluso, 'Empires of Forestry ..., Part 1', 34–5; Vandergeest and Peluso, 'Empires of Forestry ..., Part 2', 361–9.

[31] 'The American Bureau of Forestry in the Philippines', *Indian Forester* 30 (1904): 4.

[32] *Report of the Forestry Bureau of the Philippine Islands for the Year Ended September 1, 1903* (Washington: Bureau of Insular Affairs, War Department, 1903), 320.

[33] XII Philippines; Bryant, Report of the Division of Forest Management for the Year 1903–1904; Roth, 'Philippine Forests and Forestry', 42.

[34] Lecture on Forests and Forest Work in the Philippines Second Half; Bryant, Report of the Division of Forest Management for the Year 1903–1904. On the psychic burden of the white man in the tropics, see: Warwick Anderson, *Colonial Pathologies: American Tropical Medicine, Race, and Hygiene in the Philippines* (Durham and London: Duke University Press, 2006), 130–57.

[35] Henry Graves, Confidential Report on the Condition of the Philippine Forest Service, 1905, Henry Graves Papers, Box 36/404, Manuscripts and Archives Yale University Library, New Haven.

[36] Lecture on Forests and Forest Work in the Philippines Second Half. American racial categorisation of Spaniards was ambivalent, in some cases including them as 'white' but at other times designating them differently. Greg Bankoff, 'Wants, Wages and Workers: Laboring in the American Philippines, 1899–1908,' *Pacific Historical Review* 74, 1 (2005): 59–86; Paul Kramer, *The Blood of Government: Race, Empire, the United States, and the Philippines* (Chapel Hill: University of North Carolina Press, 2006).

[37] García, who accompanied Bruce Grant on a field trip to Mindanao, was dismissed by one newly appointed American forester as 'only an old Spanish botanist, who could not speak the English language'. XII Philippines. García, however, wrote his own, brief history of the Spanish forestry service. Regino García, Brief Review of the Forestry Service during the Spanish Government from 1863 to 1898, Pinchot Papers, Box 586, File: Forestry, Philippine Islands, Bureau of Forestry, General Organization, 1903, Library of Congress, Washington D.C..

[38] XII Philippines. The reference is to Tammany Hall or the Democratic Party's political machine that dominated New York City politics for most of the nineteenth and the early decades of the twentieth century and that became a byword for patronage, corruption and vice. See: Oliver E. Allen, *The Tiger: The Rise and Fall of Tammany Hall* (Reading, Mass.: Addison-Wesley, 1993). Ahern and Worcester were later reconciled. At Ahern's retirement in 1914, Worcester was fulsome in his praise of the former's achievements. Rakestraw, 'George Patrick Ahern', 147.

[39] XII Philippines..

[40] XII Philippines; Confidential Report on the Condition of the Philippine Forest Service.

[41] XII Philippines. Unfortunately, an accidental fire on 27 September 1897 and fighting between Filipino and American troops on 19 February 1899 resulted in the almost total destruction of the Spanish forestry service's department building and inflicted severe damage on the Botanical Garden. Losses included the main libraries on natural history, detailed maps of the archipelago's forests executed by the Flora Commission, the colony's principal herbarium and collection of natural history specimens, the archives of both institutions and the small museum. Elmer Merrill, *Botanical Works in the Philippines* (Manila: Department of the Interior, Bureau of Agriculture, Bulletin No. 4, Bureau of Printing, 1903), 7, 30–3.

[42] XII Philippines. Capitals in the original. Ahern was in the United States supervising the Philippine forestry exhibit at the 1904 Louisiana Purchase Exposition at St Louis during Graves's six week stay in the islands and so had no influence on the latter's recommendations.

[43] Report of the Forestry Bureau of the Philippine Islands for the Year Ended September 1, 1903, 320, 515–16.

[44] XII Philippines; Whalplay Interview with Gifford Pinchot.

[45] XII Philippines; Confidential Report on the Condition of the Philippine Forest Service.

[46] Confidential Report on the Condition of the Philippine Forest Service.

[47] Confidential Report on the Condition of the Philippine Forest Service. Whether Graves had anyone specifically in mind when he wrote these words is unclear.

[48] Lecture on Forests and Forest Work in the Philippines Second Half; Confidential Report on the Condition of the Philippine Forest Service.

[49] XII Philippines. Ahern was largely a self-taught forester who had witnessed the destructive logging practices that had devastated the white pines in Minnesota as an army officer and on transfer to Montana had drawn up a proposal for a forest reserve. Later, he gave courses in military science and forestry at the state agricultural college in Bozeman, Montana. Rakestraw, 'George Patrick Ahern'; Roth, 'Philippine Forests and Forestry', 41.

[50] Confidential Report on the Condition of the Philippine Forest Service. Benjamin Weil charts the 'decline' of the British Indian forester from the initial more outdoors sporting type, as interested in *shikar* (big game hunting) as he was in trees, to the colonial bureaucrat primarly concerned with maximising revenue. Benjamin Weil, 'Conservation, Exploitation, and Cultural Change in the Indian Forest Service, 1875–1927', *Environmental History* 11 (2006): 319–43.

[51] Confidential Report on the Condition of the Philippine Forest Service.

[52] Confidential Report on the Condition of the Philippine Forest Service; XII Philippines. The capitals are in the original.

[53] David Brody, 'Building Empire: Architecture and American Imperialism in the Philippines', *Journal of Asian American Studies* 4, 2 (2001): 131.

[54] Rakestraw, 'George Patrick Ahern', 144; On Muir, see: Stephen Fox, *The American Conservation Movement: John Muir and His Legacy* (Madison: University of Wisconsin Press, 1985); Michael Williams, *Americans and Their Forests: A Historical Geography* (Cambridge: Cambridge University Press, 1992), 416–21.

[55] Gifford Pinchot, 'Forestry Abroad and At Home', *National Geographic Magazine* 16 (March 1905): 382.

[56] Dietrich Brandis to James Pinchot, 20 March 1890 as quoted in Brian Balogh, 'Scientific Forestry and the Roots of the Modern American State: Gifford Pinchot's Path to Progressive Reform', *Environmental History* 7, 2 (2002): 208.

[57] Vandergeest and Peluso, 'Empires of Forestry...Part 2', 365–6; Nancy Lee Peluso, 'The History of State Forest Management in Colonial Java', *Forest and Conservation History*, 35, 2 (1991): 65–75; Hans Schabel, 'Tanganyika Forestry under German Colonial Administration, 1891–1919', *Forest and Conservation History* 34, 3 (1990)130–41. Siamese foresters were mainly trained in India and, later, Burma.

[58] American lumbermen were broadly in sympathy with the notion of sustainable forestry as propagated by Pinchot. Robert Ficken, 'Gifford Pinchot Men: Pacific Northwest Lumbermen and the Conservation Movement, 1902–1910', *Western Historical Quarterly* 13, 2 (1982): 165–78. Michael Cullinane argues that the U.S. administration actively courted local elites and was assiduous in furthering their economic interests in order to gain that support. Michael Cullinane, *Ilustrado Politics: Filipino Elite Responses to American Rule, 1898–1908* (Quezon City: Ateneo De Manila University Press, 2003).

[59] On conservation debates in America, see: J. Leonard Bates, 'Fulfilling American Democracy: The Conservation Movement, 1907 to 1921', *Mississippi Valley Historical Review* 44, 1 (1957): 29–57; Samuel Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890–1920* (Cambridge: Harvard University Press, 1959); Roderick Nash, *Wilderness and the American Mind* (New Haven: Yale University Press, 1973).

[60] Balogh, 'Scientific Forestry', 210–11.

[61] Barry Walsh, 'Gifford Pinchot, Conservationist', *Theodore Roosevelt Association Journal* 13, 3 (1987): 57; Pinchot, *Breaking New Ground*, 504–10.

[62] George Ahern to Gifford Pinchot, Manila, 28 February 1902, Pinchot Papers, Box 640, File: Philippine Island Trip Letters 1, Library of Congress, Washington D.C.; Confidential Report on the Condition of the Philippine Forest Service; XII Philippines.

[63] Pinchot, 'Forestry Abroad', 386; Whalplay Interview with Gifford Pinchot, 5.

[64] Lecture on Forests and Forest Work in the Philippines Second Half.

[65] Confidential Report on the Condition of the Philippine Forest Service; *Report of the Forestry Bureau of the Philippine Islands for the Year Ended September 1, 1903*, 315.

[66] Confidential Report on the Condition of the Philippine Forest Service; Rakestraw, 'George Patrick Ahern', 148. Graves was highly critical of the work undertaken at Lamao during his visit there in 1905, complaining that it was insufficiently practical and too closely modelled on the more botanical cultivations carried out in the Dutch station at Buitenzorg. On Dutch colonial science, see Peter Boomgaard 'The Making and Unmaking of Tropical Science: Dutch Research on Indonesia, 1600–2000', *Bijdragen Tot de Taal-, Land-, en Volkenkunde* 162, 2/3 (2006): 191–217.

[67] Confidential Report on the Condition of the Philippine Forest Service.

[68] Scientific Surveys of the Philippine Islands, General Plan, Pinchot Papers, Box 640, File: Scientific Surveys Philippine Islands, Library of Congress, Washington D.C.

[69] The district accounts given in the earlier annual *Reports of the Forestry Bureau of the Philippine Islands* contain detailed descriptions of these forest inspections. Comparison

can also be made to the great cadastral survey made of British India. Matthew Edney, *Mapping an Empire: The Geographical Construction of British India, 1765–1843* (Chicago: University of Chicago Press, 1999).

[70] Confidential Report on the Condition of the Philippine Forest Service.

[71] Rakestraw, 'George Patrick Ahern', 149.

[72] Lecture on Forests and Forest Work in the Philippines Second Half. The Second Philippine Commission better known as the Taft Commission was appointed by President William McKinley in 1900 to institute civilian administration in the archipelago. It possessed both legislative and some executive powers. See, James Blount, *The American Occupation of the Philippines 1898–1912* (New York: Oriole Editions, 1973), 282–344.

[73] XII Philippines. This passage is actually crossed out in Pinchot's notes but nevertheless reflects his thoughts even if he did not wish to make them public.

[74] Williams, *Americans and their Forests*, 418–21; James Lewis, *The Forest Service and the Greatest Good: A Centennial History* (Durham: Forest History Society, 2005), 42–55; Hays, *Conservation and the Gospel of Efficiency*, 35–48.

[75] If figures like Gifford Pinchot, George Ahern and Henry Graves loom large in the annals of American colonial forestry in the Philippines, at least during its first decade, the reverse is hardly the case: The Philippines is barely if ever referred to in any history of modern American forestry. The archipelago does not even rate a mention in the index of either Michael Williams's comprehensive account of American forestry or Char Miller's recent re-evaluation of Pinchot's life and contribution. Williams, *American and Their Forests*; Char Miller, *Gifford Pinchot and the Making of Modern Environmentalism* (Washington, Covelo and London: Island Press and Shearwater Books, 2001).