

The Andrew Raven Trust
Ardtornish 17 to 19 June 2016

What makes a good wood? Wood and Woodland in Morvern in the 21st century

For the tenth weekend meeting of the Andrew Raven Trust, the theme was something that would have mattered to Andrew himself. As a skilled furniture maker, a Commissioner of the Forestry Commission and Chair of the Forestry Commission, Scotland, champion of the Millennium Forest for Scotland, Chair of the Forestry for People Panel, and a Chairman of the Deer Commission who famously preferred trees to deer, wood and woods always figured largely in his mental landscape.

The first weekend in 2007 had focused on carbon and climate change, and so the question of 'a good wood' was a subject that brought the Trust full circle. Are woods the most beautiful form that carbon can take? Surely they are: generous, accommodating, long-lasting, living, evolving, productive, life-giving and showing us all, in Kathleen Jamie's phrase, 'a way to live on this damp ambiguous earth.' Choose to be a diamond and you are going to end up in a lonely kind of trouble; choose to be a wood and life will never have seemed better or more various. If one of the purposes of the Trust is to perpetuate and celebrate the passion Andrew gave to the Scottish—and Morvern —landscape, few subjects could be more suited.

Woods in Morvern

Angus Robertson began by giving the Ardtornish and Morvern context. As well as the usual Highland estate activities—stalking and fishing, sheep and cattle, tourist flats and cottages—Ardtornish has a mine on the west side of Lochaline that delivers silica sand of great purity to, among others, manufacturers of PV panels: the clearer the glass, the more energy the panel absorbs. Large-scale hydro schemes have in the last 15 years transformed the outlook for the estate,

which has also invested in a biomass boiler with which to heat the large Victorian volumes of Ardtornish house.

These modern elements feed into an estate that has been conservation-minded for decades: hundreds of acres of *rhododendron ponticum* cleared; a conservation audit of the whole estate carried out as long ago as the 1980s; over 5000 acres of Special Areas of Conservation looked after.

Over a million new trees have been planted or regenerated on Ardtornish since 1980. There are now 5000 acres of broadleaf woodland and 1250 acres of conifers on the estate, part of a much larger spread of woodland in Morvern. About 25,000 acres of commercial forest, most of it in the Forestry Commission's Fiunary forest, was first planted after 1930 by men from Morvern and by the last St Kildans evacuated from their Atlantic island. A further 7,500 acres of broadleaf woodland mean that 28% of Morvern is now covered in trees, the rest given over to deer forest and farmland. Numbers of deer (900) and sheep (2200) are both in long-term decline and so trees will undoubtedly come to matter more in the future of the peninsula. If you look at photographs taken a century ago, either at the head of Loch Aline or down on the shore of the Sound of Mull, it is clear that there are many more trees now than then. Trees feel as though they are and must be part of the future.

The Archaeological story by Jennie Robertson

People were in Morvern by about 10,000 BC, soon after the Ice Age ended, and it seems likely that trees and men came up into Morvern together, both colonising the sub-arctic tundra left by the retreating ice. It was not wall-to-wall forest, with never any more than 50 or 60% of the land covered in trees. Soon enough, in the Mesolithic, man began to cut into that, a process that steepened after the 4th millennium BC when the Neolithic farming revolution began to require more grazing for domesticated animals. The worsening of the weather and the arrival

of rain and cold in the Bronze Age meant that trees did still worse, continuing to be cleared by Bronze Age farmers and collapsing in the wet. Only 10% of the pollen under the Bronze Age cairns at Claggan is from trees. By 1000 BC, the dominant land use was pastoral and Morvern would have had fewer trees than it has today.

The Roy Map of the Highlands (1747-55), made by the Hanoverian government after the Forty-Five, nevertheless shows widespread woodland along the shores of Lochs Sunart, Linhe, Aline and Arienas and up the White Glen. The story that the Hanoverian troops destroyed the woodland along the shores of the Sound of Mull, in one long day's rampage in March 1746, is undoubtedly a myth. How could you hope to burn a standing wood in Morvern in March anyway? The townships along the Sound had probably cultivated that shoreline for centuries beforehand.

In the late 18th century the Argyll estate, which owned most of Morvern, began to protect the woods from grazing animals. Fifteen enclosures were made on Loch Sunart in 1786-8, a combination of stone dykes, turf walls and paling fences. The hazel woods along the shore of the Sound of Mull were good for cooping—the bindings for barrels—but elsewhere the value was in the timber, in the bark for tanning, and more than that in the charcoal. Charcoal is easier and lighter than wood to transport long distances and so it was made in the woods themselves. The oaks were cut on a 20-25 year rotation and hundreds of small platforms were made in the woods above Lochs Sunart and Arienas on which the charcoal was made. The furnaces at Bonawe, near Taynuilt used the charcoal to produce 700 tons of iron a year from Cumbrian ore. The cannonballs that devastated the crews of the French and Spanish fleets at Trafalgar were made here, smelted with the heat from Morvern woods.

Where the woods were enclosed, even with plenty of charcoal platforms, they survived. Where they were cut and not enclosed, as above Inninmore on the

Sound, they have disappeared, the cut stools killed off by grazing animals eating the new shoots before the trees could re-establish themselves. In this way the landscape retains the memories of human-natural interactions from the past. The small island of Oronsay at the mouth of Loch Sunart is a classic example of land recording its own history. On the mid-18th century Roy map, it is covered in trees. When the people were cleared off the good lands at Auliston in the early 19th century, they were moved to Oronsay and by the time of the first Ordnance Survey maps of 1875, Oronsay was treeless, the land cleared for desperate poverty agriculture. It continues to bear the marks of that episode and Jennie made a plea for understanding: don't allow new trees to obliterate the story of the past in Morvern. A good wood must understand the longer story of which it is a part.

As a final element of these introductory talks, Scott Wilson posed a question: **What have people wanted, and gained, from woodland in Scotland since the Ice Age?** Huge in scope and extent, Scott channeled the answers into two governing conditions, five phases—increasingly short as they approached the present— and five threads through time.

The first condition is **human expectations of a wood**: as a realm in which game can be found and hunted; as a place to pasture animals; as a source of fuel and building materials—both narrow poles and bigger timbers; as a place for spiritual refreshment and fun; as a source of employment; and, increasingly, as a form of protective barrier from man-made changes to the world. A good wood conserves soils, locks up carbon, stimulates, shelters and promotes a diversity of animals and plants, and regulates the water cycle.

All of those expectations have to fit into the objective facts of the world. In the Highlands, particularly in the west, woods have had to live in a hyper-maritime climate, particularly after 2000 BC. Woods in this wet, cold world tend to disappear if they are cut, not only as animals graze the new shoots but because

the conditions are difficult for most trees to come back from cutting. **Scottish woods are on ecological thin ice.** Add to that the presence of other factors — the availability of peat and coal, building stone, Scandinavian, Baltic and Canadian timber – and it is clear that, both ecologically and economically, there are all sorts of reasons the Scots have not preserved their woods. For centuries, to sustain woods in Scotland has been both difficult and unnecessary.

In parenthesis, Scott described the usual pattern of events in each of the most recent interglacials, which tend to last between 15 and 20 thousand years before the ice returns. They divide into quarters, over which natural fertility gradually diminishes.

1. Open dry sub-arctic steppeland, rich in nutrients from the ground-down rocks distributed by the glaciers
2. Willow, birch, pine elm, ash and oak colonise the land.
3. Soils deteriorate and original broadleaves give way to spruce, fir, rhododendrons and alders. Something resembling commercial spruce plantations would develop naturally.
4. A deeply depleted world starved of nutrients, dominated by heather and bog.

Only the return of the glaciers and the resupply of nutrients from the rocks restores the fertility that the drainage of the rivers has depleted.

We are probably on the margins of stage 3 and 4 and so it is not clear what our 'natural vegetation' is: broadleaf woodland? Spruce forest? Open heath and moor?

Phase 1: 11,500-5,500 years ago

Woodland and people colonised Scotland together, reaching a maximum tree cover of 50-60% 6000 years ago. Herds of large herbivores would have roamed this landscape, with small bands of migratory hunter-gatherer bands preying on them. Slowly the woodland cover would have been reduced, steadily aiming for the 17% (of which only a quarter is native) which is the situation today. When

cover drops below 30% the previously continuous and connected woodland breaks into islands of wood in a sea of grassland, which has all sorts of implications for biodiversity.

Phase 2: 5,500 – 2,500 years ago

Slash and burn agriculture. Scotland loses half its woodlands and grazing thins the wood that remains. Woodland gives way before the demand for food-growing ground.

Phase 3: 2,500 to 500 years ago

The age of agricultural clearance in which woodland is reduced to 10-15% of the land area, no more than small islands in a grazed and partially cultivated landscape. Woods are managed for coppice and pollarded as wood pastures. The ruling class begins to reserve some parts of woodland for their own pleasures and purposes: hunting reserves and large timber grown both for prestige and the construction of large buildings.

Phase 4: 500 to 150 years ago

Woodland reduced still further to between 5 and 10% cover. A shortage of structural timber develops from 1400 onwards but coppice wood for charcoal, tanning bark and fuel continues to be cultivated. The customary use of woodland by ordinary people for fuel and roofing timbers begins to decline as the power-elites begin to monopolise and monetise the product for increasingly urban markets.

Phase 5: 150 to 50 years ago

The beginnings of scientific forestry and the creation of an industrial timber supply in new plantations. Native pinewoods are heavily raided, with little or no regeneration. Forest employment grows until the 1960s but 'social forestry' is faltering.

Phase 6: Now

Forestry and woodland are now seen to have and need multiple objectives. A heavily mechanised business has seen a decline in the numbers of people employed. The emphasis is now on diversity, amenity, protection and the re-making of native woodlands.

Through all these phases, Scott identified a series of **threads through time**

1. Customary use

'Ordinary people' in Scotland have always used woods for timber, fuel and game. Very little of this is recorded until 1450 and after about 1650 conflicts grow between elite demands on woodland and traditional rights. This customary use was ultimately unsustainable given the climate and the slow growth of wood in Scotland.

2. Elite use

Deer forests for the exclusive use of the powerful may have existed as early as the Picts in pre-Viking Scotland. They persisted throughout the Middle Ages. From 1500 onwards those elites began to reserve timber for their own uses.

3. Spiritual connections

Scotland has no Homer and so there is no record of ancient people's relationship to woods. Nevertheless, folklore is full of significance given to woods and trees, even if many of those traditions were condemned and suppressed by Christianity which arrived in Scotland far earlier than, say, in the Baltic where wood religion persisted into the literate age. An endemic 'wood culture' did not survive in Scotland.

4. Structural Timber

From the Neolithic beginnings, big timbers were needed for communal and power elite buildings. And they were scarce from the Middle Ages onwards. Scotland became overwhelmingly dependent on imports, largely from the Baltic.

5. Charcoal and tanbark

The trade in Irish beef to the colonies in the West Indies created a demand for Scottish bark to tan the Irish skins. This and the need for charcoal to fuel furnaces like those at Bonawe helped preserve woods from being grazed out.

6. Improvement

From 1600 onwards grandees planted for beauty, effect and profit.

7. Romance and recreation

In a reaction to the defeat of Jacobitism in the mid-18th century, Romantics cultivated the idea and the reality of Scottish woodland as a symbol of lost nationhood. The idea that woods were good for the nation slid into its companion, that woods were good for the soul, an instrument for social inclusiveness and the mental health of the people.

8. Industrial forestry

Science and experience in the empire, allied to wartime shortages of timber, the need for rural employment and the idea of forest villages created the movement towards industrial forestry. That is now over. Nowadays forest employment is in decline, and the business is dominated by de-localised contracting out. Although jobs have appeared in wood processing, forest employment itself has dropped by 80% in the last 60 years. We need a new social contract for forestry.

9. The Future

We should re-insert labour into woods, rather than capital and energy which has been the pattern for the last half century. Integrated self-sufficient woodland communities, wood hospitals and wood asylums are all a possibility. Productive re-wilding—wildness from which products can be derived— as well as recreational hutting-style woodlands on the Norwegian model can be part of the mix.

A wood should be fully productive in the broadest sense of that word. Flexibility is the key. A good wood is a generous wood and so wood management should maximise the direct involvement of people. We have been going down a blind alley for too long.

Nor should we think merely of re-creating traditional broadleaf woodlands. Because of the stage we are at in the glacial cycle, with a low supply of nutrients in impoverished soils, many exotic species do better nowadays in Scotland than 'native' species. All plantings should attend to that fact. Many woods struggle to regenerate even without deer pressure. And many fellings between 1600 and 1800 killed off the woods. So a rethink is needed on species. Two Moroccan blue cedars from the Atlas are growing outside the front door at Ardtornish. They could be an inspiration for the future.

On Saturday morning Bob McIntosh, chair of the Scottish Forestry Trust and former Director, Forestry Commission Scotland spoke on **People, Trees and Politics**.

There are 1.4 million hectares of wood in Scotland, 1/3 state, 2/3 private, covering 18% of the land area (almost exactly half the average in other EU countries). In 1900, only 5% of Scotland was wooded but after 1919 there was drive to plant trees, both as a strategic resource and to create job opportunities in remote areas.

To bring this timber to market, Scotland now has world-class sawmills and imports have been reduced. But there is also a powerful awareness of the forests as a place for recreation.

The forests add £1 billion a year to the economy, more than the Scottish fishing fleet, and as a result get a lot of attention from government. By the Community Empowerment (Scotland) Act 2015 and the Land Reform Act (Scotland) 2016, communities now have a right to buy their local forests if they are needed for sustainable development of the community. The SNP target is 1 million acres in public ownership by 2020, for which the £10 million and Fund is available to local communities. And the political push behind land reform is far from exhausted. It will in fact shape the relationship of people and forests well into the future.

There had been a deep disconnection between people and forests in the recent past. Forests were like alien beings suddenly appearing and disappearing, to the extent that, in Wales, people even set fire to new forests.

There is a need to connect. In Germany, 20% of forests are owned by the community, often contiguous with state forests. Different communities have different objectives for their forests and so shape them accordingly. So far, the Forestry Commission has engaged with communities, not over ownership usually but with information and a sense of involvement. So there is a range of options available from full public ownership serving the Common Good, to exclusive private ownership serving only the landowner's interests, with infinitely variable halfway houses in between. The central question is: **who are the woods for?** The Land Reform Group has said that 'all land must be for the common good' but is that going too far? Should people be allowed to make a living from their land?

Policy

Good woods come in all shapes and sizes. People prefer forests to plantations and there is a push on to make that change happen. It is expensive to get a mixed age structure into a plantation. We also have an obligation to restore forests in this country, partly because we can't lecture Brazil if doing nothing ourselves, but also to increase biodiversity and to sequester carbon to blunt the impacts of climate change. The current target is 100,000 hectares of new woodland by 2022, to increase Scottish woodland cover to 19% but that is a big challenge, more than 15,000 hectares of new woodland per year. In the 1970s up to 25,000 hectares were planted each year but recently targets of 10,000 hectares a year have not been met.

Barriers

The grant scheme is too complex; the agricultural support scheme is anti-forestry; land prices are high; tenants of farmland are not tempted to plant trees because the benefits are too long term; the recent identification of peatland has discouraged plantings because the young forest desiccates the peat and releases carbon into the atmosphere; and agricultural and environmental lobbies are opposed to forests. Forestry is left in the squeezed middle between the 1 million acres of good quality land in Scotland and the unusable peatlands. That middle land is the heart of the livestock sector and so woods are in direct competition with sheep and beef.

Scotland does not have a comprehensive land use strategy but it is hoped that a new Land Management Agency, bringing together SNH, FC, the Crofting Estate and the Crown Estate, will develop one. The people of Scotland are facing a series of choices when it come to woods. Do communities want them? Do they want to own them in partnership with commercial companies? Are there new models of forest ownership? Do private landowners want forests? Are they going to respond to the Land Reform Agenda? Or pretend it is not happening?

Plenty of other questions are confronting the future of woods in Scotland. Can deer co-exist with them? Is it a good idea to decimate the deer? What would

happen to rural jobs with no deer? Is setting fire to grouse moors compatible with the need to sequester carbon? Does Scotland want its uplands covered in scrubby birch woods?

Is the UK Woodland Assurance Standard fit for the future? What will the impact of Brexit be? The EU has no competency in forestry but it impacts on forest policy through the grant scheme. Half of woodland grants come from Europe and the whole of environmental policy is effectively driven from Europe.

In the discussion that followed, it became clear that the governing need for wood policy in Scotland was for attention to be given to the public interest. If there is no voluntary commitment to that, there will undoubtedly be more regulation.

'Public interest' is not simply ownership and economic benefit but pleasure in woods. The industry is set up at the moment for clear felling, which the public don't like. That needs to change. But productive forests can be attractive forests and selective felling can be productive for the market. There is a need to get incentive and regulation in right balance to make this happen and for the right kind of forests to be planted. At the moment there is a problem: farmers are slow to respond to policy but policy changes every five years and so the communication between policy makers and farmers is broken and inadequate.

The problem runs deep. Not enough people understand woods. There is no forest culture. No figures exist, but the number of wood-owners in Scotland is probably about 2,500. Other countries have hundreds of thousands of wood owners. Many people in Europe grow up with their woods. So one route to growing a wood culture is to empower people to own woods in Scotland. If even 10% of the 6,500 hectares of Fiunary forest belonged to Morvern people, the effect would be transformative. At the moment only one person is employed by the FC in Morvern. The community is fragile; wood ownership and wood jobs would be a means of strengthening it.

Four brief talks followed. The first, by **Beccy Speight**, Chief Executive of the Woodland Trust, described a spectrum of ways of valuing nature:

- a focus merely on GDP, which takes no account of natural resources and is not sustainable;
- 'Natural Capital' which gives financial values to natural assets, puts nature on the balance sheet and favours the idea of placing revenues from non-renewable goods, such as minerals, into a sovereign fund from which a sustainable future can be derived;
- 'Beauty advocacy' which worked in the C19 and post World War II in establishing natural parks and conservation legislation and has the virtue of de-professionalising the complex language and maths of the economic approaches, while nevertheless understanding that beauty and prosperity are linked;
- Rewilding, which is radically enviro-centric and aims to marginalize human intervention in favour of unmanaged self-sustaining systems.

Trees play across the whole continuum: wood is product; trees influence the quality of air and water; they can feed into community wellbeing; they can be at the heart of rich eco-systems. The question that trees ask of us is: are we consumers or are we citizens? In Bhutan a national Tree Planting Day contributes to Gross National Happiness. Trees are more valuable the more urbanized the surroundings. But what does wood culture look like in 2016? The great task is to engage the under-40s.

John Kissock, for many years a Director of Russwood on Speyside, talked about wood processing. In the 1970s when he began, 1 million cubic metres of wood a year went into the mines. Any species was used for anything, most of it coming from beautifully managed thinned woodlands. Now 3.5 million cubic metres are processed each year in the UK (the same volume as is imported) 14 times the volume that was processed in 1961. The value of the business is about £770 million a year in Scotland, involving 20,000 jobs.

But the business is not in good shape: not enough thought is going into plantings; the system is too reliant on grants; the construction industry is very conservative in its tastes; and the vast monocultural Sitka plantations are permanently threatened by disease, the arrival of which would be catastrophic. There is a lack of diverse new plantings on any scale. A long-term vision is needed. At the moment there isn't one.

Michael Foxley and **John Risby**, both past chairs of the Sunart Oakwoods Initiative, described the challenges of setting it up in 1995 and keeping it going. The essence of the idea was for the Atlantic oakwoods along the lochsides of Morvern and Ardnamurchan —covering 2,500 square miles— to become the New Forest of the west coast: healthy, productive, stimulating the local economy, at the heart of a whole series of business, educational and tourism initiatives, involving SNH, Forestry Commission, Highland Council and local landowners. The EU contributed £5 million to the project, nearly all of it spent in the area, creating nine new car parks, over 10 km of new paths, 4 tree nurseries for local children, wildlife hides as well as the removal of conifers and rhododendrons, deer fencing, cattle grids and extensive scientific surveying of lichens and ferns.

Community support was always patchy and so the process was loose and freewheeling. It was difficult to get any effective publicity on the new paths they were putting in. Private owners of the land were also half-helpful. Nature officials to start with thought it a bad idea to encourage people to visit a National Nature Reserve. The whole success of the enterprise depends on partnerships between local people, local organisations, contractors and Forest Enterprise. There were also problems with a bureaucratic mindset. When oak was wanted for a construction project, an 18-month-long study was needed before a single oak tree could be cut down in an SAC.

Neil Sutherland, architect and managing director of MAKAR Ltd, then spoke about **The Role of Design in the Age of Wood**. What are the essential qualities of a good wood? Abundance, growth, complexity. The wood in that way is anti-modernist, anti-simplification, a denial of reduction to which much if not most of modern design has been dedicated. Perhaps one could say simply that a good wood is a complex wood. Its virtues should not be quickness or efficiency but wellness, fullness. A consciousness of time and change, of evolution and adaptation over time, of suffering and resilience, are all built into the workings of a wood. It is not static. In other words, it lives.

But people like clarity. So the question for the designer in an age of wood is how to accommodate that complexity of wood-ness in a form that allows people the pleasure of clarity. Is it important to distinguish between the kind of life that people might like to live in a modern world and the container within which to live that life? To confuse one with the other—to make the container complex when what is required is a structure that allows complexity to flower—may well be to deny the vitality the designer is seeking to promote. So there is a paradox here: woods may be complex but wood—as timber, as fuel, as embedded solar energy—is in fact quite simple and that simplicity may be its greatest virtue.

But does a simplified design necessarily dilute the origins from which wood springs?

Dick Schaible, one time Morvern resident and now the head of Forest and Planning at the Department of Rural Development and Agriculture in Northern Ireland, discussed **the ashwoods of Morvern**. As an undergraduate he had surveyed the Lochaline woods, work funded by Faith Raven, and he was helped on site by Sarah Raven and Mandy Raven helped type up the findings! After finding the woods were under grazing pressure, Dick had recommended fencing to keep the animals out. Now, forty-odd years later, he was back.

Wood is not a simple word. Its complexities are buried in it, difficult to pick out, indistinct, coming and going. Ashwoods cover 0.2% of the land area of Morvern, forming part of other woods, from wet alder carr to upland oak and birch wood. These are beautiful and precious things, but ancient woods have been lost since 1970 and are currently under threat. All of them in Morvern are in unfavourable condition, largely because herbivores are grazing in them. Oak and ash both find it very difficult to regenerate under this pressure, even though birch can, largely because it is unpalatable to browsing animals. Ash dieback, which has come into Morvern from the west, adds another pressure, which will be exacerbated by the impacts of climate change: more unpredictable weather, droughts, cold winters, the movement of deer attempting to escape the worst of it. Dutch Elm Disease has yet to reach Morvern but also remains a threat.

To resist all of this, woods have to be more resilient, with a greater mixture of species and age classes. Visions have to be established, plans made, stakeholders engaged and standards set. The Lochaline ashwoods are in particular a rare piece of natural-cultural heritage: they are being damaged by deer and sheep, and threatened by disease. Ardtornish needs to re-fence them and get the deer out of them. If not the ashwood will probably be overtaken by hazel. There are very rare mosses growing on the ash-twigs but you couldn't place a value on an ashwood of that kind. It is impossible to value.

Allan Davidson made the suggestion that the hazels in the ashwood might be impregnated with truffles, as a speculative venture, so that people here might forage for delicious wild things without killing them.

In the afternoon, the party split in two, one half visiting the Studio at Old Ardtornish, a new timber-framed house on the estate; the other walking with Dick Schaible and Alasdair Firth in the Lochaline ashwoods.

The Ashwoods

Visiting the ashwoods on the east shore of Loch Aline was a lesson both in how wonderful an environment like that can be—beautiful ground flora in the broken shade of the ashes—and how vulnerable it is. These woods have been protected by fences from browsing animals in the past but not convincingly. Part of the fence is now down and gates are open and the animals have got in. The deer cattle and sheep have eaten the bark and young shoots of many ashes and it seemed likely that some of the older trees would die in 2016.

(This afternoon visit of the Andrew Raven Trust weekend had valuable consequences. The dangers posed by the grazing animals, as highlighted by Dick and Alastair, catalysed the management at Ardtornish Estate the following week to set up and implement an immediate programme of culling deer and planning a complete re-instatement of fences. The woods are part of Loch Aline SSSI and part of Morvern Woods SAC and so it is vital that they are protected from this kind of damage.)

Ash die-back disease is already in Morvern and may even be already present in this ashwood. As with death of trees from bark stripping, reduction in the canopy due to dieback is all the more reason for controlling herbivore impacts. Ash is particularly palatable and will fail to establish at all in the presence of browsing. Without new recruitment of ash trees through regeneration the possibility for increasing genetic diversity of ash woods disappears, and with it the chances that some disease-resistant strains may evolve.

A long-term plan is needed for this and all the other woods on the estate and that plan is in the process of being prepared.

The Studio

Mandy Raven, Andrew's widow and Chair of the Andrew Raven Trust, catalysed the idea of making a studio house on the site of old Ardtornish House, high on a promontory overlooking the Sound of Mull, a place she and Andrew had known and loved all their lives together. The 18th-century house had been

demolished in 1907 but the place retained the atmosphere of human habitation, even as rhododendrons had invaded its garden and lawns.

The second ART weekend had discussed sustainable affordable housing and the idea had begun then. A team assembled: Jake Willis who had trained as a forester and timber assessor, Jennie Robertson who investigated the history and archaeology of the site, the furniture designers Jim Partridge and Liz Walmsley who had made seats and bridges in the Ardtornish garden, Sally Semple as planning consultant and building physicist and Matthew Maier of Brocklehurst Architects, a friend to Mandy and Andrew for 35 years. Collaborative teamwork was essential to the job.

The site was remote, involving an extra 30% on costs, but had plenty of stone, larch and Douglas Fir as possible raw materials. The idea of making timber central to the building grew as time went on. Time, in fact, became a key ingredient of the design process. No need to hurry, no deadline: it was important to incorporate a kind of patience into the building. That sense of slowness, combined with an awareness of the light on the site, the beauty of the place and its relationship to the ruins of Ardtornish castle towards the tip of the peninsula, plus a feeling that this should be a minimal insertion, discreet and modest, all fed into a brief for a space that could be a house for Mandy and a live/work space for visiting artists.

By April 2012, Jim Partridge and Liz Walmsley had come up with a form of two interlocking curved wedges, shown as a small cardboard model, which Matthew had developed into a building that curved in both plan and elevation. Three Douglas Fir and eleven larch were felled in 2011 and 2012 and were left to dry in the open air on site. In 2013 Jake Willis brought his mobile sawmill to site and started milling the timber to Matthew's cutting list, hauling 9 to 10 metre long trunks from the bank below the house site, turning raw timber into elements for the house on the day the framers needed them. Barney Hill, a cabinet-maker and

frame builder with a passion for sustainable buildings, brought his family from Oxfordshire and began to erect the stick frame on a new concrete slab. The roof timbers were challenging—some are 8 metres long and nearly 100kg in weight—but Jake and Barney were able to cut them and fit them, like boatbuilders, lifting each one four times in order to make the complex cuts that give the building its shape. The engineering solutions had to be adjusted as they went along, depending on the structural qualities and dimensions of the available timber. Almost the whole frame came out of those 14 trees and the essence of the building came to reflect the core materials of which it was made (even though most of that timber is now hidden beneath internal plasterwork and external steel cladding): a curving and tapering double wedge for which no formula was or could be written, a beautiful, calm and clarified set of internal spaces, with windows opening like illuminations on to the views of wood and Sound, close and distant, panoramic and constrained, a building designed to enable the thoughts and imaginations of those who would occupy it.

In the late afternoon, a play by Glasgow playwright Jack Dickson, written for young people, was performed on the lawn of Ardtornish House to an audience of Trust participants and local primary school children. **Fraxi, queen of the Forest** dramatized the catastrophe of *Chalara fraxinea*, Ash die-back disease, battering on to a beloved ash tree to the distress of those who loved it.

The following morning Professor Rob Mackenzie, Director of the Birmingham Institute of Forest Research described his new experiment to measure the impact of increased CO₂ in the atmosphere on mature trees—and vice versa. **The Free Air Carbon Dioxide Enrichment installation** (FACE) is a set of nozzle-fitted towers surrounding trees in a mature oakwood. They can pump CO₂ into the air around the trees and a wide set of instruments can then measure the response of the wood environment to the gas. Trees are a colossal gift to the biosphere, mopping up excess carbon, About 26% of CO₂ produced by our emissions is absorbed by the ocean, 44% goes into the atmosphere and the rest, 30%, gets

taken up by the terrestrial biosphere. But there is great deal of uncertainty in the extent and scale of that process. His ten-year experiment, which he describes as the eco-equivalent of the Large Hadron Collider, is intended to make these guesses more precise.

How do boreal, temperate and tropical woodlands respond to a rise in CO₂? It is early days but it is already clear that trees respond quickly and powerfully to a change in CO₂. Young trees love more CO₂, but it is uncertain if they simply arrive at the same end more quickly or actually end up bigger. With old trees it is even less certain.

The current consensus believes that using bio-fuels, afforestation and conserving forests is the best we can do. But don't imagine everything is going to get better soon. CO₂ doesn't wash out of earth systems. 40% of the peak CO₂ will remain in the atmosphere 1000 years later.

Fergus Tickell, drawing parallels with the early modern charcoal business in the West Highlands, described **the modern-day wood crisis in Malawi**: a population growing at 2.8% a year, with 50% of the people in poverty and an average income of 50 US cents a day. Biomass provides 90% of all energy needs and only 12% of the population is connected to electricity. There is no enforcement of logging regulations, charcoal is required year round and so deforestation is eating up 2.8% of the nation's woodland each year. The capital alone consumes 400,000 tons of biomass each year. The system is inefficient, the charcoal of variable quality and poor distribution is achieved at huge environmental cost. The reduction in biodiversity will be devastating, the water supply for the city is in danger of silting up from soil erosion and run off, the destruction of the forest is now increasingly distant from the city and the small new plantings of woodland are a drop in the ocean compared with the 10,000s of hectares of illegal logging every year.

Can an ancient Scottish system of woodland conservation for charcoal production empower local communities? Grants should establish commercially valuable forests from which charcoal and timber products of all kinds can be derived, aiding communities with jointly owned charcoal-making stoves. Community ownership will guarantee a conservation-based approach to woodland management. The scale, technological level and ease of use must all be appropriate. The Dutch government is sponsoring an equivalent charcoal-from-offcuts scheme in Surinam. In Malawi land ownership and the relationship of rights and responsibilities in land are key, combined with local knowledge and local leadership. But would legitimized charcoal making have any effect on the unregulated business?

David Hetherington of the Cairngorms Authority then spoke about **Rewilding** or Landscape Scale Ecological Restoration. The Pont map of the early 17th century shows how much loss of woodland there has been in the Cairngorms. Added to place name evidence, it is clear that Scotland's woods, even at this literate, tail end of deforestation, were much bigger once. Along with trees, species were lost: wolf, lynx, big herbivores, slime moulds, lichens, passerines, beaver, boar, aurochsen, elk, polecat, reindeer, brown bear, willow tit, crane, bitterns, nightingale, honey buzzard: all belong in Scotland; none is there. The capercaillie, the red squirrel and the osprey have all been either reintroduced or have come back themselves.

Not far away there is a natural laboratory for another equivalent country, an oceanic, wet, acidic, peaty, mountainous set of glaciated landforms: SW Norway. A parallel universe. In late 19th century a familiar picture could be found there of year-round grazing, treeless landscape, stone walls. Rural depopulation followed in the late C19 and early C20 as younger sons drained out for a better life in Minnesota. Roe deer had been extinguished, red deer were very rare and there was no elk. This absence of wild herbivores meant that when grazing pressure was relieved by the departure of farmers, trees surged back in. In the 1950s,

depopulation increased again. It is still happening and the area of woodland in SW Norway has doubled in the last 20 years. Those new trees are sequestering an extra 1 million tons of carbon every year.

Birch leads the way, followed by oakwood and pinewood. The only reason this is not happening in Scotland is because of grazing. The Norwegian hills are covered in willow, juniper and birch up to 5 metres tall on granite-derived soils at 1000 metres above sea level. There is also some cattle grazing in among them with elk and wild reindeer. Birds unknown to Scotland now live in the new woods: ring ouzel, blue throat and red poll, while the human density is 2.5 times as high as in the Scottish Highlands. The people hunt deer and shoot grouse. This is the kind of productive wild landscape Scotland could become. A diverse woodland economy, producing timber and game thrives among the natural riches.

The poet **Mandy Haggith** read from her poems about woods and trees, taking inspiration from the Ogham and Gaelic tree alphabets in which each letter is a tree and each word a kind of wood. Words from wood, paper from wood, pencil from wood, books on wooden shelves: these things are intimate. Just as rewilding begins with birch the pioneer, the alphabet begins with birch, the conception tree, for inspiration and new ideas, the tree that always dances in shimmering green. Then the alder, a graveyard of roots, an ooze of yesterdays, a secret hoard; the willow is a tundra tree, a tiny teacher of tenacity; hawthorn is more angles than thorns, the tree that has suffered; the elder, a loose rambling scrawl, teems with ease, moon-tuned with tidal sap; and aspen, the gentle one that waits naked, is always the last the last to start. The alphabet comes in the end to yew, the final vowel, the end of this life and the transition to a new one, a slow exhalation of atomized souls.

Everyone was then asked to come up with visions of the future:

Money from hydro schemes under community control would lubricate change, for children, for employment.

Would power generation of all kinds be nationalized in a new Scotland and the income spent for the people?

If communities were to own woodlands, a good community structure was needed.

A focus on jobs, a new relationship with the Forestry Commission, should it exist, a belief in and action for diversity, natural and human, a proper reaction to climate change, a blowing away of community inertia which is usually all talk and no action.

Rewilding would bring more people, fewer deer, hermits, wolves, bears, lynxes, hutting huts, a belief in more than the material wellbeing of people, furniture-makers, hunters and no midges.

The ashwoods of Morvern in 2050 would be a Mecca for people, so much so they would have to be controlled. Would immigrants have to be tested at the border? Who would get priority, returners or relocators? Could Mull take the excess? Perhaps only those who had lived there for ten years would be allowed a vote for the parliament in Ardtornish House.

In a general discussion that followed, various threads emerged. Dignity comes from patience. Trees are essentially patient. A felling cycle of 40 not 15 years would transform not only woods but the human relationship to them. But patience is not the same as indifference. Things can and must be done to make woods better. The shocking state of the Lochaline ashwoods, being hammered by grazing animals, is a case in point. We need to ask ourselves, each one of us, How can I help to change the way things are? But definitive changes don't need to be

rapid. It may be that sustained application of pressure over a long time brings most results. We need to think less about the rapidity of spruce growth. There may be an inverse relationship between the speed at which woods are made and their value. And don't imagine that what matters now will matter then, or vice versa. Interest in woods may feel like a social and cultural niche at the moment. But so did climate change 15 years ago.

Usefulness is an elastic category. Is there a positive relationship between usefulness and diversity? Is a good wood one that incorporates different usefulnesses? So woods must exist on a broad front. The relationship of public and private usefulness may be able to find a happy symbiosis there. The public use, for example, of a wood as a place for fun and re-creation, and as a carbon sink, may chime with the use the owner will eventually derive from it as timber.

Beauty matters. Inspiration matters. Beautiful places last in the mind. A good wood, in other words, stays with you. Philip Sidney in the *Countess of Pembroke's Arcadia* wrote about the wood as a model of integrated diversity. It was for him a place of non-tyranny which, because of its mixed structure, generates a kind of conviviality. That might be an end point: a good wood is a model of conviviality, both human and natural.

If vital communities are ones people move in and out of, the good wood can model that too. The good wood is one in other words where diversity is dynamic, evolving, never fixed, its vitality bound up with change, attentive to the old, alive now and essentially open for the generations to come.

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