

## Colonial Forestry at its Limits: The Latter Day Career of Sir David Hutchins in New Zealand 1915–1920

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### ABSTRACT

This paper explores imperial forestry networks by focusing on a single individual, Sir David Hutchins, who spent the final years of his life in New Zealand extolling the need for scientific forest management in the Dominion. Hutchins' career had taken him from India to Southern Africa, to British East Africa and Australia, then finally to New Zealand. In New Zealand he advocated a colonial forestry model derived from his Indian and African experience. Whereas in Africa Hutchins was regarded as a champion of exotic afforestation, in New Zealand he was closely identified with indigenous forest management, further reinforcing Sivaramakrishnan's ideas about how colonial location reshaped the appearance of scientific forestry. Hutchins focused much attention of the Kauri (*Agathis australis*) forests but encountered unexpected opposition and resistance from settler farmers, local politicians, and the local scientific community such as it was.

### KEYWORDS

Colonial forestry, New Zealand, Sir David Hutchins

## INTRODUCTION

The late arrival of forestry science in New Zealand provides a trace, from the viewpoint of imperial networks, of the movements of people and practices of colonial forestry across space and through time in the British Empire.<sup>1</sup> Forestry offers an interesting window into the British Empire of the late nineteenth and early twentieth centuries precisely because it was not centred on the metropole, for there was no strong forestry tradition in England relative to France or Germany.<sup>2</sup> For colonial forestry the 'core' was arguably in India but viewing forestry as moving in a relatively linear fashion from India to the rest of the Empire is, as Barton has suggested, too stark a depiction of a more complex series of transfers of people and ideas.<sup>3</sup> Significant movements also took place along multiple pathways on the periphery of the Empire, with the result that forestry in the British Empire in the late nineteenth century was essentially a colonial enterprise that was reintroduced to Britain via India, while in the white settler Dominions colonial forestry science was slow to develop in the early twentieth century for forests were often seen as a barrier to settlement.<sup>4</sup> One way of navigating around the unwieldy sets of ideas and practices constituting colonial forestry is to narrow the focus to a single individual, a limited period of time, and a particular place, in this instance Sir David Hutchins in New Zealand from 1915 to 1920.

Forestry in the Empire developed in India where, initially, trained German foresters put in place a system of scientific forest management.<sup>5</sup> The first British foresters including Hutchins were trained at the famous *Ecole Nationale des Eaux et Forêts* at Nancy in France, before the forestry branch of the Royal Indian Engineering College was established at Coopers Hill in Oxfordshire, under Sir William Schlich in 1885. Schlich was a former Inspector General of Forests in the Indian Forest Service. Hutchins (1850–1920) was knighted for his services to forestry in 1920, the fourth forester in the British Empire to be so honoured, and the first of English descent. He was a major figure in colonial forestry, though a tier below such notables as Schlich, Brandis and Ribbentrop. His career, which spanned from the 1870s to 1920, began in India, but was largely spent in southern Africa and concluded in Australasia. This makes him an ideal individual through whom to explore colonial forestry and to gain some insights into the ways in which this imperial enterprise lost traction to both settler agriculture and locally oriented settler state forest policies in New Zealand.

A closer study of forestry also intersects imperial with environmental histories.<sup>6</sup> The environmental issues that colonial forestry sought to address were bundled around soil and water protection by retention of forests on upland areas and the provision of long-term timber supplies while generating revenues. Forestry doctrine regarded only the state as being capable of undertaking both of these roles in the long term. Some of the discussion from the 1870s to 1900s was couched in terms of 'climatic conservation' anchored around a belief that forests

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attracted rainfall, but this was reworked in the early twentieth century as water supply protection and erosion and flood control. The other major imperative was the role of colonial forestry in preventing a timber famine. By concentrating on events in New Zealand during the early twentieth century it is possible to look at colonial forestry at the time and place where it had spread close to its maximum extent in the British Empire and its principles and practices were well established. In Hutchins' case it furthermore marked the last chapter in a notable career in forestry. A New Zealand focus also allows scrutiny of an antagonistic relationship between 'progress' as variously articulated by colonial foresters and by white settler farmers. New Zealand provides a micro-study of various ways in which 'progress' was defined by an agriculturally and pastorally based settler society, and while it was ultimately extended to include some concessions for the preservation of remnant indigenous flora and fauna, invariably it clashed with a competing view of 'progress' in the form of forestry as a long term land use.

Sustained yield management, the pinnacle of scientific forestry as it first emerged in French and German forestry, was intended to ensure a supply of timber in perpetuity and was based on four assumptions about scarcity, stability, certainty and the existence of a closed economy. The first of these held that timber products were in such short supply that forest land was most profitably used in intensive wood production, the second that a stable and regular flow of wood was required for the economy, the third that production techniques and consumption patterns are known so that planned forest production was possible 50 to 100 years ahead, and lastly, that forest production units and consumption units should coincide producing self sufficiency in timber.<sup>7</sup> Foresters themselves came to realise that these four assumptions were quickly violated in colonial settings.<sup>8</sup>

Translated to India scientific forestry thus meant a considerable effort was expended on regulating timber extraction, increasing revenue from sale of forest products, and implementing forest conservation. The last of these was to be secured by demarcating and reserving forests. As Guha and Gadgil noted, on the ground colonial forestry practice had a pronounced effect on the local populations. Its fourfold impact included a significant redefinition of property rights, demarcation of forests, changes to the composition of forest species, and sharp restrictions on customary use.<sup>9</sup> To these Sivramakrishnan has added fire control.<sup>10</sup> The view that colonial forestry was unequivocally progressive has been increasingly questioned from the 1990s.<sup>11</sup> One example from Burma, but the point is a more general one by way of critique of colonial forestry, is that the focus on commercial use and state forest control portrayed 'forestry as a "technical" subject that was beyond the realm of politics, and thereby immune to political conflict' and marginalised questions of subsistence use and local control of forest lands.<sup>12</sup> Colonial forestry took the form of a set of standardised regulatory practices informed by ideas sourced from continental European forestry science, founded on assumptions about scarcity, stability, certainty

and a closed economy with regard to timber. It played out in British India as an aggressive effort to demarcate the boundaries of reserved forest lands, to protect these areas against fire damage and to exclude local people from them in order to manage them for a mix of timber production and soil and water conservation. It was characterised by a particular confidence in the universality of its procedures whatever the forest type. One focus of the critique of colonial forestry as progressive has involved the study of local resistance, for instance to forest demarcation.<sup>13</sup> This in turn raises questions about the wider character of resistance to colonial forestry in other parts of the Empire.

#### SITUATING FORESTRY IN NEW ZEALAND

The first attempt to introduce colonial forestry on Indian lines to New Zealand dated back to 1875 when Captain Inches Campbell Walker, the Conservator of Forests in Madras, was appointed to the position of Conservator of State Forests. Campbell Walker's tenure was cut short by volatile factional politics.<sup>14</sup> Hesitant attempts to reintroduce state forestry were made in the 1880s, but financial retrenchment ended the experiment. Not until 1897, when forest inexhaustibility was rejected, did the settler state re-engage with forestry, and then, encouraged by earlier private experimentation, only in a very limited way via a modest exotic tree planting programme.<sup>15</sup> These concerns culminated in a Royal Commission on Forestry in 1913 which set aside some forested areas as forest reserves, and recommended doubling the state exotic tree planting effort to 7500 acres [3035 hectares] per annum in order meet a projected timber famine in thirty years (i.e. 1943).<sup>16</sup>

Counterbalancing the global sweep of colonial forestry is research that explores the local dimensions of forest protection in New Zealand. Historians Paul Star and James Beattie have drawn attention to endogenous responses to deforestation in New Zealand that produced politically acceptable aesthetic grounds for the preservation of some of the remaining forests on Crown Lands by the 1890s.<sup>17</sup> By using 1914 as a cut-off point, Star and Beattie, inadvertently in my view, overemphasise the Royal Commission on Forestry in signalling the direction of forestry in New Zealand throughout the twentieth century.<sup>18</sup> While from the vantage point of the early twenty-first century exotic afforestation was to characterise state forestry in twentieth-century New Zealand, this tends to overlook the period from 1915 to 1925.<sup>19</sup> Much that happens in the 1915 to 1925 period disrupts the idea that there was a straightforward transition from 1890s indigenous forest preservation to the creation of an exotic plantation estate intended to meet future timber requirements in the 1920s.<sup>20</sup> To fully appreciate this point, however, it is useful to bring external circumstances back into the equation and to consider the case Hutchins made for the future direction of forest policy in New Zealand from 1915 to 1920.

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Hutchins recorded his negative reactions to the report of the 1913 New Zealand Royal Commission on Forestry in an appendix to his book *A Discussion on Australian Forestry*. Here he chastised the Commission for the lack of 'technical advice on forestry' and its acceptance of the primacy of settlement where the land was of only just of sufficient quality for agriculture.<sup>21</sup> His other criticisms ranged from the lack of expertise in the afforestation programme to the absence of an independent forests department. In addition, he questioned whether indigenous timber species grew as slowly as was commonly supposed. He was infuriated by the Commission's assertion that 'forestry is not a science in itself, but a combination of many sciences together' and that a trained forester would be 'altogether ignorant of both New Zealand conditions for tree planting and of the indigenous forest'<sup>22</sup>; 'this is like saying that navigation is a compound of stars and salt water'.<sup>23</sup> Hutchins most scathing remarks were directed at the Commission's acceptance of afforestation over indigenous forest management.

One thing is certain: to talk about cutting the indigenous forest down and replanting it as a general measure (which is the idea running through all of the report) is like expressing today a belief in witch craft.<sup>24</sup>

Little did he realise that by the time his book on Australian forests was published he would be in New Zealand having accepted an invitation to inspect and report on the Dominion's forests.

DAVID HUTCHINS, COLONIAL FORESTER

David Hutchins, after graduation from Nancy, was employed in the Indian Forest Service (1872 to 1883) and to aid his recuperation from malaria was loaned to Cape Colony in 1883, initially to assist the Comte de Vasselot de Regne, the Superintendent of Woods and Forests. Hutchins remained in the Eastern Conservancy till 1888 and was involved in forest demarcation work that incurred protests from both Africans and settler farmers.<sup>25</sup> In 1892 he transferred to the Western Conservancy and was based in Cape Town until 1906. Beinart and Hughes highlighted a divide in Indian forestry over the recognition of some community rights to access forests as opposed to a more stringent state's interest approach.<sup>26</sup> Hutchins consistently took the latter position in Africa in his forest demarcation work. He has also been described as 'the most enthusiastic of all the conservators when it came to afforestation experiments' oriented towards 'the idea of efficient artificial landscapes, rather than attempts to regenerate old ones'.<sup>27</sup> His enthusiasm for exotic afforestation, particularly with Australian eucalypts, was seen as contrasting to 'the little interest he took in indigenous species'.<sup>28</sup> Passed over for the position of Chief Conservator of Forests he was asked to report on forests and forestry in British East Africa.<sup>29</sup> This new phase in his career as a colonial forester also saw him report on forestry in Cyprus for

the Colonial Office.<sup>30</sup> In 1910 he visited German West Africa and prepared a report on forest management.<sup>31</sup> After a short retirement in the United Kingdom he visited Australia with the British Association for the Advancement of Science in 1914. This resulted in a further substantial volume on Australian forestry growing out of an initial brief to report on Western Australia.<sup>32</sup>

Facets of Hutchins' career have been discussed in the specific contexts of India, South Africa, and Australia.<sup>33</sup> To some extent it is his work in New Zealand during the last five years of his life that is the least understood part of his forestry career, particularly in so far as it is revealing of what Sivaramakrishnan refers to as 'the part played by particular colonial locations in the construction of scientific forestry'.<sup>34</sup>

#### HUTCHINS IN NEW ZEALAND

Late in 1914 afforestation advocate Sir James Wilson, a former MP and President of the Board of Agriculture who was aware that Hutchins was planning to visit New Zealand with the British Association,<sup>35</sup> wrote to Prime Minister William Massey that 'it would be a good thing for the Country if Mr Hutchins could be induced to make some stay here, and to furnish the Board such a report on the subject of afforestation, such as were made by him on the forests of British East Africa'.<sup>36</sup> At this stage New Zealand was still around 25 per cent forest covered, a sizeable reduction from about 54 per cent forest covered in 1840 when it became a British colony.<sup>37</sup> Much had been cleared by felling and burning for agricultural expansion from the 1890s and there was some growing concern amongst officials that by the mid-twentieth century the country would face a 'timber famine', to which the government response had been to establish plantations of exotic timber trees.<sup>38</sup>

In accepting the invitation to prepare a report Hutchins observed that,

New Zealand forestry has an especial interest to me since the general forest trees seem similar to that of South Africa. The indigenous trees [in South Africa] are very slow growing; will not succeed away from their own environment; and are generally useless for planting purposes. But the indigenous forest, of which there is about half a million acres yielding timber similar to Totara and Rimu, is being successfully fire-protected and worked on modern scientific lines.<sup>39</sup>

Hutchins made several references to New Zealand in the main text of *A Discussion on Australian Forestry*. On the basis of official reports he formed the opinion that New Zealand's soil and climate made it ideally suited for planting species such as *Pinus radiata* (then classified as *P. insignis*) and Redwoods, but – and he made the point several times – the cost of planting was prohibitively high (£14 compared to £8 in Australia). He also compared the depletion of Red Cedar in Queensland to 'the destruction of Kauri in New Zealand, a national scandal, and

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a blot on the civilization of the nineteenth century'.<sup>40</sup> More generally he pointed to the absence of state forestry in the Dominion and the 'the early exhaustion of New Zealand supplies, even for home usage'.<sup>41</sup> These ideas resonated in Hutchins' later writings on New Zealand where he repeatedly stressed the need for a forests department and forest demarcation as well as cautioning against reliance on exotic afforestation.

Hutchins' brief was to inspect the chief plantations, to visit sawmills cutting indigenous forests in the North and South Islands, to report on the best methods of afforestation and finally to consider the scale of operations required to meet future demand. In return he was offered a per diem allowance of 15/- day plus hotel expenses and a tourist rail ticket (an honorarium of £100 was later added). Officials envisaged that the entire inspection and report writing process would take about a month.<sup>42</sup> This suggests a comparatively short document was expected with Hutchins largely confining his remarks to exotic afforestation, which was not surprising in the light of the Royal Commission's view that future timber needs would be met from locally grown exotic tree species and not from indigenous forests.

#### A PLAN FOR FOREST DEMARCATION

Hutchins complained of the proposed itinerary that, 'an inspection limited to places by rail can scarcely be a satisfactory arrangement. I am accustomed to camping in the forest and walking 15 miles [24.1 km] a day: and I do not care to make recommendations based on incomplete local knowledge'.<sup>43</sup> Yet immediately he offered a note of caution; 'The issues appear to be', he continued to say, 'of far reaching national importance. On the face of it, to cut down the indigenous forest and replace it by plantations of exotics is necessarily expensive, and may be risky. The matter certainly requires very careful study'.<sup>44</sup> A concerned Under Secretary for Lands reiterated that 'a report on our native forests is not required, but only an inspection and report on our afforestation operations'.<sup>45</sup>

What Hutchins envisioned as a short stop over before travelling to Japan extended until his death in 1920. During this time he produced two major reports on New Zealand forests, popularised scientific state forestry via public lectures, and supported the establishment of the New Zealand Forestry League – an interest group founded by Sir James Wilson and Alexander Bathgate in 1916. Hutchins addressed the inaugural meeting conscious of the role of similar forestry societies in Belgium and France as well as their importance in Australia. The twofold purpose of the league, Hutchins suggested, was to gradually educate public opinion and to ensure that party politics did not 'interfere with the great far-reaching interests of the country in its national forestry'.<sup>46</sup>

His address was published in the *New Zealand Journal of Agriculture*. It contains instances of the exaggeration, hyperbole and ready recourse to statistics

that Darrow notes from South Africa. For instance, Hutchins claimed that, '[t]he destruction of the forest in New Zealand has now reached to such a pitch that the welfare of the country is threatened, and the timber industry of the Dominion approaches extinction'<sup>47</sup> and that 'It is fairly certain that an effective Forest Department in New Zealand would double or treble the forest revenue in a few years or, even as seen in New South Wales, increase the revenue ten-fold'.<sup>48</sup> These two examples highlight Hutchins' role as a proselytiser as much as a forestry expert.

Forest demarcation was a major constituent part of colonial forest management. Having completed a draft of his report Hutchins became convinced that demarcation required immediate attention in New Zealand. To this end he extracted some material from it and rewrote this as a separate special report on Waipoua kauri forest in 1918.<sup>49</sup> Hutchins was aware of kauri (*Agathis australis*) as a species prior to visiting New Zealand and detoured north to inspect them at the earliest opportunity, much to the chagrin of officials who were trying to direct him south to the plantations at Whakarewarewa. He spent a month from October to November of 1916 with the assistance of four officials in delineating the boundaries of Waipoua forest. Characteristically he also published a précis of the report in the *New Zealand Journal of Agriculture*.<sup>50</sup> The general idea of forest demarcation was, he explained, 'to examine forestlands and settle whether the land is best suited for forestry or farming'.<sup>51</sup> On the basis of his Waipoua experience Hutchins also offered some comparison on the returns from forest or dairying farming. The forest after 80 to 100 years would for 75 acres [30.5 hectares] he calculated yield £10/16/- per acre whereas the most intensive dairying farming, on 210 acre [85 hectare] farms after 20 years produced a nil return. He also made much of the financial cost to New Zealand of the earlier loss to fire of Puhipuhi kauri forest.

The fuller Waipoua report contained a detailed account of the forest boundaries followed by a management scheme on the grounds that, 'it would be useless to submit it without some explanation of what I would recommend doing with the Kauri forest after demarcation'.<sup>52</sup> An inch-to-the-mile (1:63,360) scale map of the demarcated forest was included in the report. He then described the major parts of the forest and the merchantable species therein. The forest management system would, he claimed, 'produce a tenfold increase of the standing timber assumed for the fully stocked Kauri forest of the future'.<sup>53</sup>

Hutchins' foresaw, 'the Kauri tree of the future, grown in the cultivated forest for economical forestry, will be a tree of about 110 years old and two foot [60 cm] in diameter'.<sup>54</sup> This growth rate, he was keen to emphasise, was better than that of most managed European forest species where a century of growth produced diameters of about one foot [30 cm]. Hutchins believed that exotic growth rates in New Zealand blinkered locals to the relative speed of indigenous forest species compared to forest growth rates in Europe.<sup>55</sup> He also sought to dispel the idea that kauri had to attain huge proportions before it could be milled.



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Hutchins had every confidence that this system of natural forest management would be viable in New Zealand. The actual working of the forest would be guided by working plans and the more accessible areas of kauri forest such as at Waipoua would be managed intensively.

Hutchins' interest in Waipoua was strategic in the sense that the internationally eminent New Zealand botanist Dr Leonard Cockayne had conducted a botanical survey of the forest in 1908, which had identified it as 'of great scenic beauty and of extreme scientific interest'.<sup>56</sup> For Cockayne the forest was the 'best crop' the land would ever grow, while opening it to sawmilling would only extend the life of the kauri timber industry for a few years. Instead, he recognised it as an 'ideal park'. His views on plant succession shaped his opinions, for in the long term he believed that once felled kauri would be replaced by taraire (*Beilschmiedia tarairi*), a species of much more limited timber value. This led him to proclaim that, 'It is not enough to look for a certain supply from a forest – the forest should be self-supporting and so constituted that one tree will gradually suppress and replace another'.<sup>57</sup> The following year Cockayne reiterated his scepticism about the claims of forestry science applied to New Zealand forests'

The foreign forests whence come 'Baltic', 'Oregon', and other pines or hardwoods can by the methods of scientific forestry – i.e., cutting out only trees of a certain size and at fixed seasons replanting, and so on – be made to yield a continuous crop. This is quite out of the question in New Zealand taxad or kauri forests. The trees are of too slow a growth to allow a profitable reinstatement; the difficulties of planting within the forest owing to the multitude of shrubs, the tangle of roots on the ground, and the fallen and rotting trees are very great, while the reproduction of certain trees – the kauri, e.g. – the light of the forest interiors is not generally sufficient.<sup>58</sup>

The Royal Commission on Forestry in 1913, of which Cockayne was also a member, had recommended Waipoua be milled 'for the people of New Zealand' with the exception of 200 acres [81 hectares] that were to be permanently reserved and along with nearby Warrawara kauri forest be preserved as 'national Kauri parks'.<sup>59</sup> Interestingly the Commissioners' identified seven reasons for their recommendations, the first being that at in excess of 22,000 acres [8,903 hectares] the forest was too large to permanently reserve, that already milled areas were suitable for settlement, that there was a fire danger in dry seasons and (echoing Cockayne) that kauri would be succeeded by taraire and other species.

In *A Discussion on Australian Forestry* Hutchins commented on the relationship between botany and forestry to the effect that 'there is not much more connection between zoology and horse racing; less than there is between mathematics and navigation'<sup>60</sup> and provocatively that 'at best ordinary botany is an interesting pursuit for foresters' leisure hours; on the whole not so useful as photography or meteorology ... and certainly not as useful as mycology'.<sup>61</sup> He also berated botanists in general for 'confusion and disagreement' over

botanical names of many timber trees and 'hopeless confusion' over Eucalypt nomenclature.<sup>62</sup> Friction with Cockayne was inevitable in view of Hutchins' attitudes to botany.<sup>63</sup> As the last large surviving kauri forest, Waipoua had symbolic importance. Hutchins was proposing an alternative future for Waipoua state forest. It would not be clear-felled for milling with a fragment preserved for future generations for its scenic and scientific value, but virtually the entire forest would be profitably managed for a sustainable harvest of timber, but with the forest structure much changed in the process. Hutchins was in effect challenging a range of interests including the timber industry, land settlement, and the embryonic local conservation lobby, the latter constructing its efforts in terms of forest preservation.<sup>64</sup>

#### A LONG DELAYED REPORT ON FORESTS IN NEW ZEALAND

In his 200-page report *New Zealand Forestry Part I* Hutchins elaborated on his earlier arguments for scientific indigenous state forestry. Experience of indigenous forest management in South Africa, led him to assert confidently that the same principles would be applicable in New Zealand. The silvicultural systems he discussed included selection felling, group felling and strip felling.<sup>65</sup> Some he conceded might be more effective than others under New Zealand conditions. The crux of Hutchins' design was that New Zealand's timber supplies would come from the controlled natural regeneration of forests rather than from plantations in any major way or from imports.

Not surprisingly in view of the local political support for exotic afforestation Hutchins went into some detail about what he saw as its disadvantages. These included the cost of planting, the amount of interest charges against the cost of establishment over perhaps 40 years in comparison to natural forest where there was no charge, the risks involved (failure to acclimatise, disease, poor quality timber, slower than anticipated growth rates), the loss of forest in clearing the natural forest, and the cost of replanting the bare ground. Against these he cited only two advantages: the early production from species such as *Pinus radiata* and various Eucalypts, and the somewhat slower production of good matured heart-wood timbers. The £2,000,000 that had been spent on government exotic plantation development in New Zealand since its inception in 1897 would, he argued, have been better spent on indigenous forest management.

While Hutchins was a champion of afforestation in South Africa, in New Zealand he was the strongest critic of an overdependence on this as the sum total of 'forestry'; which displays rather starkly how geography matters and how in different colonial locations scientific forestry could be constructed in significantly different ways. He had repeatedly made his point to William Massey, the Prime Minister, writing in 1917 for instance, 'May I mention again that the urgent need now is not re-afforestation (New Zealand has done a great deal more than other

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countries in forest planting) but the preservation of the more valuable forest trees'.<sup>66</sup> Massey was not persuaded, as his political ally G.M. Thomson, another scientifically minded forest conservation advocate, admitted in 1918: 'the fact is (strictly confidentially) that Hutchins has sickened Massey with his exaggerated figures, and I don't believe either that practically his proposals would work'.<sup>67</sup> Hutchins had claimed that timber exports could realise £14 million whereas pre-war they had amounted to only £400,000.<sup>68</sup> Thomson suggested Hutchins was obsessed with his subject and that a more moderate individual might have achieved more. Even Sir Francis Bell the chief government supporter of forestry reform suffered, noting, 'Hutchins reported to me ... his opinion of my capacity to control trees – but I did not tell Massey of it for fear – Massey wants to know if Hutchins objects to Massey as Prime Minister'.<sup>69</sup>

The publication of *A Discussion on Australian Forestry* in 1916 caused further problems, coming as it did after Hutchins had commenced his New Zealand inspection. Rev. J.H. Simmonds, a local authority on Eucalypts, confided that Hutchins' actions 'before seeing this country to venture to speak with such great confidence about its forestry and to severely criticise and condemn the Report of the Commission, 1913, is not helping matters'.<sup>70</sup> The earlier concerns of Forestry Branch officer Edward Phillips Turner, arising from the publication of *A Discussion on Australian Forestry* had been borne out: 'I cannot but think that his very severe remarks on forestry matters in New Zealand (Though they are doubtless quite true) will stir up a lot of animosity towards him ... If Hutchins divides enthusiasts in this country into two parties and then goes to another country forestry is likely to be put on hold again'.<sup>71</sup> Hutchins, though, remained unrepentant about his comments: 'Of course the appendix in the Australian book has caused ill feelings here; but you cannot make an omelette without breaking eggs. The so-called Forestry Commission, though it brought together much useful information, was so utterly wrong in its conclusions'.<sup>72</sup> In contrast to the speed with which he had written up his East African, Cyprus and even the Australian report, the lack of progress with the New Zealand document was noticeable. As early as 1917 Phillips Turner was grumbling to Wilson about the slowness with which Hutchins was writing.<sup>73</sup>

Hutchins was astute enough to realise that he had to present forestry as a viable alternative land use to settlement. Calculating monetary returns and employment potential, he asserted that forestry was often an economically appropriate land use. This would in time produce his own version of arcadia where, 'State forest employees are settled more permanently on the land than most farmers; they earn more than the average dairy farmer, and, settled in the model hamlets, escape the isolation and monotonous life of the isolated farmer'.<sup>74</sup> There was a conservatism of vision here that Hutchins shared with 'farmer Bill' Massey but was unable to capitalise upon. Elsewhere Hutchins discussed the merits of buffalo and elephants for log hauling in Waipoua. The former he thought ought to be imported at once, while of elephants he suggested that,

It would be possible, but not easy to catch a pair of young ones, let them run wild in the forest at Waipoua, and catch and put the surplus animals to work, as is done in India. The old ones would be useful in forming costless paths and in keeping down the undergrowth.<sup>75</sup>

Reviewing the report a local New Zealand and Oxford educated scientist acknowledged Hutchins as 'one of the most eminent extra-tropical forestry experts in the world' but was dismissive of it as lacking 'the precision and formality of most technical literature'. Hutchins' exhortations about elephants then caught his attention. With steam powered log haulers and light rail systems replacing bullocks in the New Zealand timber industry Hutchins' comments were easily ridiculed. Cockayne at the New Zealand Institute Science Congress in 1919 was reported as 'briefly traversing Mr Hutchins' policy, with which he did not agree'.<sup>76</sup>

Fire protection was another element of colonial forest management that Hutchins discussed in some detail for kauri forests, attributing it to a habit of mind of the settlers and constituting a problem eminently solvable compared to conditions he had experienced in India where 'the yearly jungle fire' was regarded as 'quite beyond man's power to arrest'.<sup>77</sup>

The major reports were long delayed. Hutchins' writing style was discursive and surviving drafts are much amended even at the galley proof stage. Commissioned in 1915, the report was not actually published until 1919 and then only Part One on the northern North Island. Much time had been consumed by other writing and in touring to promote state forestry.<sup>78</sup> The second volume, including the rest of the North Island and the South Island, remained incomplete on his death in 1920.<sup>79</sup> The reports were also overdue from Prime Minister Massey's point of view. The report that Hutchins eventually delivered contained rather more than officials required. An edited summary of the opening part of the report was presented to Parliament in 1919, by which time other developments were underway.<sup>80</sup> Most notable of these was an amendment to the existing forest legislation in 1918 put forward by Sir Francis Bell, the Attorney General, championing the cause of forestry in the face of some scepticism from Massey. Bell's amendment made it possible for any Crown Land to be declared 'Provisional State Forest'. Subsequent negotiation between the Forestry Branch and the Department of Lands and Survey would decide if was to become 'Permanent State Forest' or was to be opened to land settlement. Forestry officials no longer had to justify retention of the land under forest; rather it was the lands officials who had to make a case for its release. It also secured the longer-term future of the indigenous forest on Crown Land without the comprehensive survey and demarcation of forest lands for which Hutchins was calling. Bell declared that 'the forestry I want to initiate consists, first and foremost of conservation and use of existing forest land, and, secondly, and far behind plantations'.<sup>81</sup> Hutchins was the instigator of this change in Bell's thinking as Sir James Wilson signalled at the time: 'One's whole thought has been towards planting as a remedy for the scarcity of timber which must occur in the future, but his advocacy of a Forestry

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department with a trained Forester at its head for the purpose of conserving our native bush is one which was ignored previously'.<sup>82</sup>

### RESISTANCE TO FORESTRY

Hutchins had encountered resistance to forest demarcation in South Africa. Writing of the Kikuyu of present-day Kenya, he pressed for their complete exclusion from the forest, blaming them for its destruction – for which their resettlement as 'permanent cultivators' was in his view the only solution.<sup>83</sup> In New Zealand most of the forests that he visited were already part of the Crown estate so that the boundary disputes that he had experienced in Africa and India did not translate in the same way to New Zealand. Hutchins actually wrote the Maori out of his Waipoua kauri investigations in any contemporary sense with the comment that local botanist Mr Cheeseman's search of Maori records 'obtained nothing of importance'.<sup>84</sup> Cockayne, on the other hand, during his two months at Waipoua had noted that wild cattle and other stock belonging to Maori and settlers were in the forest, although they did limited damage.<sup>85</sup> Hutchins did devote a somewhat disapproving chapter to Kauri gum in his *New Zealand Forestry*, but made no reference to illegal gum bleeding or timber harvesting of any kind.

Illegal felling, hunting and harvesting of other non-timber forest products have been read as signs of resistance to the impress of colonial forestry and colonialism more generally. Hutchins had experienced this first-hand in South Africa when demarcating forests; he had also triggered complaints from white farmers by placing some of their land inside forest boundaries. In view of Cockayne's comments about stock in Waipoua kauri forest, it is worth pausing to raise some questions about the extent of Maori resistance to state control of Waipoua forest. The forest had been purchased by the Crown from Maori owners in 1876 and was gazetted as a state forest in 1906.<sup>86</sup> The Ranger's reports for Waipoua in the period immediately prior to Hutchins' visit records instances of illegal gathering of kauri gum, felling of trees (totara rather than kauri) as well as other trespassing by both Maori and settler populations, but this did not seem to be regarded as a significant problem by officials.<sup>87</sup>

In New Zealand the forests Hutchins was concerned with were already on Crown Land and the government was more or less unconcerned about forests on private lands. Legislative fragmentation whereby illegal hunting of forest birds and illegal timber felling were treated in separate pieces of legislation and as the responsibility of different departments doubtless worked in favour of poachers and timber cutters. Because the Lands Department was dedicated to facilitating land settlement it tended to assess and release land on the basis of its suitability for settlement. With the major expansion of the agricultural frontier completed by 1914, by the time Hutchins arrived in New Zealand 1915 much of the remaining forested Crown Lands were not regarded as potential prime farmland.

Elements of his African experience showed through in his reaction to forest alienation in New Zealand. He wrote in his East African Report about the impact of private land ownership on forests that,

The rights of private property are sacred, the world through, and the grantee of forest lands, especially in a new country, has to turn them to account and get a return for what he is spending in developing his property. If the forest has an immediate value, it will be cut down and sold for timber. If it has no immediate value, which is more usually the case it will be cleared by burning or otherwise to make room for crops or pasture.<sup>88</sup>

This view would have been reinforced by his New Zealand experience. It helps position Hutchins' attention to forest demarcation as a vital first step to prevent forest being given over to the farming. Furthermore it would keep forests under public ownership, for 'once alienated no means has yet been devised in the world's history of preserving it'.<sup>89</sup>

The resistance to colonial forestry in New Zealand came, unexpectedly for Hutchins, not so much from Maori and small farmers but from the settler elites including the fledgling scientific community, the public service and MPs.

#### SETTLER REJECTION OF COLONIAL FORESTRY

Hutchins' criticisms of the New Zealand Royal Commission on Forestry reflected his colonial forestry experience; Schlich was to express similar concerns in a paper that was subsequently republished in the *New Zealand Journal of Science and Technology*.<sup>90</sup> Hutchins was also following a model of report writing from his previous experiences in British East Africa, Cyprus and more latterly Australia.

Hutchins' successors in New Zealand had differing backgrounds. L.M. Ellis became the first Director of Forestry in 1921. He was not trained in the tradition of colonial forestry. A Toronto graduate under Bernhard Fernow, Ellis had worked for Canadian Pacific Railways and after war service in France was briefly employed by the Scottish Forestry Commission on afforestation work before coming to New Zealand.<sup>91</sup> Ellis's initial report affirmed the importance of indigenous forest management in a national forest policy, but after 1925 he embarked on an ambitious state afforestation programme based on exotic species, particularly *Pinus radiata*.<sup>92</sup>

Further revisionism took place at the 1928 Empire Forestry Conference, jointly hosted by Australia and New Zealand, where Phillips Turner formed the view that Hutchins had 'little weight as a technical forester'.<sup>93</sup> Phillips Turner may have reached this conclusion earlier if he had read the review of *New Zealand Forestry* in the *US Journal of Forestry*, where 'the strikingly insufficient observations and the almost complete lack of definite data' attracted adverse comment.<sup>94</sup>

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By the time that colonial forestry reached New Zealand in the person of David Hutchins in 1915, it was in a sense at the edge and end of Empire. In terms of the fourfold impact of colonial forestry practices noted by Guha and Gadgil,<sup>95</sup> Hutchins was less concerned with the redefinition of property rights, and working on forest on Crown Land was more focused on forest demarcation, selective harvesting and natural regeneration. His proposals for forest management would have reduced species diversity in favour of a limited number of commercial tree types grown to smaller sizes, and would have restricted entry to both Maori and settler populations.

When Hutchins arrived in New Zealand much forest had already been destroyed for land settlement. He estimated that some 40,000 sq miles (10.3 million ha) of forest had been deforested from 1840 to 1920.<sup>96</sup> By 1923, 78 per cent of the forest was on Crown Land with 12 per cent on Maori Land and 5 per cent freehold.<sup>97</sup> There was, however, pressure for its release to land settlement and the sawmilling industry was poorly regulated. Forest had been legally gazetted but had limited protection on the ground as Hutchins realised. Forest demarcation was the immediate challenge, hence his Waipoua report was intended as a demonstration piece. Of incursions into the forest by either Maori or settler, he said little. The situation in New Zealand did not lend itself to a reiteration of what colonial foresters saw as the adverse impact of shifting cultivators on the forests.<sup>98</sup>

In terms of a significant redefinition of property rights Hutchins was effectively restricted to concerning himself with forests on Crown Land. The settler state had no interest in trying to repurchase freehold forest lands and indeed various clauses in lands legislation required occupiers purchasing farms on deferred payment to fell a proportion of the forest cover each year as a required 'improvement' to the property. Forest on Maori land was likewise beyond the reach of Hutchins' plans. Hutchins vision for colonial forestry in New Zealand was limited; he had a smaller stage than that which he had been accustomed to in Africa or India. There had been 70 years of responsible government by settler governments that increasingly from the 1890s saw New Zealand's economic future as being an imperial farm supplying meat, butter and cheese to the UK. The achievement of this goal went hand in hand with extensive deforestation and the conversion of large amounts of the North Island from forest to pasture. Later foresters in New Zealand were able to make little headway until they could demonstrate that pine plantations were a more productive land use in some areas than pastoral agriculture, and this did not take place until the 1960s.<sup>99</sup>

The forest demarcation that Hutchins demonstrated at Waipoua, if applied to each state forest in the Dominion at that time, would have taxed the limited number of undertrained staff and taken considerable time to carry out. Added to which, Hutchins' reports were long delayed, with the result that Bell adopted a legalistic approach, redefining forests on Crown Land as Provisional State Forests by amending the existing Forest Act and then placing the onus on the Lands

Department to argue for its release for land settlement. Though, as Hutchins was aware, this produced lines and labels on cadastral maps, it did not add up to effective forest demarcation or management on the ground.

The implementation of sustained yield forest management would have led to changes in the composition of forest species. Hutchins had sketched out what this would mean in Waipoua but was never to have the opportunity to try and implement such schemes in New Zealand.<sup>100</sup> Although his successors such as Ellis initially sought to move in this direction, eventually the exotic plantations came to dominate New Zealand forestry.

In New Zealand, the type of forest and the rainfall meant, as Hutchins was quick to recognise, that in general forest fire did not pose the threat that it did in India or in Australia. There were sizable fires in 1908 and 1918 but these stemmed from out of control burn-off of felled bush on farms in unusually dry conditions.<sup>101</sup> Once Ellis oriented the State Forest Service toward creating a plantation forest estate, in the 1920s fire control became more important, but Canadian models were adopted. The forests that were being protected were increasing the exotic plantation estate and the main source of fires was sparks from steam locomotives.<sup>102</sup>

Hutchins did not, however, bring an unmodified colonial forestry design to his plans for scientific state forestry in New Zealand. A supporter of plantation forestry in South Africa, in New Zealand conditions he championed indigenous forest management. In South Africa he had favoured afforestation with Eucalypts but in Australia and later New Zealand he had sought to temper the local enthusiasm for exotic afforestation at the expense of indigenous management. Indeed, the vigour with which he championed indigenous forest management in New Zealand raises a question about whether the postcolonial forestry critique of Hutchins in Africa overemphasises exotic afforestation activity.

Although Hutchins as a forester was asked to provide an expert appraisal for New Zealand officials and politicians to digest – a strategy followed well into the twentieth century – his two reports were also somewhat at odds with official expectations in terms of content and timing. In addition, he faced considerable opposition to his ideas from local scientists such as Cockayne and divided local supporters with the forcefulness of his arguments. Delayed publication also blunted Hutchins' impact as the visiting expert. Significant political developments which saw the administrative separation of Forestry from the Lands Department and a commitment to appoint a trained forestry profession were underway before his final report appeared.

In addition, he was only one of a number of players pressing for the establishment of a forests department; more so than he may have appreciated. A group of influential individuals with scientific interests, such as Simmonds and Cockayne, were aligned with officials such as Phillips Turner and politically important figures such as Sir James Wilson, and collectively they were able to



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make use of Hutchins' presence in persuading Sir Francis Bell to establish an administratively independent and professionally staffed forests department.

In terms of limits, Hutchins' influence was in one sense quite negative, for Phillips Turner noted that, 'As regards the Director [of Forests] I think a properly graduated man who has also had experience in Australia or the Pacific Coast would be far preferable to a man who has only experience with Tropical forests and black labour'.<sup>103</sup> This further helps to situate the appointment of Ellis as first Director of Forests. But Hutchins had exerted a profound influence at a particular moment by placing indigenous forest management back on the agenda and by ensuring that future afforestation activity would not be guided as much by tree planting practices (arboriculture) as by state forestry principles. While in the short term the newly formed State Forest Service espoused sustained yield management of indigenous forests, by the mid 1920s it had initiated a large-scale exotic afforestation programme in order to stave off a timber famine projected to occur by the 1960s.

Sivaramakrishnan recognises the importance of colonial location on the shape of scientific forestry.<sup>104</sup> Hutchins' efforts in New Zealand reinforce the significance of this observation, most obviously in his cautionary remarks about the place of exotic afforestation. In preparing his reports on New Zealand forestry Hutchins had in several senses brought colonial forestry to its limits at the edge of the empire. In New Zealand all four measures of colonial forestry as 'progress' (timber extraction, forest revenue, forest conservation and fire control) are somewhat muted. Hutchins concentrated his immediate efforts on promoting aspects of forest conservation with his emphasise on forest demarcation and forest reserves at a time of large-scale and rapid deforestation. In a large part this was because forest conservation as 'progress' clashed head on with settler ideas of 'progress' over the future of the forested lands, particularly of the North Island.

New Zealand was not only late in attempting to implement scientific forestry but was far from the core of colonial forestry centred on India. On more than one occasion Hutchins referred to 'national forestry', which points to a fissure in thinking about the colonial forestry model; if the trained foresters were seeking to manage colonial forestry on a sustained yield basis, what was the 'nation' in question?<sup>105</sup> In French forestry science the assumptions approximating autarky and the interchangeability of nation with state when referring to soil and water conservation and the long run timber supplies was comparatively easy to make. Hutchins argued for self-sufficiency in timber in Australia and New Zealand, which by implication he regarded as self governing entities under the umbrella of Empire. It would be worth revisiting how he framed self-sufficiency in timber in Britain's African colonies.

## CONCLUSION

A closer focus on Hutchins offers some insights into the colonial forestry model spreading to its furthest extent to the white settler Dominions of Australia and New Zealand. The original Indian formulation was not immutable. Local resistance to its ideas was not inconsiderable, and where other writers have tended to explore indigenous resistance it is settler resistance to colonial forestry that makes Hutchins' visit to New Zealand interesting. Likewise in New Zealand Hutchins constructed scientific forestry around indigenous forests and sustained yield management, in contrast to local enthusiasm for exotic afforestation, though in South Africa he had placed considerable emphasis on exotic plantation forestry. It was the renewed focus on indigenous forest management which had been so easily cast aside by the 1890s that Hutchins brought to New Zealand in 1915 and initially at least this was central to the new department, legislation, and personnel that were hired to implement scientific state forestry in New Zealand in 1921.

'Progress' for the settler population was marked in some rather different ways. Brooking itemised what he referred to as the 'New Zealand Liberal order of worth' for the 1890s–1910s, where the 'deserving' were the family farmer, the small businessman, professionals, hard working artisans, hard working unskilled rural labourers, hard working unskilled urban labourers and the unfortunate. Balanced against this was a list of 'undeserving', which as well as large land-owners included 'loafers' and 'the bush' as the forest was widely termed.<sup>106</sup> The 'order of worth' as an expression of progress and improvement in New Zealand clashed with Hutchins' vision of colonial forestry at a fundamental level. For settlers the land was valued as a source of economic security. With the advent of refrigeration technology New Zealand increasingly became one of Britain's offshore farms as the twentieth century unfolded. Clearing forest for pasture was regarded by the farming community as a sign of progress and improvement. In this context the possibilities for implementing scientific state forestry were constrained. It was to be limited to forests on Crown lands, and within these areas to Crown Lands that were unsuited for land settlement, almost regardless of the quality of the forest for timber.

Forestry as 'progress' had to compete against settler notions of 'progress' in a one-sided contest. Foresters would lament that two trees were being felled to plant one blade of grass. Land settlement with its accompanying transformation from forest to grasslands was fundamental to settler ideas of 'progress', which were widely held at popular and political levels. At the margins of settlement dating from the late nineteenth century a case could be made for the preservation of remnant areas of indigenous flora and fauna as national parks and smaller reserves, particularly where these were on land not required for settlement. Colonial forestry posed a challenge and a threat. It required settler politicians to accept the ideas of a forestry specialist in an era when practical hard won local

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knowledge was valued above that of the outside expert and the intellectual. It was a threat to Lands Department officials who now had to make a stronger case for releasing Crown Land for settlement. It was a threat for would-be farmers who would have regarded Hutchins as 'locking up' land in forest. For the timber industry Hutchins also posed a danger in that the controlled release of timber from demarcated forests signalled an end to easy and cheap access to wood with little regulation. Less obviously and paradoxically, Hutchins also came to be seen as presenting a threat to the small number of individuals seeking to promote the cause of forest conservation in New Zealand because his emphatic statements divided local supporters and alienated key officials and politicians.

The markers of progress for colonial forestry – timber extraction, forest revenues and forest conservation – were all faithfully articulated by Hutchins in his writings about New Zealand. Forest demarcation as a means to their achievement was a persistent theme in his New Zealand sojourn. These matters remained central to the next generation of foresters in New Zealand, who retained them as benchmarks for what forestry could contribute to the Dominion before the exotic afforestation option was adopted in the late 1920s. Colonial forestry models were then gradually dispensed with in favour of national forest policies, around which involvement in a series of Empire and later Commonwealth forestry conferences was loosely draped.<sup>107</sup>

NOTES

<sup>1</sup> A. Lester, 'Imperial Circuits and Networks: Geographies of the British Empire', *History Compass* 4 (2006): 124–141. D. Lambert and A. Lester (eds.), *Colonial Lives Across the British Empire: Imperial Careering in the Long Nineteenth Century* (Cambridge: Cambridge University Press, 2006) and M. Roche, 'Latter day "imperial careering": L.M. Ellis – a Canadian forester in Australia and New Zealand, 1920–1941', *ENNZ: Environment and Nature in New Zealand* 4, 1 (2009): 58–77, <http://fennerschool-associated.anu.edu.au/envirohist/newzealand/newsletter/>.

<sup>2</sup> N. James, *A History of English Forestry* (Oxford: Blackwell, 1981).

<sup>3</sup> G. Barton, *Empire Forestry and the Origins of Environmentalism* (Cambridge: Cambridge University Press, 2002).

<sup>4</sup> R. Bryant, 'Fighting over the Forests: Political Reform, Peasant Resistance and the Transformation of Forest Management in Late Colonial Burma', *Journal of Commonwealth and Imperial History* 32 (1994): 244–260; L. Carron, *A History of Forestry in Australia* (Canberra: Australian University Press, 1985); M. Roche, 'The New Zealand Timber Economy 1840 to 1935', *Journal of Historical Geography* 16 (1990): 295–313.

<sup>5</sup> R. Grove, 'Scotland in South Africa: John Croumbie Brown and the roots of settler environmentalism'. In T. Griffiths and L. Robin (eds.), *Ecology & Empire, Environmental History of Settler Societies* (Melbourne: University Press, 1997), pp. 139–153.

<sup>6</sup> G. Barton, *Empire Forestry and the Origins of Environmentalism*; R. Grove, 'Colonial Conservation, Ecological Hegemony and Popular Resistance: Towards a Global Synthe-

sis'. In J. MacKenzie (ed.), *Imperialism and the Natural World* (Manchester: Manchester University Press, 1990), pp. 15–50; and W. Beinart and L. Hughes, *Environment and Empire* (Oxford: Oxford University Press, 2007).

<sup>7</sup> E.M. Gould, *Forestry and Recreation*, Harvard Forestry Papers No. 6 (Petersham, Mass.: 1962)

<sup>8</sup> *Ibid.*

<sup>9</sup> R. Guha, and M. Gadgil, 'State Forestry and Social Conflict in British India', *Past and Present* **123** (1989): 141–177.

<sup>10</sup> K. Sivaramakrishnan, 'The Politics of Fire and Forest Regeneration in Colonial Bengal', *Environment and History* **2** (1996): 145–194.

<sup>11</sup> For example, S. Jewitt, 'Europe's "others"? Forestry Policy and Practices in Colonial and Post Colonial India', *Environment and Planning D. Society and Space* **13** (1995): 67–90; and R. Bryant, 'Fighting over the Forests: Political Reform, Peasant Resistance and the Transformation of Forest Management in Late Colonial Burma', *Journal of Commonwealth and Imperial History* **32** (1994): 244–260.

<sup>12</sup> R. Bryant, 'Romancing Colonial Forestry: The Discourse of "forestry as progress" in British Burma', *The Geographical Journal* **162** (1996): 170.

<sup>13</sup> For example, J. Tropp, 'Displaced People, Replaced Narratives: Forest Conflict and Historical Perspectives in the Tsolo District, Transkei', *Journal of Southern African Studies* **29** (2003): 207–233. See p. 213 regarding Hutchins in a discussion of restricting access to forests.

<sup>14</sup> L. Brown, and A. McKinnon, *Captain Inches Campbell Walker, New Zealand's First Conservator of Forests* (Wellington: New Zealand Forest Service, 1966), Information Series No 54; G. Wynn, 'Pioneers, Politicians and the Conservation of Forests in New Zealand', *Journal of Historical Geography* **5** (1979): 171–188.

<sup>15</sup> M. Roche, 'The New Zealand Timber Economy 1840 to 1935', *Journal of Historical Geography* **16** (1990): 295–313.

<sup>16</sup> Royal Commission on Forestry, *Appendices to the Journal of the House of Representatives* (Hereafter *AJHR*), C 12, 1913, xxvii.

<sup>17</sup> J. Beattie, and P. Star, 'State Forest Conservation and the New Zealand Landscape: Origins and Influences, 1850–1914'. In T. Ballantyne and J.A. Bennett (eds.), *Landscape/Community Perspectives from New Zealand History* (Dunedin: University of Otago Press, 2005), p. 31. See also P. Star, 'Native Forest and the Rise of Preservation in New Zealand (1903–1913)', *Environment and History* **8** (2002): 275–294.

<sup>18</sup> Beattie and Star, 'State Forest Conservation', 40.

<sup>19</sup> Annual Report of the State Forest Service, *AJHR*, C3 (1925), 8.

<sup>20</sup> M. Roche, 'The New Zealand Timber Economy 1840 to 1935', *Journal of Historical Geography* **16** (1990): 295–313.

<sup>21</sup> D. Hutchins, *A Discussion of Australian Forestry* (Perth: Government Printer, **1916**), 398.

<sup>22</sup> Royal Commission on Forestry, *AJHR*, C 12, 1913, xxxvii.

<sup>23</sup> Hutchins, *A Discussion of Australian Forestry*, 361.

<sup>24</sup> *Ibid.*, 362.

<sup>25</sup> W. Darrow, *David Ernest Hutchins: A Pioneer in South African Forestry* (Pretoria: Department of Forestry, 1977).

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- <sup>26</sup> W. Beinart and L. Hughes, *Environment and Empire* (Oxford: Oxford University Press, 2007), 121.
- <sup>27</sup> K. Brown, 'Trees, Forests and Communities: Some Historiographical Approaches to Environmental History in Africa', *Area* **35** (2003): 350. Brown refers to D. Ernest Hutchins. It seems that Hutchins may have gone under his middle name of Ernest when in Africa. He typically published as 'D.E. Hutchins' and in Australia and New Zealand was consistently referred to as David Hutchins. Correspondence in archives is signed D.E. Hutchins. I have left him as David Hutchins since that is how he was known in New Zealand.
- <sup>28</sup> Brown, *ibid.*, 350.
- <sup>29</sup> D. Hutchins, *Report on the Forests of British East Africa* (London: His Majesty's Stationery Office, 1909).
- <sup>30</sup> D. Hutchins, *Report on Cyprus Forests* (London: Waterlow & Sons, 1909).
- <sup>31</sup> D. Hutchins, *New Zealand Forestry: Part 1* (Wellington: 1919), 177.
- <sup>32</sup> Hutchins, *A Discussion of Australian Forestry*; Carron, *A History of Forestry in Australia*.
- <sup>33</sup> Barton, *Empire Forestry and the Origins of Environmentalism*; Darrow, *David Ernest Hutchins*; J. Thirgood, *Man and the Mediterranean Forest, A History of Resource Depletion* (London: Academic Press, 1981); Carron, *A History of Forestry in Australia*; K. Brown, 'The Conservation and Utilisation of the Natural World: Silviculture in the Cape Colony, c. 1902–1910', *Environment and History* **7** (2001): 427–448.
- <sup>34</sup> Sivaramakrishnan, 'The Politics of Fire and Forest Regeneration in Colonial Bengal', 178.
- <sup>35</sup> The planned New Zealand leg of the British Association tour was abandoned in late August 1914.
- <sup>36</sup> Wilson to Massey, 19 October 1914, F1 10/3/2, Archives New Zealand, Wellington.
- <sup>37</sup> K. Cumberland, 'A Century's Change: Natural to Cultural Vegetation in New Zealand', *Geographical Review* **31** (1941): 529–554.
- <sup>38</sup> M. Roche, 'Debating Growth Rates in New Zealand Forestry'. In J. Dargavel and S. Feary (eds.), *Australia's Ever-Changing Forests: Proceedings of the Third National Conference on Australian Forest History* (Canberra: Centre for Research into Environmental Studies, 1997), 48–58.
- <sup>39</sup> Hutchins to MacKenzie, 24 May 1915, F1 10/3/2, Archives New Zealand, Wellington.
- <sup>40</sup> Hutchins, *A Discussion of Australian Forestry*, 291.
- <sup>41</sup> *Ibid.*, 291.
- <sup>42</sup> MacKenzie to Minister of Lands, 25 September 1915, F1 10/3/2, Archives New Zealand, Wellington.
- <sup>43</sup> Hutchins to MacKenzie, 26 June 1915, F1 10/3/2, Archives New Zealand, Wellington.
- <sup>44</sup> *Ibid.*
- <sup>45</sup> MacKenzie to Hutchins, 1 October 1915, F1 10/3/2, Archives New Zealand, Wellington.
- <sup>46</sup> D. Hutchins, 'Scientific Forestry for New Zealand', *The New Zealand Journal of Agriculture* **13** (1916): 295–317, 392.
- <sup>47</sup> Hutchins, *Scientific Forestry in New Zealand*, 296.
- <sup>48</sup> *Ibid.*, 378.
- <sup>49</sup> D. Hutchins, *Waipoua Kauri Forest, its Demarcation and Management*. (Wellington: Department of Lands and Survey, 1918).

<sup>50</sup> D. Hutchins, 'The Forests of New Zealand', *Transactions Royal Scottish Arboricultural Society* 32 (1918): 90–94.

<sup>51</sup> D. Hutchins, *Waipoua Kauri Forest, its Demarcation and Management*, 176.

<sup>52</sup> *Ibid.*, 15.

<sup>53</sup> D. Hutchins, *New Zealand Forestry: Part 1, Kauri Forests and Forests of the North and Forest Management* (Wellington: Department of Forestry, 1919), 24.

<sup>54</sup> Hutchins, *New Zealand Forestry. Part 1*, 73. He made allowance for the setting aside of some areas of Waipoua forest for special purposes and scenic reserves.

<sup>55</sup> D. Hutchins, 'Rate of Growth of Trees in Relation to Forestry. A Criticism of Mr Maxwell's Paper', *New Zealand Journal of Science and Technology* 3 (1920): 1–7; M. Roche, 'Debating Growth Rates in New Zealand Forestry'. In J. Dargavel and S. Feary (eds.), *Australia's Ever-Changing Forests: Proceedings of the Third National Conference on Australian Forest History* (Canberra: Centre for Research into Environmental Studies, 1997), 48–58.

<sup>56</sup> L. Cockayne, 'Report on the Botanical Survey of Waipoua Kauri Forest', *AJHR*, C14, 1908, 31.

<sup>57</sup> Cockayne, *ibid.*, 321.

<sup>58</sup> L. Cockayne, 'The Necessity for Forest-Conservation' in *Forestry in New Zealand*, *AJHR*, C4, 88.

<sup>59</sup> Royal Commission on Forestry, *AJHR* C12, xi.

<sup>60</sup> Hutchins, *A Discussion on Australian Forestry*, 165.

<sup>61</sup> *Ibid.*, 166.

<sup>62</sup> *Ibid.*

<sup>63</sup> Yet he worked well with another local botanist, Thomas Cheeseman, over species identification and even proposed dedicating his major report to him, a move vetoed by cabinet.

<sup>64</sup> P. Star, 'Native Forest and the Rise of Preservation in New Zealand (1903–1913)', *Environment and History* 8 (2002): 275–294.

<sup>65</sup> Hutchins, *New Zealand Forestry*, 78.

<sup>66</sup> Hutchins to Massey 16 October 1917, F1 10/3/2, Archives New Zealand, Wellington.

<sup>67</sup> Thomson to Wilson, 3 January 1918, MS 2216 Folder 2; see also A.P. Thomson, 'George Malcolm Thomson and the 1913 Royal Commission on forestry. Part 1: The political battle', *New Zealand Journal of Forestry* 30 (1985): 18–27.

<sup>68</sup> D. Hutchins, *Explanatory Note Regarding Report on Forestry in New Zealand* (Wellington: Wellington Publishing Company, 1919).

<sup>69</sup> Bell to Wilson, 15 March 1918, MS 0595, Alexander Turnbull Library, Wellington.

<sup>70</sup> Simmonds to Wilson, 17 February 1917, MS 2216 Folder 2, Alexander Turnbull Library, Wellington; and J.H. Simmonds, *Trees from Other Lands for Shelter and Timber in New Zealand* (Auckland: Brett, 1927).

<sup>71</sup> Phillips Turner to Wilson, 20 December 1916, MS 2216 Folder 2, Alexander Turnbull Library, Wellington.

<sup>72</sup> Hutchins to Simmonds, 14 June 1917, MS 2216 Folder 2, Alexander Turnbull Library, Wellington.

<sup>73</sup> Phillips Turner to Wilson, 26 May 1917, MS 2216 Folder 2, Alexander Turnbull Library, Wellington.

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- <sup>74</sup> Hutchins, *New Zealand Forestry*, 183.
- <sup>75</sup> *Ibid.*, 42–43.
- <sup>76</sup> Anon., ‘Afforestation in New Zealand’, *New Zealand Journal of Science and Technology* **2** (1919): 339. Perhaps Cockayne was persuaded further by the positive views of his son about the possibilities of Radiata Pine as the ‘great timber tree of the future’ – see A.H. Cockayne, ‘Monterey Pine, the Great Timber Tree of the Future’, *New Zealand Journal of Agriculture* **8** (1914): 1–26.
- <sup>77</sup> Hutchins, *New Zealand Forestry*, 148.
- <sup>78</sup> D. Hutchins, ‘Scientific Forestry for New Zealand’, *The New Zealand Journal of Agriculture* **13** (1916): 295–317, 375–396; D. Hutchins, ‘Extract from Report by D. E. Hutchins, White Pine, 1917’, Typescript NEB 60 Conference with diary – Farming Representatives, Taranaki re assistance to Soldier farmers white pine industry, Archives New Zealand, Wellington; D. Hutchins, *Scientific National Forestry for New Zealand; inaugural address delivered at the initial meeting of the League in the Chamber of Commerce, Wellington, on July 11th, 1916* (Wellington: Watkins, Tyler & Tolan Printers, 1917); D. Hutchins, ‘The Forests of New Zealand’, *Transactions Royal Scottish Arboricultural Society* **32** (1918): 90–94; D. Hutchins, ‘The Waipoua Kauri Forest, Its Demarcation and Future Management’, *New Zealand Journal of Agriculture* **16** (1918): 136–141; D. Hutchins, ‘Forestry New Zealand’, *Quarterly Journal of Forestry* **13** (1919): 139–140; D. Hutchins, ‘The Forests of New Zealand’, *Transactions Royal Scottish Arboricultural Society* **33** (1919): 19–123; and D. Hutchins, ‘New Zealand Forestry’, *Quarterly Journal of Forestry* **14** (1920): 75–76.
- <sup>79</sup> E. Phillips Turner, ‘Obituary Sir David Ernest Hutchins, 1850–1920’, *Transactions of the New Zealand Institute* **53** (1921): vii–viii.
- <sup>80</sup> D. Hutchins, *Explanatory Note Regarding Report on Forestry in New Zealand* (Wellington: Wellington Publishing Company, 1919).
- <sup>81</sup> W.D. Steward, *The Right Honourable Sir Francis H.D. Bell, P.C., G.C.M.G., K.C.: His Life and Times* (Wellington: Butterworth, 1937).
- <sup>82</sup> Wilson to Hall 9 August 1916. In L.J. Wild, *The Life and Times of Sir James Wilson of Bulls* (Christchurch: Whitcomb and Tombs, 1953), 119.
- <sup>83</sup> D. Hutchins, *Report on the Forests of British East Africa* (London: His Majesty’s Stationery Office, 1909).
- <sup>84</sup> Hutchins, *New Zealand Forestry*, 8.
- <sup>85</sup> Cockayne, ‘Report on the Botanical Survey of Waipoua Kauri Forest’, 4.
- <sup>86</sup> M. Roche, ‘Sir David Hutchins and Kauri in New Zealand’. In John Dargavel (ed.), *Australia and New Zealand Forest Histories: Araucarian Forests* (Canberra: Australian Forest History Society Inc., Occasional Publication No.2, 2005), 33.
- <sup>87</sup> Ranger Maxwell’s Monthly Reports. Survey Files – Waipoua State Forest Surveys 1914–1915, BAAZ 1108 225d 10594, Archives New Zealand, Auckland.
- <sup>88</sup> Hutchins, *Report on the Forests of British East Africa*, 63.
- <sup>89</sup> *Ibid.*, 63.
- <sup>90</sup> W. Schlich, ‘Forestry in the Dominion of New Zealand’, *Quarterly Journal of Forestry* **12** (1918): 1–28. This was reprinted in edited form as W. Schlich, ‘Forestry in the Dominion of New Zealand’, *New Zealand Journal of Science and Technology* **1** (1918): 201–210.

- <sup>91</sup> M. Roche, 'McIntosh Ellis 1887–1941', *Dictionary of New Zealand Biography* Vol. 4 (Auckland: Auckland University Press, 1998), 157–158.
- <sup>92</sup> *AJHR*, C3 1925, 7. This afforestation effort was intended to provide an alternative supply of timber by the mid-1960s and to buy time to discover the mechanisms of regeneration in the indigenous forests.
- <sup>93</sup> Phillips Turner to Sommerville, 12 January 1931 F1 13/1, National Archives, Wellington.
- <sup>94</sup> 'E.', 'New Zealand Forestry Part 1', *Journal of Forestry* **18** (1920): 635–636.
- <sup>95</sup> R. Guha, and M. Gadgil, 'State Forestry and Social Conflict in British India', *Past and Present* **123** (1989): 141–177.
- <sup>96</sup> D. Hutchins, 'Notes'. In R.H. Rhodes and L.M. Ellis (eds.), *Forest and Forestry in New Zealand Prepared for the Imperial Forestry Conference, Ottawa, 1923* (Wellington: Government Printer, 1923), 39.
- <sup>97</sup> R.H. Rhodes, and L.M. Ellis (eds.), *Forest and Forestry in New Zealand Prepared for the Imperial Forestry Conference, Ottawa* (Wellington: Government Printer, 1923), 16.
- <sup>98</sup> Beinart and Hughes, *Environment and Empire*, 127. Note however that some foresters in India were prepared to tolerate kumri (shifting cultivation) in forests and to use it as a means of facilitating effective afforestation.
- <sup>99</sup> R.B. Le Heron and M.M. Roche, 'Expanding Exotic Forestry and the Extension of a Competing Use for Rural Land in New Zealand', *Journal of Rural Studies* **1** (1985): 211–229.
- <sup>100</sup> M. Roche, 'Sir David Hutchins and kauri in New Zealand'. In John Dargavel (ed.), *Australia and New Zealand Forest Histories: Araucarian Forests* (Canberra: Australian Forest History Society Inc., Occasional Publication No.2, 2005), 33–39.
- <sup>101</sup> R. Arnold, *New Zealand's Burning: The Settlers' World in the mid 1880s* (Wellington: Victoria University Press, 1994); M. McKinnon (ed.), *Historical Atlas of New Zealand* (Wellington: Bateman, 1997), plate 87, 'Fire, Flood and Quake'.
- <sup>102</sup> McKinnon, *Historical Atlas of New Zealand*, plate 87, 'Fire, Flood and Quake'.
- <sup>103</sup> Phillips Turner to Wilson, 25 May 1917, MS 2216 Folder 2, Alexander Turnbull Library, Wellington.
- <sup>104</sup> K. Sivaramakrishnan, 'Colonialism and Forestry in India – Imagining the Past in Present Politics', *Comparative Studies in Society and History* **37** (1996): 3–40.
- <sup>105</sup> For example, D.E. Hutchins, 'National Forestry', *Journal of the Society of Arts* **48** (1899): 21–37. Here he focused largely on Britain.
- <sup>106</sup> T. Brooking, *Lands for the People? The Highland Clearances and the Colonisation of New Zealand, a Biography of John McKenzie* (Dunedin: Otago University Press, 1996), 149.
- <sup>107</sup> Rhodes and Ellis, *Forest and Forestry in New Zealand Prepared for the Imperial Forestry Conference, Ottawa*.