Scotland has been at the centre of forestry in Britain since at least the seventeenth century. While German forestry, in particular in Prussia in the late 18th century, shifted towards state intervention and a decline of the independent, privately owned estate, in Scotland the opposite happened and from the seventeenth century landowners started to experiment with new modes of forestry, without any form of centralised state intervention. From the early 1600s, tree planting on Scottish estates increased steadily, while ‘improving’ Scottish landowners began to introduce tree species from continental Europe such as sycamore maple, Norway spruce, larch and European silver fir, none of which was native to Scotland. The availability of considerable ‘wastelands’ in the Scottish Highlands facilitated these experiments with new species and planting methods.¹

Scottish landowners were interested in using the forest resources on their estates more efficiently to increase revenue. This went hand in hand with the ideal of aesthetically improving their estates and of securing a sustainable yield to support future generations. This latter aspect shared similarities with the German ideal of Nachhaltigkeit, a system to secure forest resources for the future.² The difference with the German mode of thinking was that the Scottish ideal combined both aesthetic and profit-driven elements to create a kind of early multiple use forest resource.³ Furthermore, the traditional woodland management system of coppicing was maintained in tandem with the new forestry plantations, catering to the needs of a wide range of traditional users, while preserving game and aesthetic values.⁴ For example, John Murray (1755-1830), fourth Duke of Atholl, who was nicknamed ‘Planter John’, wrote that forestry operations should be carried out for ‘beauty, effect and profit’.⁵ The efforts of the Fourth Duke and other plantation schemes in Scotland during the late eighteenth century and early 19th century were the first attempts anywhere to establish major plantations of conifer trees ab initio, as opposed to the conversion of natural forests or coppices that took place in continental Europe.⁶

³ Multiple use forestry became fashionable among forestry services in the western world during the 1950s and 1960s with the rise of the automobile and increasing numbers of visitors to the forests. This type of forestry aimed at combining recreational use and nature conservation with wood production.
⁵ Quoted in House and Dingwall, ‘A Nation of Planters’, p. 135.
⁶ Ibid., 139-40.
The most notable of these forest plantations emerged in Argyll, in Perthshire and on the Moray coast in the North East of Scotland. The earl of Moray, earl of Fife and the Dukes of Atholl and Argyll planted millions of trees to ‘improve’ their landholdings, and by the last quarter of the eighteenth century smaller landowners had begun to imitate their grander neighbours.

The extent of the planting can be deduced from the fact that by 1818 enough timber had been grown on the Atholl estates for the construction of a 170-ton brig at Perth. A 28-gun frigate ordered by the Admiralty followed the success of this first vessel, and the launching of this ship, the ‘Atholl’, in 1820 was a tribute to the Fourth ‘Planting Duke’ of Atholl. It is estimated that by the time the ‘Planting Duke’ died in 1830 over fourteen million larches had been planted on the Atholl estates.

The forests of Atholl were not unique and trees were being planted and harvested in estates all over the Highlands. In her memoirs, Elizabeth Grant of Rothiemurchus (1797-1886), gave a vivid description of logging activities on the Rothiemurchus estate: ‘It was a busy scene all through the forest, many rough little horses moving about in every direction, each dragging its load, attended by an active boy as guide …’.

She went on to describe log floating in the Spey catchment. There was a sophisticated system of dams and sluices that regulated the flow of water that was needed to float the timber logs downstream. Gangs of specialised woodsmen who lived along the riverbanks gathered when the logging season started, and guided the floating timber rafts down the river. This labour-intensive system of extracting timber, which involved numerous timber floaters, suggests that timber production was an important ingredient of the Highland economy in the Spey catchment during the first decades of the 19th century.

There was also forestry activity in other parts of the Highlands and Islands during the early decades of the 19th century. In the west, the MacGregors planted between 1804 and 1809 more than 24 hectares of mixed plantations on the Isle of Arran. The species used included European larch, pines, silver firs, ash and oak. In the north, around Speyside, the Earls of Seafield planted some 18 000 hectares on their estates between 1811 and 1881. Over two thirds of this area was planted with newly introduced conifer species from North America.

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7 Ibid., p. 149.
9 Ibid., p. 220.
10 Stirling Council Archives (hereafter SCA): PD60 Bundle 394, MacGregor Papers.
The emergence of forestry plantations as a core aspect of Scottish estate management was associated with patriotism and good taste, as well as with making better and more profitable use of the land. By the end of the eighteenth century, tree planting was regarded as a respectable and progressive activity, and a shared vision of what constituted appropriate forest management was widely accepted throughout Scotland.¹²

Much of the knowledge acquired on the Scottish estates from these early experiments and planting activities was disseminated through the learned societies in Edinburgh, such as the Botanical Society of Scotland, as well as through botany and other courses at the university. Particularly important in the spread of modern forest management practice was the creation of the Physic Garden in Edinburgh in 1670, which is now known as the Royal Botanic Garden. In 1723 the Honourable Society of Improvers in the Knowledge of Agriculture in Scotland was established by a group of influential landowners whose aim was to improve the management of the land, including forestry.¹³

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¹³ House and Dingwall, ‘A Nation of Planters’, p. 138. These landowners included the duke of Atholl and the earl of Breadalbane.
Encouraged by these developments Scottish seed collectors, of whom David Douglas (1799-1834) is the most famous, introduced many North American tree species to Europe. In the late 1820s Douglas introduced the Douglas fir and Sitka spruce, trees that were to form the backbone of Scottish forestry during the twentieth century. After Douglas' untimely death in 1834, other Scottish seed collectors continued to introduce new trees such as the lodgepole pine, western hemlock and western red cedar. Scottish landowners, driven by the usual desire to improve their plantations for profit and pleasure, enthusiastically embraced these trees. This formed a breeding ground of practical foresters whose experience was disseminated, as stated above, through the publications by the learned societies and books.

One of these books, entitled The forester, published by James Brown, a professional forester on the Arniston estate in Midlothian, was of particular importance. Published in 1847, this book provided practical advise on how to create and manage a forest in the Scottish landscape based on scientific principles. It became a popular and influential book that marked the rise in the status and professionalisation of estate foresters in Scotland. James Brown was also the first president of the Scottish Arboricultural Society which was established in 1854. The Arboricultural Society was established by a group of landowners and foresters who were determined to 'place Scottish forestry on a sounder basis as an important section of rural industry.' This event signalled the emergence of a body of professional estate foresters in Scotland, from which the Indian Forest Department was to draw so many of the forest officers who ultimately populated its middle and higher echelons. These men brought with them a forestry tradition that was decentralised, open to experimentation, and which combined aesthetic planting and game management with commercial timber production.

The Indian connection

Before the creation of the Imperial Forestry Service, forestry regulation and legislation had been at best ad hoc in India. The East India Company had tried

14 Ibid., p. 150. A testament to the planting experiments by Scottish landowners are the Douglas firs of Craigvinean Forest near Dunkeld. Planted by the duke of Atholl in 1860, these are now among the tallest Douglas firs in the world.
16 James Brown was the father of sylviculturist John Ednie Brown (1848-1899). John Croumbie Brown was a botanist at the Cape, South Africa, in the 1860s.
17 House and Dingwall, 'A Nation of Planters', p. 155.
to control timber production and trade in India around the turn of the 19th century but they failed miserably. The colonial authorities were unable to control the indigenous trading structures. Instead, the British had to rely on the local timber market to meet their needs and by the late 1820s any attempt to regulate the trade and forestry has been abandoned. It was this private trade which led to over exploitation of certain forest areas in India and fears of the negative environmental impacts that this bought such problems as soil erosion, climate change and water shortages.\textsuperscript{19}

In 1850, alarmed by these developments the British Association meeting in Edinburgh set up a committee to study the forest destruction and its impacts at the behest of Hugh Cleghorn (1820-1895), a medical doctor working in India. A year later the committee presented their report, which was based on testimonies of forest administrators in India who feared the potential long-term negative environmental effects of deforestation caused by indiscriminate logging. The committee advised to introduce tighter controls over the forests in India but they stopped short of proposing the creation of a central forestry authority.\textsuperscript{20}

It was in this context that the Earl of Dalhousie (1812-1860),\textsuperscript{21} the Governor-General of India issued a Memorandum of the Government of India on forestry, later dubbed the ‘Charter of Indian Forestry’, in 1855. This memorandum was based on reports submitted by John McClelland (1805-1875), who was Superintendent of Forests in Burma and formed the basis for the Forest Act of 1865, which established the Indian Forestry Department.\textsuperscript{22}

When the Indian Forest Department was established in 1864, British officials possessed little knowledge of continental scientific forestry. Determined to organise the Forest Department along the same lines as forestry departments in Germany, they appointed a German forester, Dietrich Brandis (1824-1907), as the first Inspector-General of Forests to the Government of India. Brandis, in turn, recruited forestry officers from Germany to fill posts in the upper echelons of the Indian Forest Department. Among these appointees were William Schlich (1840-1925) and Berthold Ribbentrop (1843-1917), who were later to follow in Brandis’ footsteps as Inspector-General of Forests in 1883-8 and 1888-1900 respectively.\textsuperscript{23}

\begin{footnotes}
21 James Andrew Broun Ramsay. He was made an English marquess in 1849.
\end{footnotes}
The management of forests in India proved challenging for these European continental foresters coming from the scientific forestry tradition developed in Germany and France. This tradition was reductionist in nature and did not take much notice of varying environmental and social conditions. This led continental foresters to believe that a direct transfer of forestry practice from the temperate zone to tropical forests would not be too problematic. It soon became apparent, however, that the significantly different and highly variable environmental conditions to be found in India required the development of new forest management regimes. An infusion of Scottish knowledge and experience was to assist in their development.

During the nineteenth century Scotland lacked the capacity to absorb its well-educated workforce, a large number of who found employment in Britain’s expanding colonial services. That Scots occupied many senior professional positions as engineers and doctors is well known, but their importance as foresters is much less widely appreciated. Indeed, just as the Scots dominated the operational, scientific and technological aspects of British activity in India, forestry was no exception. In the preface to the Indian section of the catalogue for the 1884 International Forestry Exhibition in Edinburgh, Sir George Birdwood, a senior administrator in India, gave Scottish botanists the credit for ‘having first called attention to the necessity for forest conservation in India’. As mentioned earlier, many officers in the early Indian Forest Service were Scottish-trained surgeons and botanists who had been recruited from other parts of the colonial service. During their education in Scotland they had been exposed to the Scottish Enlightenment traditions that connected medicine with knowledge about botany, climate and geology. This led them to adopt a holistic approach that advocated rigorous field observations and flexible tree-planting programmes that took into consideration local variations in soils, climate and vegetation. Colonial authorities drew upon the expertise of these naturalist surgeons to gain knowledge about India’s natural and agricultural resources. Hugh Cleghorn (1820-1895), who held one of the top positions in the early Indian Forest Service, was a prime example of such a surgeon turned botanist, having

26 ‘The International Forestry Exhibition’, The Scotsman, 7 July 1884, 5.
originally been appointed to the Indian Medical Service.\textsuperscript{28} Cleghorn and other Scottish trained surgeons were likely to have been familiar with estate forestry practices in Scotland. The Indian colonial authorities, like their counterparts in Australia, also drew more directly on the experience of estate forestry in Scotland by recruiting foresters who had been trained on Scottish estates.\textsuperscript{29}

Middle and higher ranking officers recruited for the Indian Forest Department had to pass a competitive exam in order to be admitted to the forester training programme. In first six years of the existence of the Forest Department recruits were sent to forestry schools in Germany and France, but after 1871 students ceased to be sent to Germany because it was cheaper and more convenient to concentrate all instruction in France.\textsuperscript{30} In addition, forestry recruits were also required to train for several weeks under the supervision of an approved forester on a Scottish estate before they were sent out to India.\textsuperscript{31} It must be noted that after the introduction of the competitive exam in 1855 the number of Oxbridge graduates in the ranks of the Indian Civil Service rose quickly resulting in a reduced dominance of Scotsmen in the Forestry Department.\textsuperscript{32} Nevertheless, the fact that forestry recruits were trained in both Scotland and in France ensured that the ideas and principles of continental forestry were unquestionably intermixed with those of Scottish forest management.

The blending together of continental and Scottish forest management regimes, as well as adaptation to Indian environmental conditions, led to the creation of a distinctive Indian branch of scientific forestry. While rendering the forests profitable remained the primary goal, the conservation of existing forests was also undertaken in order to counter negative environmental effects such as desiccation, flooding and soil erosion. In addition it was observed that forestry knowledge had to be applied to ‘entirely new conditions of climate, and deal with trees and plants not known [in Scotland]’.\textsuperscript{33} The limited numbers of commercially useful trees in Indian forests was a particular concern, with teak trees, for instance, making up only about 10 per cent of the so-called teak forests. The diversity and mixed nature of the Indian forests therefore required a management regime that favoured ‘valuable commercial species’ while ‘eliminating the less

\textsuperscript{28} For an in-depth discussion of Hugh Cleghorn and Scottish trained foresters see Pallavi Das, ‘Hugh Cleghorn and Forest Conservancy in India’, \textit{Environment and History}, 11 (2005) 1, 55-82.
\textsuperscript{30} F. Bailey, ‘The Indian Forest School’, \textit{Transactions of the Royal Scottish Arboricultural Society}, 11 (1887) 2, 155-164, pp. 155-6. Note that people like Cleghorn never worked on Scottish estates or were sent to forestry schools. Only new recruits after establishment of the Forest Department followed this route.
\textsuperscript{31} ‘Advertisement for Recruitment of Officers in the Indian Forest Service’, \textit{The Scotsman}, 15 November 1869.
\textsuperscript{33} ‘India as a Field for Our Educated Youth’, \textit{The Scotsman}, 11 December 1869, p. 7.
valuable and those interfering with the growth of the former.\textsuperscript{34} The variety and density of Indian forests, as well as their extensiveness, also encouraged the use of natural regeneration. Ribbentrop concluded that the ‘average cash revenue per acre is too insignificant’ to justify clearance of the jungle and the creation of plantations.\textsuperscript{35} The creation of forestry plantations was therefore less important than in Europe, although a considerable number of teak plantations, especially in Burma, were created in places where no forests had previously existed.\textsuperscript{36}

The adaptation of German and French models of scientific forestry to the Indian environment was aided by the Scottish experience of decentralised estate forestry. The introduction of exotic tree species in the variable and often extreme environmental conditions of the Scottish highlands and islands had led Scottish foresters to develop an experimental approach to forestry, with a strong emphasis on observation. This resulted in an adjustment of planting and management practices in order to encourage these newly introduced trees to grow in different environments. To some extent they found a similar situation in the varied environments of the Indian subcontinent, ranging from tropical to semi-arid to alpine, though on a very much greater and more complex scale.

The success of the fusion of continental forestry and Scottish practice in India was recognised at the time. In 1891 it was noted in \textit{The Scotsman} that ‘Scottish ideas and Prussian experience have combined to produce [successful forestry] in India.’\textsuperscript{37} The decentralised model of Scottish estate forestry was to some extent replicated in India, and applied on the much larger scale of the provincial forestry districts\textsuperscript{38} which were essentially run as large estates. Here on the regional level Scottish estate and enlightenment forestry fused with continental European and local traditions to form (regional) hybrid practices that were continually and creatively adapted to varied political, economic and ecological circumstances of the different locales in India.\textsuperscript{39} The central forestry policy, which provided general guidance on objectives and goals of forestry in India, did not prevent the development of local forest management practice because it did not prescribe how individual forests or districts were managed. A

\textsuperscript{34} E.P. Stebbing, \textit{The Forests of India} (2 vols, London: The Bodley Head Ltd., 1922), II, p. 578.
\textsuperscript{37} ‘The Indian Forest Service and its Founders’, \textit{The Scotsman}, 17 August 1891, 8.
\textsuperscript{38} Forestry Districts or Forest Circles were formed in each province in British India and each was run by a Conservator of Forests. See for further detail: R.S. Troup, \textit{The work of the Forest Department in India} (Calcutta: Office of the Superintendent of Government Printing, 1917), p. 9.
significant difference with Scotland was that India had this central overarching forest policy by 1865. Scotland, like the rest of the United Kingdom, had to wait until 1919 for such a development.

**The influence of returning foresters**

Following their service in India, the botanists and foresters who created these hybrid forestry practices returned to Britain to become teachers at the newly-created institutions designed to train forestry officers for India and other parts of the Empire, as well as Britain itself. Foresters returning from India shared the desire of other Scottish foresters, as well as Scottish landowners, to make better use of the country’s forest resources. They therefore lent their voices to growing calls for universities to establish lectureships and forestry courses for the education of professional, scientifically trained foresters who would help to increase the revenue from estates in Scotland. To promote formal forestry the Scottish Arboricultural Society invited prominent Indian forestry officials to give talks about forestry practice, policy and education on the Indian subcontinent. These men included Dietrich Brandis and Hugh Cleghorn as well as Colonel Frederick Bailey (1840-1912), the first director of the Indian Forestry School in Dehra Dun. They championed in their talks the creation of forestry schools in Scotland and England and even the creation of a central forestry service. The return to Scotland of lesser-known foresters who had served in India likewise contributed to the dissemination of the new ideas of scientific forestry. In 1910 A.C. Forbes, Chief Forestry Inspector to the Department of Agriculture for Ireland, described this process in his book *The Development of British Forestry*:

> Since about 1860, when Cleghorn and Brandis inaugurated the Indian Forest Service, a small stream of continental trained youths has been going out to India, and an equally small stream of retired Indian foresters, on furlough or pension, has been returning from it. Whatever the exact practical results of this intermixture of British and Anglo-Indian ideas may have been, there is little doubt that fresh ideas were instilled into British foresters and proprietors, and a wider knowledge of forestry as an industry instead of a hobby resulted.

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40 These included the forestry course at the University of Edinburgh, and the course at the Engineering College at Coopers Hill, and later the Forestry Department in Oxford.


The calls for formal forestry education in Britain was bearing fruit and by the late nineteenth century, a forestry degree had been established at the University of Edinburgh with a curriculum that included the measuring and valuation of woods, forest utilisation and forest policy, silviculture, pathology and zoology. Courses were often taught by foresters with a colonial background, such as the aforementioned Colonel Frederick Bailey, who occupied the first chair in forestry at the University of Edinburgh after his return from India in 1906. In 1892 a special course for forest workers was established at the Royal Botanic Gardens in Edinburgh. In the years that followed, the three Scottish Agricultural Colleges in Glasgow, Edinburgh and Aberdeen introduced both evening and day courses in forestry. These courses ceased when the Scottish Education Department stopped funding them in 1918 in anticipation of the Forestry Act of 1919, which established the Forestry Commission and conferred it with responsibility for educating forest workers below university level.

### Pressure for a formal forest policy

Foresters returning from their tour of duty in the India and other parts of the Empire were not the only people concerned about the state of Scotland’s forests. Over the course of the Victorian period unease about the productiveness and extent of the forests had slowly developed. In many ways the middle of the 19th century was an age of optimism and witnessed the introduction of new technologies such as steam trains, the electrical telegraph and electricity. At the same time science made major discoveries and the geographic expansion of the British Empire accelerated. Many foresters and landowners shared this optimism with regard to the development of forestry in Scotland. In 1889 Stuart Dunn noted in an article published in the *Transactions of the Royal Scottish Arboricultural Society* that forest plantations had considerably expanded during this period:

> ...extensive planting operations have been carried on all through [the Victorian Age] with more or less continuity; and ... it is natural to believe that our forests are spreading in their extent, and yearly adding to their acreage.

It was observed with approval that some of the big landowners in Scotland had planted thousands of hectares of trees. This was the continuation of a trend

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that had begun in the second half of the 18th century. These developments were well described by Francis Innes in his article *A Century of Forestry-1806 to 1906-on the Estate of Learney, Aberdeenshire* that was published in 1907 by the Royal Arboricultural Society. The first plantations on the Learney estate, mainly consisting of larch, were created between 1806 and 1825. Up to 1844 there was little activity in the plantations while the trees were growing, followed by an active period 1844 and 1906 of thinning, clear cutting, planting and replanting was carried out. The extent of planting was considerable and between 1806 and 1844 the forest area increased with 550 hectares, and in the next 50 years 554 hectares were harvested. Of the cleared ground 267 hectares were replanted and 68 hectares of new ground were planted in addition. By the early 20th century, the total land area under trees on the Learney estate accounted 356 hectares compared to only 20 hectares at the start of the 19th century. According to James Brown, wood manager to the Earl of Seafield, and Surveyor General of Woods, the Learney estate was fairly typical for a Highland estate. In 1861 he commented that "after the year 1830 ... many proprietors, especially in Scotland commenced to plant largely." Three decades later Colonel Bailey, then lecturer in forestry at the University of Edinburgh, agreed with this observation when he wrote:

> Scotland can show numerous well-managed forest estates – such, for example, as those of the Duke of Atholl, of the Earls of Mansfield and Seafield, of Lord Lovat, and of other proprietors who might be mentioned; and it is universally admitted that the art of raising nursery plants, of establishing plantations ... is here carried out with a success unsurpassed by foresters of any other country.

The expansion of forest plantations was fuelled by the rapid economic growth and related increase in industrial activity in Scotland. This was driven by the expansion of the British Empire and increasing globalisation of trade that connected the Scottish economy to a global market. The industrial activities related to this economic success also required large quantities of wood. The shipbuilding industry on the banks of the Clyde constructed about a quarter of all shipping tonnage in the early 20th century. The fishing industry also needed wooden barrels to export their catch and the expansion of the railways in Scotland needed large quantities of wood for railway sleepers. The impact of the railways on this development was considerable and by 1870, it was reported

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that timber prices in Aberdeenshire and increased with a quarter since coming of the railways and in parts of the Northern Highlands they had doubled over a period of 20 years.\(^49\)

However, the increase of the area of forest plantations had not been a linear affair and there are suggestions that the total area had fallen in the decades after the 1850s. Nairn, a naturalist and writer, observed in 1890 that forest surveys in the 1880s ‘shewed that plantations in Scotland had again rapidly recovered lost ground, there being an increase of 95,000 acres in nine years’.\(^50\) This total acreage planted sounds impressive but if we consider this as a percentage of Scotland’s total land area it becomes less impressive: the area of new plantations covered only 0.5 per cent of the total Scottish landmass. If this increase of forest plantations was sustained at the same rate since the 1830s, the time that Brown claims the forests started to expand, the total acreage up to the 1880s should have increased by about 2.5 per cent. But because of the lack of reliable surveys it is doubtful if this were the case. There is no surprise then that during the last quarter of the 19th century the Scottish Arboricultural Society became alarmed about the condition of the forests in Scotland.

The perception of the bad state of Scotland’s forests had not much to do with the destruction and decline of semi-natural woodlands, but with the way a large number of estate plantations were managed. It was this concern that made not all 19th century observers share the optimism of Dunn and Innes. In 1892 Nairn saw the development of Scottish forestry during the second half of the 19th century as a story of decline, and in doing so contradicted himself in the same article on forestry.\(^51\) Why then, if plantations were actually expanding and actively managed, was there a growing feeling that the opposite happened? There are two explanations for this. First of all, the view of decline and neglect was fuelled by the development of the technological advances, industrial development and the related globalisation of commodity markets, including timber, during the 19th century.

The same processes of globalisation that spurred industrial and economic growth in Scotland acted as a double-edged sword because it not only opened up new markets for Scottish-produced timber but also brought foreign competition on a scale never seen before. The introduction of the ocean steamer and railways caused a transport revolution in the second half of the 19th century. The result was the opening up of huge timber producing areas in North America, Scandinavia and the expanding British Empire.

\(^49\) Smout et al., *A History of the Native Woodlands*, pp. 271-272.
\(^51\) Nairn, ‘Notes on Highland Woods’.
The small scale of Scotland’s forests could not compete successfully with these newly opened markets and the bubble really burst when the import tariff on timber was completely removed in 1866 and the price of imported timber fell further. By the second half of the 19th century the level of imports determined the price of Scottish-grown timber, and this was rarely high enough to encourage Scottish producers to grow more trees. As a result many Scottish landowners converted their woodlands into areas for deer or grouse shooting. Rent from sporting activities paid better than forestry so it made economic sense to scale down forestry or abandon it altogether.\(^5\)

This convinced 19th century observers that domestic forests were neglected, and that there was hardly any replanting, and the total area of woodlands decreased. Oxford based forest Economist W.E. Hiley, observed in the late 1950s that the cause of forest decline in the 19th century was complex but that ‘… one important factor was the increase in timber imports and the improved facilities for distributing them through the country.’\(^5\)

The second reason why many landowners and foresters felt uneasy about forestry in Scotland during the last decades of the 19th century was the realisation that the potential for forestry in Scotland was considerable and some landowners wondered why this had not been utilised by preceding generations. By the start of the 20th century a group of large landowners in Scotland believed that the expansion of the forests would have several advantages. Firstly, the land would be used more efficiently because previously unproductive land would be made productive. Secondly, the expansion of forestry would bring jobs to the Highlands and higher incomes to the landowners. Thus the economy of the Highlands could be improved and prevent depopulation of rural areas, a theme that would run right through the 20th century. Lastly, an increased production of home-grown timber would decrease the dependence on timber imports, which was regarded as a weakness in times of war.\(^5\) These arguments were used to try to convince the government that state action was needed to increase the area of forests in Britain.

**Prelude to a State forest policy**

The story of British State forest policy did not start with its first formulation by the Forestry Sub-committee of the War Reconstruction Committee in 1918. It started around the turn of the 20th century with the activities of a small

\(^{52}\) Smout et al., *A History of the Native Woodlands*, pp. 274-276.


group of men, mainly Scottish landowners and foresters, who were to become
the founders of the Forestry Commission. They were farsighted men who
had become uneasy at the perceived lack of planting for timber production.
Among the most important people were John Stirling Maxwell, Lord Lovat, Roy
Robinson, and John Sutherland. They all contributed in different ways to the
development of Scottish forestry but their ideas concerning the need for a State
forestry authority were very similar.

As we have seen, their concern for the neglected state of Britain's forests was
fuelled by the belief that from the mid-19th century until the 1890s the rate
of planting for timber production had slowed down in Great Britain. This
state of affairs was attributed to the fact that most of Britain's timber was
imported cheaply from abroad. In addition, the low percentage of land used
for growing trees in Britain caused alarm to those who made a study of the
world's timber resources. They were convinced that a world-wide 'timber
famine' was imminent and that Britain could not depend indefinitely on imports
from abroad. Royal Commissions and Parliamentary Committees held several
enquiries, but little was done. One of the most important of these committees
was the Royal Commission on Coast Erosion that reported in 1909. This report
advised to establish a national scheme of afforestation with the aim of planting
3.6 million hectares by the state over sixty years and to be overseen by a state
forestry department. In reaction to the report the Royal Scottish Arboricultural
Society sent a deputation to the Chancellor of the Exchequer to urge for its
adoption. However, the report was greatly ignored and no action was taken
to establish a state forestry organisation. This was partly due to the fact that
the proposed extent of the plantations frightened most stakeholders, including
the Royal Scottish Arboricultural Society, which suggested instead a survey of
Scotland to see which areas could and could not be afforested.

In a reaction to the report of the Royal Commission on Coastal Erosion, Lord
Lovat (1871-1933), an influential landowner in northern Scotland and future
chairman of the Forestry Commission, wrote in the Transactions of Royal Scottish
Arboricultural Society that the State had to play an indispensable part in forestry.
He proposed the creation of a central forestry board in Britain that would
oversee the creation and management of a timber reserve. Its mission would
include the establishment of experimental and demonstration areas; the creation
of schools for foresters; a survey of mountain and moorland areas suitable for
forestry; acquisition of areas suitable for afforestation and subsequent planting;
and finally encouragement of co-operation between private landowners and

55 Glasgow City Archives (hereafter GCA): T-PM 122/4/7/2 BBC forestry talk no. 2, 29 March 1928; See
also: Final Report of the Forestry Sub-committee of the Reconstruction Committee (Cmd. 8881) (London: HMSO,
1918), p. 5.
57 Smout et al., A History of the Native Woodlands, p. 279.
the state. These tasks of the proposed forestry board anticipated the mission of the Forestry Commission after its creation in 1919. Lovat’s article and his speeches in the House of Lords reveal that he associated the question of forestry with the issue of depopulation and economy in the Highlands.\(^{58}\) Lord Lovat and other Scottish landowners believed that any forestry scheme had to maintain in decent comfort a larger number of people on the land and afforestation offered the only large-scale solution to the difficulty of enabling the smallholder to supplement his living from the land. According to Lovat, afforestation would turn much unproductive land into productive areas that would be able to sustain a considerable number of families in the Highlands.\(^ {59}\)

But Lord Lovat and others were conscious of the fact that many landowners were wary of a large afforestation programme by the state:

\[ \text{… the colossal schemes advocated in the Report have roused the fears of public bodies whose source of revenue, and of individuals whose means of living, were bound up in the present uses of the land indicated for wholesale afforestation.}\] \(^ {60}\)

Instead Lovat, together with John Stirling Maxwell urged the government to conduct a survey of the country to determine what could and could not be used for afforestation. This proposal was not taken up by the Government but instead the Royal Scottish Arboricultural Society took up the challenge and sponsored a much more limited survey of the Great Glen.\(^{61}\)

The survey was carried out by Lord Lovat, Captain Archibald Stirling of Keir (1867-1931),\(^ {62}\) and Colonel Frederick Bailey, the first director of the Indian Forestry School in Dehra Dun, who was editor of the Arboricultural Society’s Transactions. The area chosen for the survey, the Great Glen, also known as Glen More, is the glen in which Loch Ness is situated and runs from Inverness in the east all the way to Fort William in the west. The reason why the Great Glen was selected for the survey was that it represented both east and west coast climate and soil conditions and contained all the typical social and physical elements of the Highlands such as crofters, extensive sheep farming, soil and climate, deer forests, grouse moor and old estate forests.\(^ {63}\) The survey concluded that Scotland had a large area of under utilised land suitable for forestry and that

\(^{58}\) See for example: House of Lords (hereafter HL) Debate 15 July 1909, vol. 2, Column 530, Crofting Parishes (Scotland) Bill.


\(^{62}\) Brother of John Stirling Maxwell, a future Chairman of the Forestry Commission.

this land could be quickly and successfully afforested under direction of a state programme. A single Central Forest Authority for Scotland was thought to be necessary to carry out a ‘well-framed scheme’ of forestry. The duties of the Forest Authority would include the provision of forestry education and creation of demonstration areas; the organisation of research and the undertaking of surveys; the creation and management of forests; marketing of forest products and lastly the encouragement of private forestry. The survey further concluded that afforestation would eventually bring a considerable financial return to the state as well as creating extra employment in the Highlands. To accommodate the forest workers it was suggested that ‘in all cases the building of the dwelling house should be financed by the Forest Authority’. It was envisaged that these ‘dwelling houses’ would be set up as smallholdings with farmland that could supplement the forest worker’s income. The idea was that the small holders worked a guaranteed number of weeks in the forests and used the remainder of the year to work their own land. Forestry and the smallholdings were seen as a means to stop the decline of the rural population in Scotland.

The Great Glen survey was published in a special edition of the Transactions of the Royal Scottish Arboricultural Society in July 1911 and was a model of what a woodland survey of the Highlands should be. The report of the survey brought together all the elements that were to determine Scottish forestry during the 20th century together for the first time. It was a blueprint for the organisation, functions and policies of the Forestry Commission. The Board of the Society heralded the survey as ‘The first serious attempt to grapple with the economic difficulties which confront afforestation in that part of Great Britain where the largest extent of plantable land – that is to say, land sufficiently cheap – is to be found.’ This statement determined the future status of upland Scotland as the most important area for afforestation in Britain as well as the nature of the future forests.

In the same year that the Great Glen survey was undertaken the Department of Agriculture appointed a Committee on Forestry in Scotland. The chairman of this committee was another influential landowner: John Stirling-Maxwell of Pollok (1866-1956). Maxwell took a particular interest in forestry and devoted a large part of his life to the work of the Forestry Commission, becoming the chairman in 1929. The Secretary to the Committee was John Sutherland (1868-1952) of the Board of Agriculture for Scotland, who later became the first...
2. Scottish forestry in the 19th century

Assistant Commissioner of forestry for Scotland. The Report of the Committee on Forestry in Scotland was published in the autumn of 1911 and the objective of the report were formulated as follows:

… to report as to the selection of a suitable location for a Demonstration Forest area in Scotland; the uses present and prospective, to which such area may be put (including the use that may be made of it by the various Forestry teaching centres in Scotland); the staff and equipment required for successful working; the probable cost; and the most suitable form of management.

The Report summarised the purpose of the demonstration forest and the state of forestry education in Scotland and advised on its development. It laid the blueprint for forestry education and research in the United Kingdom after 1919. Most of the areas under consideration as demonstration areas were later incorporated in the forest estates owned by the Forestry Commission and played an important role as examples of forestry practice and organisation used by the Forestry Commission.

It was not by accident that Stirling Maxwell chaired a committee that advised on forestry in Scotland. He was an expert on forestry in the Highlands and in the early 20th century he had experimented with new forestry techniques on his Corrour estate near Loch Ossian with methods of afforestation on elevated and peaty grounds. His most important contribution to Scottish forestry was the introduction of a new system of turf planting from Belgium and the adaptation for the Scottish environment. During the First World War Stirling-Maxwell was appointed Assistant Controller of Timber Supplies and worked in France together with Lovat.

Although most planting experiments were undertaken on private estates, of which Corrour was probably the most important, the state started some experimental work in the early 20th century. In 1907 the Office of Woods, which managed the crown woods, acquired Inverliever Forest in Argyll as an experiment in large-scale afforestation. Planting started in 1909 but was not supervised by an academically trained forester and therefore not managed according to the latest ideas in forest science. This changed three years later when Roy Lister Robinson (1883-1952), a young forester from Australia, was placed in charge of the experimental plantation. Robinson was a graduate from the Oxford School

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67 John Sutherland was the son of Mr. John Sutherland, County Assessor of Ross-shire. ‘Scots Expert on Forestry: Death of Sir John Sutherland’, The Glasgow Herald, 7 August 1952, p. 8, Col. 1.
70 NAS: FC7/6 Working plan Inverliever Forest, 1907-1951.
71 Inverliever Forest is situated on the north bank of Loch Awe in Argyll, western Scotland.
of Forestry and had studied with Professor William Schlich. After graduation, he was employed by the Board of Agriculture and later transferred to the Office of Woods to report on the effectiveness of the management of the Crown Forests. When Robinson was put in charge of Inverliever Forest he laid down fifty experiments dealing with planting on difficult soils and wet and windy climatic west coast conditions. The experience gained at Inverliever helped the Forestry Commission with the successful creation of new plantations after 1919. Robinson continued his work at Inverliever until he was appointed as the first Technical Officer of the Forestry Commission.72

By 1914 a small group of men together with the Royal Scottish Arboricultural Society and the Office of woods had laid down the main features on which Britain's forest policy would be based for most of the 20th century. They believed that the British Government should set up a state forest agency with the task of creating large forests to ease the difficulties of a possible world-wide timber shortage. At the same time the afforestation programme would stimulate the economies of remote rural areas in the Highlands, provide jobs and help to stabilise a declining rural population. The development of better silvicultural techniques that had started just before the First World War made the possibility of reforesting exposed upland areas seem more feasible, but there lay still a long road of experimentation and technical development ahead before large-scale afforestation of the uplands would be successful.

Besides technical problems of planting the uplands, the political climate was not ready for the adoption of a state forest policy and the creation of a national forest agency in the years before the First World War. The formation of a formal forest policy in Britain was delayed because of the belief in laissez-faire economic policies and an attitude of what can be described as the ‘arrogance of the centre’. Although the continental and Indian models of a central forestry service had been around for a long time, it was deemed unnecessary to establish such a service in Britain. It was believed that Britain could rely indefinitely on a secure timber supply from Northern Europe, Canada and the Empire. But the First World War changed all that and more than fifty years after the creation of the Forest Department in India, centralised scientific forestry was about to make a breakthrough in Britain. It needed the combination of the mounting pressure from influential landowners plus a national emergency to convince the government to introduce a formal forestry policy and to create a state run forestry service.