

Professor Mark Anderson (1895-1961) and the origins of continuous cover forestry

by Esmond Harris

Professor Anderson's legacy is relevant today in view of the importance of 'continuous cover forestry' although he would have referred to this form of silviculture as 'uneven aged forestry'. This though was only one of many innovative ideas that he contributed to British forestry, particularly in Scotland.

In 1912 Mark Anderson started studying for a degree at Edinburgh University but when war was declared in 1914, he enlisted in the Argyll and Sutherland Highlanders, later being commissioned into the Black Watch. Towards the end of the War, he was awarded the Military Cross.

After the War he completed the BSc course in forestry, soon to be followed by an MSc. He then joined the embryo Forestry Commission as a research officer with an interest in soils and nutrition at a time when new planting took precedence over research. He also saw the need for genetics with regard to the new tree species being planted, several decades before this was incorporated.

Able but difficult, Mark Anderson did not get on with the dynamic head of the Commission, Sir Roy

Robinson, so that, frustrated by the lack of a scientific approach, he left the Forestry Commission in 1932 for the Irish Forest Service, first as Chief Forest Inspector and then in 1940 as Director.

In 1946 Anderson was appointed to the Forestry Department at Oxford University and then in 1951 to the Chair of Forestry at Edinburgh University where he remained until his death in 1961. Here he promoted the work that he is remembered for – 'irregular', i. e. uneven aged forestry, then referred to as the 'check method' – now termed 'continuous cover forestry'.

Amongst many contributions, his Selection of Tree Species: an Ecological Site Classification published in 1949, recommending species choice according to vegetation type, became widely accepted, the best example of which is at Craigvinean Forest in Perthshire with varied sites and correspondingly a wide range of tree species.

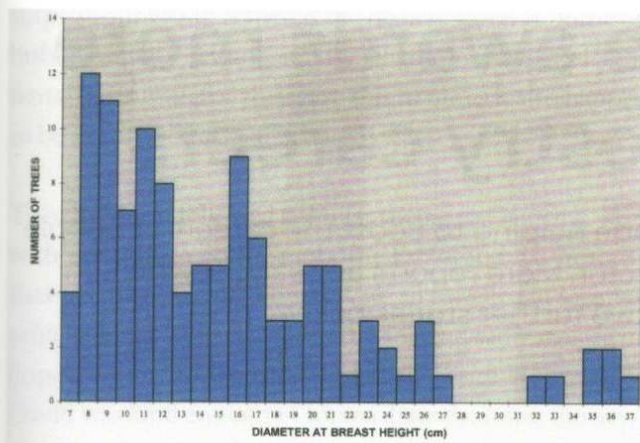
Mark Anderson disliked large, uniform areas of a single species but failed to appreciate that this was merely an initial phase in the development of British forestry. He was impressed by the use of natural regeneration in continental forests consisting of Norway Spruce,



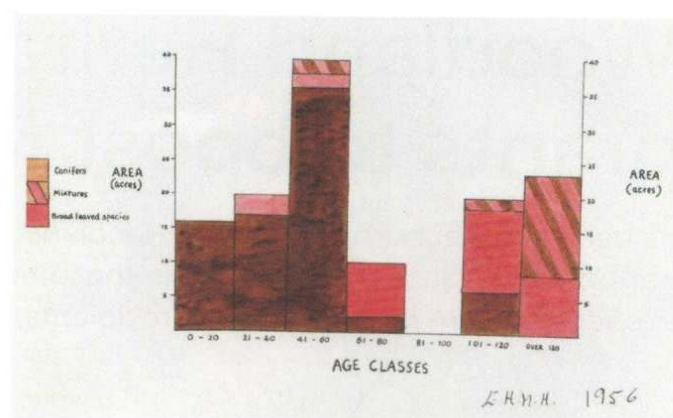
Professor Mark Anderson

European Silver Fir, Scots Pine and Beech, managed under a selection system known as the 'check method'. This was intended to reflect natural conditions, thus he favoured small, circular groups as being closest to them. Although preferring natural regeneration, he attempted to reproduce these conditions with small, circular planting groups within existing woodland when transforming even aged, planted woods to an irregular structure.

He persuaded the Forestry Commission to re-structure two forests in this way, first at Glentress near Peebles in 1952, and then in 1954 at Faskally in Perthshire, both Forester Training Schools with adequate labour to carry out the detailed annual measurements.



Faskally Forest – Diameter distribution from 1999 transects



Faskally Forest – Age class distribution histogram

The Faskally experiment, still running today, consisted of 185 acres of 'policy woodland, i. e. those around a mansion house, consisting of Scots Pine, European Larch, Norway Spruce, Douglas Fir, hybrid and Japanese Larch, a little Sessile Oak, Beech, Sycamore and Birch; thus, an interesting and varied semi-mature woodland.

Anderson wished to mimic European forests which included European Silver Fir, but this was banned due to the danger of introducing the insect pest *Adelges nusslini* to Britain so Western Hemlock (*Tsuga heterophylla*) was used instead, which has subsequently had a dramatic effect on the species mix. Initially there was little natural regeneration but now the woodland is dominated by *Tsuga* at all levels thereby diluting Anderson's principal objective.

Anderson's plan had five objectives:

- An uneven aged irregular structure on a group basis; by the end of the conversion period to obtain a continuous series of age classes from 1 to 120 years.
- To improve the quality of the soil by the addition of broadleaves.
- To utilise natural regeneration where possible.

- To demonstrate a system of irregular forest management.
- To achieve maximum volume production; he also anticipated an enhanced yield compared with even aged forestry but this is doubtful.

Twenty-four compartments were delineated and allocated to six annual working blocks. Initially the smallest planted groups were of 1/8th to 1/16th acre but this proved impractical and 1/8th acre to half an acre were established.

A total enumeration of all trees over four inches quarter girth was measured and recorded on a six-year cycle. Callipers rather than girth tapes were used as more accurate and in the first cycle the position of the calliper was scribed so that exactly the same position was used next time. Twelve percent of the growing stock was felled each year on a six-year cycle.

There were initial problems with roe deer and rabbit damage but Anderson dismissed this as 'the forester's problem'! Capercaillie, then numerous in Perthshire forests, feed on the buds of Scots Pine thereby distorting the young trees. The annual enumeration work was

time consuming and would have only been possible with students.

My wife and I were fortunate to visit the Faskally woods in 2009 during a student reunion forty-nine years after living in and knowing the area intimately. The changes in and development of the woodland was both dramatic and informative.

Western Hemlock, used by Anderson only as a substitute species, dominated the woodland at all canopy levels. The structure of the woodland though consisting of all age classes was 'uniform'. By this I mean it was the same throughout. My wife, having known the woods intimately, made an interesting observation: "Do you know where we are – it all looks the same?" I turned to a couple of ex-students and asked them the same. "No, but Faskally Loch is in that direction."

So, have Anderson's objectives been achieved? Certainly not so far as mimicking European forests is concerned, but 'yes' as an important forerunner of 'continuous cover' forestry, now a significant component of second rotation British forestry.