A Guide to the Grounds of KEELE UNIVERSITY

D. W. Emley

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by

David W. Emley

University of Keele, 1986

Pedunculate Oak by the Chancellor's Building. Location (e)

Grey Squirrel

Entrance from Two Mile Lane. Location 14

Hornbeam by Geography Department. Location H.

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The estate of the University of Keele, formerly the University College of North Staffordshire, covers some 640 acres, 300 of which are leased out as Home Farm. Of the remainder, about half is woodland while the rest comprises the campus buildings and sports fields. The landscape that we see today owes much to the work of Ralph Sneyd (1793 to 1870) who began planting on a grand scale in 1830, after inheriting the estate from his father.

Throughout the period of its construction, the University has been careful to preserve as many mature trees as possible and to restrict the height of the buildings so as to maintain the feeling of living and working in a landscape. The University has a continuing programme of landscaping and many ornamental trees have been planted, especially along the line of the ring road, construction of which was completed in 1972. The conifer plantations towards the motorway, as they mature, are being felled and replanted with both native and introduced hardwoods such as Pedunculate Oak, Hornbeam and Sweet Chestnut.

Although the landscape is an artificial one, it nonetheless has a rich flora and fauna. An idea of this richness can be gained from the following numbers of species recorded by the author; 112 birds, 120 flowering plants, 22 butterflies, 300+ moths, 100+ beetles, and 100+ flies. The number of insect species recorded represents only a fraction of those present. In addition to the above, there are many specimen trees, both native and exotic. Although there is, perhaps with a few exceptions, nothing of great rarity, a wide variety of common species and a network of paths from which most things can be seen, makes Keele an ideal place to visit for the casual observer, and for both the novice and experienced naturalist.

This booklet takes the form of two trails; a campus trail around the University buildings and a woodland trail around the extensive grounds. In addition, there are sites of interest that do not fall within the scope of the two walks. These are indicated on map 1 by lower-case letters and are treated separately. Mention is also made of a few of the more interesting trees that can be found within the grounds of the Hawthorns Hall of Residence, situated in Keele village.

As trees are more permanent and obvious, there is an inevitable bias towards them in the booklet. Many of the more interesting plants are, unfortunately, only resident for a short period of time; for example on disturbed ground following the demolition of a building. It may be that a year or two hence, a site mentioned on the trail will no longer have the same flora and fauna that it did at the time of writing. The former sewage works is one such site. The inherent mobility of birds and insects means that they cannot be tied down to a particular spot. Instead, I have attempted to indicate those areas where certain species are more frequently seen.

In a booklet of this size, there is little room to spare for identification details. There is however,

a plethora of field guides that include most of the flora and fauna to be found at Keele. A list of some of the better publications is included below. There are a number of publications available from the Library on the campus that give more specialized information on aspects of Keele's natural history and history. These too are listed below. A list of the plants mentioned in the text, together with their Latin names, can be found at the back of the booklet. A more comprehensive list of the plants and animals that has been recorded at Keele is available from the author.

Although this booklet is written with a visit between spring and autumn in mind, a visit in the winter months can be very rewarding. When the grounds are covered in snow the trees especially the conifers, look magnificent.

Whilst I have endeavoured to check all the identifications made in this booklet, I would welcome any corrections, additions, or sightings of note. They can he sent to me at the University, c/o the Department of Geology

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Woodland Trail

1). The trail begins in the courtyard of Keele Hall. Before starting, take a look at the Hall itself It was built in the 18505 by Anthony Salvin in a Jacobean style in keeping with that of the old Hall. He used locally quarried pink Keele Sandstone of Upper Carboniferous age for the hulk of the construction, an unfortunate choice as it so very susceptible to weathering and has deteriorated. The whitish stone, used for the door and window surrounds and for ornamentation is the much harder Hollington Stone of Triassic age, from quarries near to Cheadle in north-east Staffordshire.

2). Leave the courtyard by the flight of steps in the far right-hand corner. These steps lead to the Italian garden that was constructed in 1985 and features heathers with an edging of Box. Standing with your back to the south-west face of the Hall (usually referred to as the south face), on the bank to the right is a False Acacia or Locust Tree, a member of the pea family that is native to eastern and mid-western USA and has a deeply fissured bark and a distinctive foliage of small yellowy-green rounded leaflets arranged either side a central stalk. In its natural habitat it produces dense bunches of white flowers like those of the garden pea. However, they are rarely seen at Keele as we are probably too far north. To the left and beyond the False Acacia, at the back of a group of Flowering Cherries, is a Sweet Gum. This tree, which originates from Eastern and Southern USA, is often planted for its autumn colours, though

Italian Garden with Cedar of Lebanon. Location 2

Lawns with embankment of conifers. Location 3.

they are unreliable in both timing and extent. The leaves of young specimens are very maple-like, with the three central lobes being very deeply cut. However, unlike maples, they are borne alternately along the branch on long grooved stalks. The leaves of this particular tree remain until well into January. At the far left-hand corner of the garden is a flat-topped Cedar of Lebanon that has been heavily lopped. This has obscured the plate-like structure of its branches which is characteristic of this tree from Syria and south-east Turkey.

Walk over to the fountain.

On the inside of the right-hand bend in the track that leads to Clock House Drive is a fine Deodar, a cedar that is a native of the western Himalayas. It has a conical crown with a drooping leading shoot (in contrast to the flat-topped crown of the Lebanon Cedar) and the branches, which also have drooping tips, have a layered structure. A young specimen is close by, while to the right of this is another Cedar of Lebanon. To the right of the garden, on the lawn that leads up to the Vice-Chancellor's residence the Clock House is a Horse-chestnut together with a number of younger trees that have been planted by distinguished visitors including Queen Elizabeth the Queen Mother, Princess Margaret and Lord Harrowby. Just behind the fountain is a solitary Dawn Redwood, but for more details of this species see location (A) on the campus trail below.

From the fountain, take the path that leads on to the terrace that runs along the front of the Hall.

Standing on the right-hand end of the terrace and looking beyond the meteorological station you can see the Keele woodlands sweeping round to the hillock known as Beech Clump, location 19 on the trail. The Beeches have recently been felled. To the right and left, a few yards in front of the terrace, are two mature Common Limes (see location 4 below) and behind the left-hand tree there is a small stand of Lawson Cypress. This latter species, which is native to Oregon and NW California, can now be found in a wide variety of cultivated forms in many parks and gardens. The species is invaluable for shelter and screening and it provides excellent roosting and nesting sites for birds in urban areas. The crushed foliage has a strong smell of resin and parsley.

Walk along the terrace, down the steps, and follow the path that leads down to the first lake. Walk over to the bank of the lake and stand facing the small island.

3). A series of five lakes is to be found along the stream that issues from a culvert by the side of the Hall. This first lake was deepened and the spoil piled on the opposite bank to form an embankment (location 25) which was then planted up with a variety of conifers. A series of lakes such as we have at Keele is prone to silting, as each acts as a large settling lagoon. This first lake is the worst-affected as indicated by its shallow nature and by the amount of exposed mud on the left, where the stream enters.

On this lake you can find Keele's three species of breeding waterfowl; Coot, Moorhen and Little Grebe. The island with its thick cover of Willow, Rhododendron and Birch provides a safe nesting site for them. The Moorhens are frequently to be seen walking over the lawns and fields in search of food. In the autumn and winter a few Mallard can usually be found and, more rarely, a few Tufted Ducks and Pochard. On one occasion a pair of Canada Geese took up residence, one managing to find its way into the Hall!

On the near bank and to the left, hidden by Birch and Rhododendron, is the site of a former fish hatchery. The small fry, after hatching, would have been transported to a rearing area in Barnes Dell and, when of sufficient size, transferred to the various lakes. Along the nearside shore is a small fringe of reeds. If you squeeze those leaves that have a crinkly edge you will find that they have a sweet scent of tangerines. This is Sweet-flag, a plant that was sometimes used in the past as an air freshener by spreading the leaves on the floor of the dwelling. It is an uncommon species in Staffordshire. Before leaving the lake, a tree on the far bank that catches the eye is the Grey Poplar. Its leaves, dark green on top and white beneath, are quite attractive when they are rustled by the wind. In the summer, Swallows and Swifts frequently hunt insects low over the lawn, quite oblivious of the onlookers.

At this point mention must be made of the Rhododendrons. This shrub, of which there are large numbers of species, is widely planted for its ornamental effect. In its place it is indeed an asset to any garden. Unfortunately, unless checked it can spread quickly, choking out any vegetation in its path. Thus, at Keele, one species in particular *Rhododendron ponticum* has

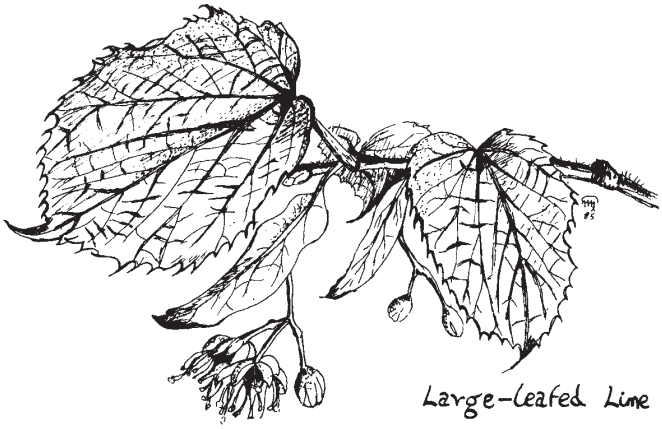
spread throughout the woodlands. Ecologically Rhododendrons are of little use and can even have a detrimental affect on a natural environment. Being alien shrubs there are few indigenous insects that feed on them and the cover that they provide for nesting and roosting birds could equally well be provided by native species. Unfortunately, once established they are difficult plants to eradicate.

4). At the end of the lawn is a group of five conifers. The three small trees are Wellingtonias, of which there are several mature examples elsewhere on the campus (see locations 14 & 25), while the two taller trees behind are Noble Firs from Washington and Oregon. The leaves of the latter species, especially those on the upper surface of the branch, curve sharply upwards. They have two white lines beneath which, at a distance, give the foliage a bluey-green colour. The crushed foliage has a strong smell recalling celery and, to a lesser extent, oranges. The large cones, if they appear, sit on top of the branch a feature of the genus Abies, of which it is a member.

Behind the Noble Firs is a mature Large-leaved Lime, an uncommon species in Staffordshire. The identification of limes can be very tricky. There are three native limes in Britain; Large-leaved, Small-leaved and Common. The latter is a hybrid of the other two and thus has, to a variable degree, features of both parents. Identification is based on a combination of characters and one needs to see the tree at different times of the year in order to examine the young shoots, buds, flowers and fruits. At Keele we no longer have the Small-leaved Lime so identification of the other two is made a little easier. The leaf stalk and veins on the underside of the leaf of Large-leaved Lime are densely hairy while those of Common Lime are almost bare. The fruit of the Large-leaved Lime is also densely hairy with distinct ribs while that of the Common Lime is much less hairy, indeed sometimes almost smooth, and with only faint ribbing. Both species have tufts of hairs in the axils of the veins on the underside of the leaf and both have large and small leaves on the same tree.

To the left of the lime, on the lake side of the path, is a Holm Oak. This is a Mediterranean evergreen species with thick leathery, holly-like leaves, quite unlike those of our two native oaks. The bark also has a characteristic reticulate pattern. Direct behind the Holm Oak is another Cedar of Lebanon and a little farther on, by the dam, stands a fine Horse-chestnut.

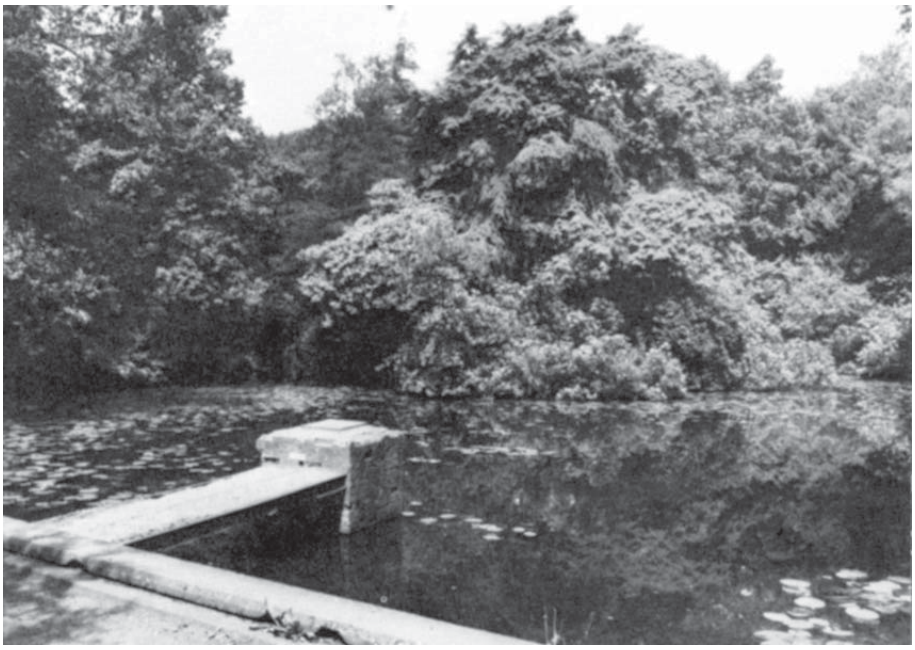
The path now begins to thread its way through the woodland, following the line of the stream. The woodland is largely a mixture of Pedunculate Oak, Sycamore and Yew with rampant Rhododendron undergrowth while the stream is lined with Alders, a tree that is typical of damp habitats. Its cone-like catkins are much sought after by birds such as Redpolls and Siskins which sometimes frequent this area in the winter months. Because of the rather dense canopy and thick growth of Rhododendron, the woodland floor is shaded and consequently very few flowers are to be found. However, one plant that seems to favour this situation, the Enchanter's Nightshade, can be found growing alongside most of the tracks. Herb Bennet or Wood Avens, with its small yellow flowers appearing from June to September and clematis-like seed-heads



in the autumn can also be found. Where there is a little more light, you can find Red Campion, Yellow Archangel and Hedge Woundwort, a member of the mint family with purple-red flowers and leaves that have an unpleasant odour when rubbed.

5). Follow the track until you reach a group of saplings planted between the track and the second lake. These consist mainly of Ash-leaved Maple and American Red Oak. The latter is a very pretty tree when the large leaves turn reddish brown in the autumn. Behind them is a single Western Red Cedar and on its right, two Trees of Heaven whose leaves can be up to

three feet long and have up to 40 elongate leaflets on either side of a central stalk. The leaves of the Western Red Cedar, which look a1most to have been plaited, exude a very pleasant scent when rubbed, while those of the Tree of Heaven, a native e of China, have a foetid smell.



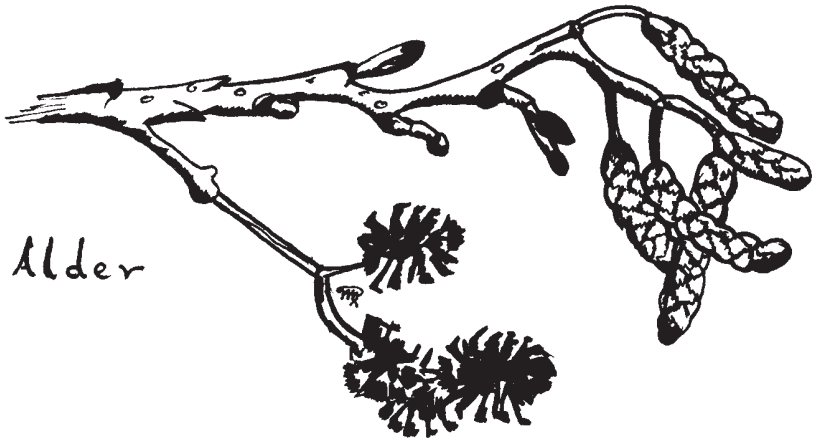
Lake 3 with Eastern Hemlock on the island. Location 6.

6). Continue along the track until you reach the dam across the end of third lake. Standing on the dam by the jetty and looking on the left you can see, behind the mature Alder, a young Norway Maple. On the "island" in front there is a large mature Eastern Hemlock, a coniferous introduction from the Appalachians, while behind but partly hidden, are a few Sitka Spruce. On the far bank to the right there are two mature Norway Maples which, though difficult to distinguish in the summer, are very noticeable in late autumn when their leaves turn a bright yellow.

The lake itself is covered in the summer with Yellow Water-lilies which provide shade and shelter for the shoals of Rudd that can sometimes be seen from the end of the jetty when the water is clear. The jetty is a favourite perch for the Grey Wagtail, a relative of the familiar black and white Pied Wagtail, but with grey upper-parts and yellow under-parts. It is seldom seen far from water. Spotted Flycatchers seem to favour this corner. They can be recognized by their habit of darting out from a branch after insects and returning to the same perch.

7). Cross the dam and continue along the track until you reach a flight of steps on the right. On the corner is a large Pedunculate Oak. The size of the trunk and the thick lower branches indicate that this is a survivor of earlier plantings. A number of such trees still exist on campus, the finest example being between the ring-road and the Chancellor's Building.

The steps lead down into Barnes Dell, which was named after Sir George Barnes, the third Principal (1956 to 1960) of the University College of North Staffordshire, the forerunner of the present University. After removal of Alders (much of the preliminary clearing being done by Barnes himself, the area was planted with a variety of exotic trees and shrubs, including a Handkerchief Tree. The latter is named after the long, white leaf-like bracts that resemble silken handkerchiefs when hanging down. They enclose a rather insignificant flower. The species rarely flowers before it is twenty years old and at the time of writing ours is in a sorry state and is being supported by a wire. Nevertheless, it still manages to flower. It can be reached by taking



the left-hand path at the bottom of the steps. A walk through the Dell will reveal a number of exotic maples including Smooth Japanese, Downy Japanese, Vine, Pere David's and Moose-bark, together with our native Field Maple. They are especially attractive in the autumn, when the colours of their leaves turn to shades of yellow and red. The Pere David's and Moose-bark Maples are particularly interesting. They belong to a group called the Snake-bark Maples and are characterized by having pale green or whitish lines running the length of the trunk and branches. The leaves of the Katsura Tree, a native of China and Japan, also turn a pretty shade of red in the autumn. They are heart-shaped to almost round, arranged oppositely on the branch and have a fragrant scent when rubbed. Even in the depths of winter there is colour in the dell, with the yellow flowers of the Witch Hazel Hamamelis and the pink of the winter-flowering Viburnum. The plant that catches the eye of most visitors is the large-leaved arum-like plant, commonly known as Skunk Cabbage, that grows along the stream at the lower end of the

Dell. Unlike our native arum - Cuckoo Pint - it does not produce red berries in the autumn. Among the native species to be found here are Pendulous Sedge, with its tall arching stem and pendulous flower-head, Male Fern, Lady Fern, and the rather insignificant Golden Saxifrage which forms a mat on the mud bordering the stream.

Return to the top path.

8). The path continues through a quite dense part of the wood with Pedunculate Oak and Yew predominating. A deep leaf litter attracts birds such as the Blackbird and Song Thrush, whilst the dense canopy forms a roosting site for Wood Pigeons in the winter. An examination of oak leaves in the late summer will often reveal small flat, circular discs on the underside of the leaves. These are spangle galls, of which there are a number of species. A gall represents a growth reaction of the host plant - the oak leaf - to an attack by a parasite; in this case members of a genus of small gall wasps called Neuroterus. The attack is merely the piercing of the leaf tissue by the female's ovipositor as she lays her eggs.

The gall is hemispherical to start with and, as it develops, it spreads outwards to form a disc. The larva develops inside the gall. When the gall matures it drops to the ground where the larva continues to develop, protected by a layer of fallen leaves. The galls are eagerly sought after by birds for food during the winter months. So great can be the infestation of this gall that

Lake 5 from the dam. Location 9.

it is sometimes difficult to discern the outline of the original leaf. Up to 1200 galls have been counted on a single leaf!

Just before the path leaves the woodland, on the right and hidden by Rhododendrons, arc two young Noble Firs with a Japanese Red Cedar between them. The latter species is another of the redwoods, with a soft, reddish, fibrous bark and with long-pointed scale-like leaves.

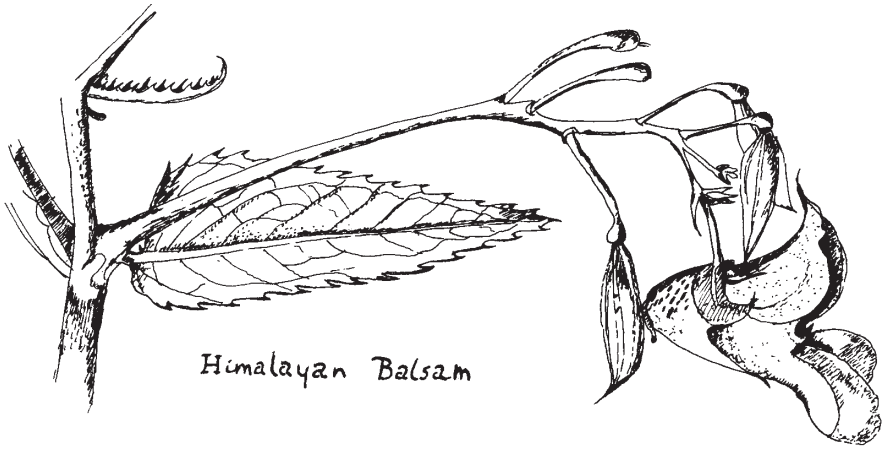
9). The path leaves the shade of the woodland and is bordered by a boundary fence on the left and by lake 5 on the right. There is a rich flora along the line of the fence consisting of Yarrow, Hogweed, Angelica, Knapweed, Creeping Thistle, Bird's-foot Trefoil, Stinging Nettle, Rosebay and a few clumps of Harebell, Devil's-bit Scabious and Betony. A single Ash sapling is growing by the fence and another, larger sapling on the lake side of the path. In the spring it is sometimes possible to see Wheatears, Yellow Wagtails and Meadow Pipits in the fields. Curlews are occasionally seen and there is always a chance of seeing Sparrowhawks and Kestrels as they fly over.

10). Continue along the track, keeping to the left, and stop by the iron gate-posts. Overhanging the path at this point is a Turkey Oak, a native of southern Europe. Its leaves resemble those of our two native oaks, Pedunculate and Sessile, but they tend to be narrower and more leathery in texture. The acorns, however, are quite different for they have bristles which accounts for its

The former sewage works. Location 10.

alternative name of Mossy Cup Oak.

Ahead, the brick building surrounded by a chain-link fence is all that remains of the University's former sewage plant which was demolished in 1985. The freshly cleared ground has been colonized by a number of plants that specialize in this type of habitat. They include the ubiquitous Redleg, Knotgrass and Willowherb, with Broad-leaved and Curled Docks, Spear-leaved and Common Oraches, Scentless Mayweed, and a fess plants of Weld. Together with patches of Stinging Nettle, Knapweed, and Creeping Thistle these plants provide a haven for Insects. Unfortunately these early colonizing plants will soon become overgrown with less interesting coarse grasses and shrubs.



It is here that many of Keele's twenty species of butterfly can be seen. As well as the more common species such as Peacock, Meadow Brown, Large Skipper, Wall Brown, Small Copper, and Small Tortoiseshell, it is possible to see less common species such as Dingy Skipper, Small Skipper, Comma, and Brimstone. In the autumn you can also find Painted Lady and Red Admirals, though the numbers tend to fluctuate from year to year. In this area, sightings of Pheasant and Grey Partridge have been more frequent in recent years. To the right of the gatepost is a small patch of Hawthorn and Elder together with a mature Field Maple by the far corner of the dam and a large Ash below the dam.

Before proceeding it is worth considering another plant that is to he found here; the Himalayan Balsam or Policeman's Helmet. Three years ago there was hardly any to be found at Keele but it now forms a large patch between the path and the lake, with others along the line of the track. It is a handsome plant with large pink helmet-shaped flowers in late summer which have a very aromatic scent. The ripe seed pods burst open on contact to disperse the black seeds. It is an alien species that has spread along rivers and watercourses and, like most alien plants, it soon chokes out the natural flora unless controlled.

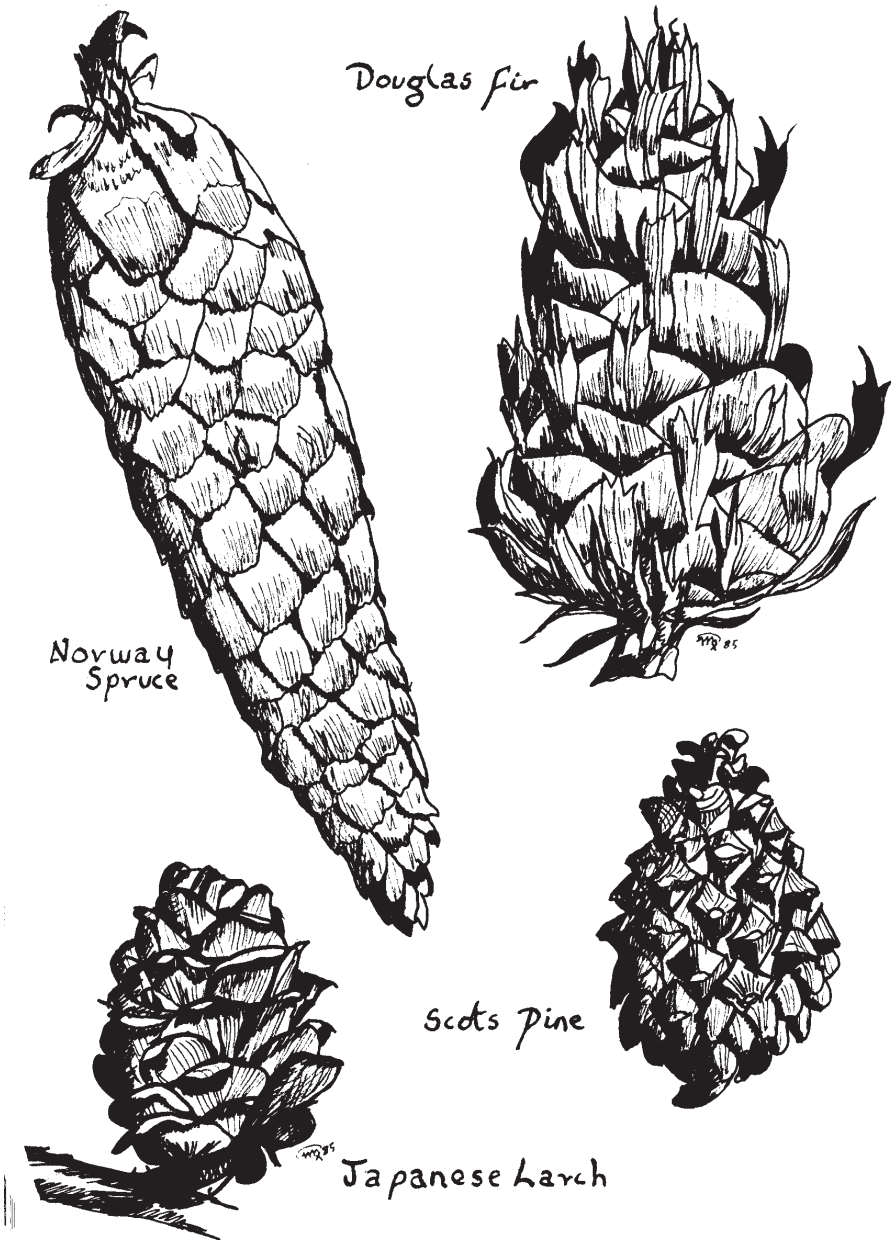
If time is short the walk can be shortened at this point by taking the path around to the far side of lake five and rejoining the trail between locations 21 and 22.

Note; the path ahead can be very muddy at times.

As you continue along the path, note the line of Yews that follow the course of the stream. In the winter their fruits, which consist of a very poisonous seed surrounded by a red fleshy cup, attract birds such as Redwings, Fieldfares, Mistle Thrushes, Blackbirds and Greenfinches sometimes in large numbers. The birds eat the red flesh and void the seeds. The foliage is also very poisonous. In the spring, hatches of insects provide a welcome food source for early migrants such as the Willow Warbler and Chiffchaff. The low embankment on the left of the path is planted with Ash together with a fess Birches, Alders, Oaks, and Sallows.

11). Continue along the track until it bends to the right, where there is a Japanese Larch on the inside of the bend. This is a good spot to look for insects as it catches the sun for much of the day and has a good flora which includes Marsh Thistle, Common Sow -thistle, Common St. John's Wort, Meadow Vetch, Tufted Vetch, Bush Vetch, Common Vetch and Bird's-foot Trefoil. Because of the dampness of this corner, you can also find Ragged Robin and Lady's Smock or Cuckoo Flower. The latter is the foodplant of the rather pretty Orange Tip butterfly, one of the first in the year to appear. The character of the woodland now changes. The damper area along the line of the stream on the left, which is composed largely of Sallow, Alder, and Silver Birch, with a line of Japanese Larch alongside the path, is much favoured by nesting Willow Warblers and Blackcaps.

12). A few yards farther on, another track comes in from the right. This marks the start of a plantation (planted in 1931) which consists largely of Norway Spruce with a few Scots Pines and Yews around the edge. On the corner where the ride comes in, is a bush of Japanese Knotweed, another alien species. It is a notorious pest that spreads so quickly, and is so difficult to eradicate that it is now illegal to plant it deliberately. It is unfortunate that it is such a noxious weed because the long tendrils of white flowers are very attractive to insects in the late summer, a time when many other flowers have died. The spruce plantation is a favourite nesting site for our smallest breeding bird, the Goldcrest. Its high-pitched "zee-zee-zee" calls are often heard. The Coal Tit too prefers coniferous woodland as a nesting and feeding area. With such a dense planting as this the floor of the wood is very gloomy and covered largely with a layer of pine needles which make the soil very acidic. However, this is just what the Stinkhorn fungus likes and it is possible to see (and smell!) good numbers of them here in the autumn. Another feature of the woodland floor is the tree stumps covered with piles of eaten and half-eaten Norway Spruce cones. These are squirrel 'tables'. The Grey Squirrel, a native of North America is, unfortunately, all too common at Keele as you will no doubt have noticed. Unfortunate that is, because it can and does do considerable damage to young trees by stripping the bark. Occasionally there are reports of Red Squirrels but these undoubtedly refer to Grey Squirrels,


Douglas fir
Norway Spruce
Scots Pine
Japanese Larch

some of which acquire a rufous colour in the autumn. Red Squirrels have not been seen at Keele since the early 19505. In summer, the gloom of the forest floor is alleviated by scattered clumps of shade-tolerant Wood-sorrel. It has pale green, clover-like leaves and delicate white flowers with mauve-coloured veins.

13). A few yards farther on another track comes in from the right and from here the Norway Spruce plantation is more mixed, with Scots Pine higher up the slope and Sitka Spruce towards the front. The Scots Pines, recognizable by their flakey red bark, are one of our few native conifers. Sitka Spruce, a species that is widely used in modern forestry, has thin rigid sharp-pointed needle-like leaves that are dark green above but have two whitish lines beneath. At a distance, this gives the foliage a blue-green tinge which contrasts well with the all-green foliage of the Norway Spruce. The bark of the Sitka Spruce, when mature, is cracked into small lifting plates. Between the conifer trunks it is possible to see the trunks of four huge Wellingtonias that tower above all the other trees (see location 25). The stream at this point is lined with Hybrid Black Poplars, their long straight trunks being most noticeable alongside the Birches and Alders.

14). In a short distance the track opens out and is joined from the left by the track to Two Mile Lane. Here in this sunny spot you can find a rich flora including brambles, Sallows, Mugwort, Knapweed, Spear Thistle, Creeping Thistle, Self-heal, Red Campion, Angelica, Hogweed, Common Sow-thistle, Japanese Knotweed, Elder, and the delicate, pink Common Centaury. Again, this is a good area for insects, especially butterflies such as Common Blue and Dingy Skipper, and moths such as the Five-spotted Burnet. The latter, resplendent in its metallic blue livery with red spots, looks more like a butterfly than a moth. Another moth that can be found here, especially in the autumn, is the Silver Y. This is a brown moth with a silver 'Y' mark on the front wings. It breeds locally, but in the autumn its numbers can be swelled, sometimes to a great extent, by immigrants from the continent and it then is a common sight on the Knapweed and thistles. In spring the sallows are covered with yellow catkins which provide an important food source for early insects, especially the colourful hoverflies, of which there are some 80 species at Keele. The Wellingtonias are even more impressive when viewed from here. They tower above the surrounding conifers. In front of the Wellingtonias, but hidden by Spruce, is a single Arolla Pine. A native of the Alps and Carpathians, it has long needles in bunches of three to five.

At this point the walk can be shortened by taking the track through the pine trees on the right and rejoining the trail at location 20.

Take the track ahead that leads to lakes 6 and 7.

15). The plantations on the right are composed largely of a deciduous conifer Japanese Larch. The seeds of its soft cones are easy to extract and they provide an attractive food source for winter visitors such as Goldfinches, Siskins, and Redpolls. Mixed flocks of up to 100 birds

Lake 6 from the dam. Location 16.

have been seen in this area. The plantation was thinned several years ago and the increased light has prompted a thick growth of Bracken during the summer. Higher up the slope, behind the Larch, are a few Scots Pines and Douglas Firs. The latter, though difficult to find, are easily identified by their characteristic cones (see illustration) that litter the ground. The woodland between the path and the stream is more open and has a ground cover that consists of Dog's Mercury, Rhododendron, and a few Lesser Burdocks. Wood Warblers have occurred in this area for several years and may even have bred.

Continue along the track to lake 6.

16). Just before the lake is a small stand of Hybrid Black Poplars while by the side of the track there arc a few Wych Elms. The latter tree is the foodplant of Keele's least common butterfly, the White-letter Hairstreak. The butterfly spends most of the time at the tops of the trees and is therefore not often seen at ground level. It takes its name from the white letter 'W' on the underside of the wings. The Wych Elm is also the foodplant of the Clouded Magpie moth which can sometimes be seen resting on leaves where it resembles a bird-dropping.

The small brick building houses a waterwheel that once supplied water to the Hall. The lake has a good growth of weed and is stocked with trout. Little Grebes and Moorhens nest here and

Grey Herons have occasionally been disturbed from the side. It is a good spot to see damselflies such as the Large Red and Common Blue, and occasionally dragonflies like the brown-winged Brown Aeshna - a splendid sight as it patrols the length of the lake in search of insects.

17). Just past the end of the lake an embankment, lined with Sycamores, slopes down to the stream. In late spring it is a mass of Bluebells and Yellow Archangel, while the stream side, especially where the stream enters the lake, is covered with Marsh-marigolds. In wintry weather the open stream is of great importance to wildlife. It is not unusual to disturb a Snipe or Woodcock and Dippers have been noted on several occasions.

18). Lake 7, the last lake, also has a good weed growth and marginal vegetation and again is a good spot to watch the damselflies and dragonflies as they hunt for insects over the water.

19). Take the track on the right that climbs up to Beech Clump. As its name suggests this hillock was once dominated by magnificent Beech trees. Unfortunately Beech becomes very brittle and dangerous when it ages and it was necessary to fell the trees in 1985. However, any open spot that appears in an otherwise enclosed woodland is an excellent place from which to watch birds. It is possible to watch birds flying across the clearing that would be difficult to see in the tree canopy. Woodpeckers are a good example. The area is to be replanted with Beech

Lake 7 from the dam. Location 18.

family. It is particularly common in this area, especially along the ride that separates the two halves of the plantation. Another species Rubus daltrii - that he named after an eminent local naturalist, is also very common here.

In the small patch of birch, beyond the far left-hand corner of the plantation, the Orange Underwing moth may be found. This small brown moth with orange hindwings is one of the earliest day-flying moths to appear in the year, being on the wing in March and April when it can be seen on sunny days flying about the tops of the birch trees. Both the Silver and Downy Birches are to be found at Keele. The latter takes its name from the hairy twigs, leaf veins and leaf stalks and is common on badly drained heaths and damper soil, where it tends to replace Silver Birch.

21). Take the left fork in the track that follows the edge of the plantation and stop at the junction with a track from the right. The area on the left was cleared of Japanese Larch in 1981 and is now carpeted with Bramble and Heath Bedstraw. It is again a good area to stop and look for birds in the surrounding trees. This area was replanted in i 984 with Roble Beech, a native of the mountainous areas of South America. It is a deciduous member of a mainly evergreen group of species known as the Southern Beeches.

Take the left turn that leads to lake 5. Pass the mature Field Maple by the dam and continue along the left side of the lake. Pass lake 4 and cross Barnes Dell again. Climb up the steps on the far side and take the track that is almost opposite.

22). A few yards along on the left is one of the few remaining mature Beeches. If time allows, it is worth-while taking a diversion along the track that leads off to the right in order to see the Bluebells that carpet the wood in early summer. The dense area of Yew and Pedunculate Oak to the right of this track is a favourite roosting site for pigeons in the winter and up to 300 have been counted.

23). Continue along the main track until another track, slightly overgrown, comes in from the right. On the corner, overhanging the path, is a magnificent Fern-leaved Beech. A variety of Common Beech rather than a separate species, its narrow cut leaves look quite unlike those of our native Beech, several of which are growing alongside. A pair of Stock Doves nest annually in a hole in one of the Beeches.

24). Continue along the track until you reach the dam between the first and second lakes. The extent of the silting problem can be judged from the amount of mud and vegetation at the foot of the dam. This vegetation consists mainly of Water Mint, Water Forget-me-not and Fool's Water-cress. When the water is clear it is possible to watch the Little Grebes as they swim under water; the air trapped by the feathers giving them a silvery appearance. Good views of the fish can also be had and Kingfishers are not infrequent visitors too.

A few yards farther on, beside a large Horse-chestnut, are the remains of the former boathouse.

25). The path now runs alongside the embankment on the left that was created with the spoil from the deepening of the top lake. A number of different trees have been planted here including Scots Pine, Austrian Pine, Monterey Pine, Deodar and Western Hemlock as well as another False Acacia. The clearing of some of the undergrowth, a few years ago, has encouraged Wood Anemones to flower here in the spring. A little farther along, between the path and the lake, is a small-leaved variety of Japanese Maple that is very attractive in the autumn. On the right of the path stands a magnificent Wellingtonia or Mammoth Tree. Found in only 72 small groves in the Sierra Nevada of California, its soft fibrous bark is designed to withstand the intense

Wellingtonia

forest fires that sometimes ravage its American homeland. Some of the world's largest trees are Wellingtonias and they include the famous 'General Sherman' which, standing at 272 feet, is the largest. They were introduced to Britain in 1853 and can now be found on estates throughout the country. The trees at Keele might well have come from the original seed. Around the trunk

are a number of small excavations, some with droppings at the base. These are the roosting holes of Treecreepers. This small brown insectivorous bird with a curved beak chooses a roost hole to escape the chill of the prevailing winds. Opposite the Wellingtonia, but partly hidden, is a Swamp Cypress, a deciduous conifer from Texas and the Mississippi Valley. It has a reddish stringy bark and is not in full leaf until June. The leaves turn rusty-red in October and darken to a deep purple in November, remaining on the tree to the end of the year. It is often easier to pick out this tree by looking from the opposite side of the lake, when its autumn colours contrast with the surrounding evergreens. To the right is another Cedar of Lebanon.

26). Continue along the track until you reach the culvert that feeds the lakes. Opposite is a well, known as 'White Well. It is not certain if it was used to supply water to the Hall, but it is said that when Colonel Sneyd was living in France he used to have bottles of Keele well water sent out to him! Growing by' the side of the well is a Pagoda Tree, a native of China. It has long fern-like branches, similar to those of the False Acacia, and white pea-like flowers, though these are not produced until the tree is thirty' years old. It is not unusual to see Grey Wagtails searching for insects on the mud below the dam.

Take the track by the side of the refectory wall and back to Keele Hall. To the right of the track a small depression, now covered with Sycamores and Scots Pines, is all that remains of another lake. It is shown on a map of 1870 but may well have been filled in because of silting problems.

Campus Trail

Leave the courtyard of Keele Hall bx the main drive, pass the Common Lime on the bank to your left and the Horse-chestnut on the corner to your right, and cross the ring-road. Pass the group of Yew's on the corner to the left and take the path that leads to the blue-brick University Chapel.

A). By the left-hand side of the path is a tall Scots Pine and to its left a group of three Dawn Redwoods that was planted in 1962. The Dawn Redwood belongs to the genus Metasequoia which was known only from fossil records until one species was found surviving in Central China in 1941. Seed was collected and distributed in 1948. It is a deciduous conifer with stringy reddish brown bark, resembling the Swamp Cypress, but with two sets of opposite leaves or flattened needles on a central stem. Behind them and to the left-hand side of the Library stands a Red Horse-chestnut, a hybrid between the Horse-chestnut and the American red-flowered Red Buckeye *Aesculus pavia*, Between the Scots Pine and the bridge to the Student's Union building on the left, are three young Dawn Redwoods planted amongst young Sweet Chestnuts

Scots Pine and Dawn Redwoods. Location A.

and Scots Pines.

B). Continue along the path to the Chapel and turn left on to the main thoroughfare that leads up the hill. Planted along the side of the Chapel is a row of young Rowans or Mountain Ashes. Although small they produce a good crop of red berries that are eagerly devoured by thrushes and Starlings in the autumn.

C). Higher up the hill, in front of the Walter Moberly Hall on the right, there used to stand seven mature Small-leaved Limes but these have since been replaced by three medium-sized limes. The one nearest to the path is a Common Lime while the two at the back are Large-leaved Limes see location 4 on the woodland trail for more details . In the summer, honey dew from aphids coats the surface of the leaves and this acts as a source of food for a fungus that blackens the leaves. The surface of the leaves also become covered in what look like red pointed warts. These Nail Galls, which are caused by the mite Eriophyes tiliae typicus, only occur on limes and it is possible to get over 100 on a single leaf The two saplings on the left of the group are an exotic large leaved species of lime.

D). Between the Walter Moberly Hall and the Geography Department is a fine Hornbeam, an uncommon species in this part of Staffordshire. Its clusters of seeds look like Chinese lanterns

Hornbeam

as they hang down. Unfortunately it has reached an age when its future must be in some doubt. On autumnal mornings it is not unusual to see House Martins resting on the roof of the Geography Department, especially on the wires that support the anemometer. Over 100 were noted on one occasion.

E). In front of the Geology Department, on the opposite side of the path, are three more Dawn Redwoods that were planted in 1970.

Dawn Redwoods in front of Geology Department. Location E.

Take a short detour in front of the Department of Geology, past the small stand of young Horse-chestnuts, to the ring road.

F). At any time of the year, but particularly early spring, you cannot help but be aware of the rookery in the trees behind the Library. There are usually about 30 nests. In spring, it can be quite amusing to watch the antics of the Rooks as they build or repair their nests. Some of them literally hang from the branches by their beaks in order to break off a piece of twig for their nests. In the autumn and winter the Rooks use the trees as a roost when they are joined by Jackdaws.

G). The embankment behind the Library is now well covered with berry-bearing shrubs. The berries of Cotoneaster are much loved by members of the thrush family but those of the Pyracantha are not so favoured, and arc usually only eaten after all other food sources have been exploited.

Retrace your steps to the main thoroughfare.

H). On the corner of the path that separates the Departments of Geology and Biological Sciences stands a Pedunculate Oak. It takes its name from the short stalk or peduncle by which the acorn is attached to the branch. The acorns of the Sessile Oak, our other native species, have no such stalk.

In front of the Biological Sciences Department is a line of American Red Oak saplings, whose large leaves turn a reddish colour in the autumn. By the right-hand side of the building, behind a Pedunculate Oak, is a single Hybrid Catalpa, an introduction from Indiana. A cross between the Indian Bean Tree Catalpa bignonoides and the Yellow Catalpa Catalpa ovata, it has very large leaves, often broader than long, that are purple at first and pale green later. During warm summers it produces clusters of small white flowers which are tinged yellow and spotted with purple and have a fragrance of lilies.

Continue along the path, past the Chemistry Department on the right and stop by the side of the ring-road.

I). Standing by the side of the ring road, to the left, between the bus stop and the Chemistry Department, is a group of Red Oak saplings together with a Flowering Cherry and a larger Beech. Opposite, at the back of the car park are the remains of a once fine Holly hedge that measured 35 ft high by 28 ft wide by 199 yds long. In the winter months it is used by thrushes and finches as a roosting site. Behind and to the right, by the side of the Chemistry Department, is another group of Red Oaks together with a few Norway Maples, a mature Sweet Chestnut and a mature Common Lime. On the opposite side of the road, behind the pillar box, is a mature red-flowered Hawthorn.

J). Cross the ring road and make a short detour along the road that leads to Lindsay Hall. The road is lined on either side by tall Common Limes and there is a mature Common Beech by the small car park, a few yards down the road on the right. Looking across the lawn in the middle of the Larchwood estate on the right, you can see the remains of a fine avenue of Deodars on the far side. They show clearly the conical crown with a drooping leading shoot that is typical of this species.

Retrace your steps to the ring road. Turn right and follow the path that leads round the front of Sneyd House, past the fine Sweet Chestnut on the corner, and stop in front of Harrowby

House.

K). On the lawn in front and to the left of Harrowby House stands another fine Sweet or Spanish Chestnut. A native of southern Europe, western Asia and northern Africa, it was probably introduced by the Romans. It is widely planted on the campus and is characterised by the long narrow leaves with serrated edges and by the ribbed bark that appears to spiral around the trunk, though this is not apparent in young trees. Although the Keele trees fruit profusely, the nuts or chestnuts are usually very small. A small group of Turkey Oaks is also to be found in this area (see location 10 of the woodland trail for more details). The tall conifer directly opposite, with long needles in pairs, is an Austrian Pine. As its name suggests, it is a native of Central Europe. It is often used in shelter-belts on the coast or on calcareous soils.

To the left, by the side of the ring-road and opposite the flight of steps between Geology and Biological Sciences is a Lucombe Oak, a form of Spanish Oak which in turn is a hybrid of Turkey Oak and Cork Oak Quercus suber. However, as with many hybrids, its identification will probably always be open to question. It is a grafted specimen; the line of the graft being some three feet above ground level.

L). Continue along the path in front of Harrowby Hall to the Terrace, the entrance to which is marked by a large Rhododendron clump, magnificent in early June with large crimson blooms. The row of Sweet Chestnuts on the left, which is as much as 300 years old, is planted along the line of the old drive from the Hall to Keele village. Behind the line of Sweet Chestnuts and hidden by the mixed woodland which consists mainly of Pedunculate Oak, Common Lime and Sycamore, is a depression known as the amphitheatre. This is the site of a former quarry that provided some of the stone for the Hall. Numerous Rhododendrons and other flowering shrubs flank the back of the terrace. In spring, the far-carrying piping trill of the Nuthatch, and the drumming of the Great-spotted Woodpecker are often heard. From here an extensive panoramic views can be obtained to the south and west over wooded and pastoral countryside bounded by the Hanchurch and Maer Hills, the latter once frequented by Charles Darwin during his visits to Maer Hall. On a clear day it is possible to see the Wrekin, a conical hill composed of Pre-Cambrian rocks of volcanic origin, some 30 miles away.

Immediately beneath the terrace can be seen the remains of the once extensive kitchen gardens of Keele Hall.

Continue along the Terrace and down the steps at the far end to the Clock House, the former stable block built by Blore in the 1830s.

M). By taking the path around the right-hand side of the Clock House you come to the drive that once led to the racecourse. It is lined with Sweet Chestnuts at the top, giving way to Horse-chestnuts farther down. The grass verges at the bottom of the Drive have a good flora including Ox-eye Daisy, Creeping Buttercup, Yarrow and, in the late summer, Devil's-bit Scabious.

The Terrace. Location L

Pigeons, Rooks, Jackdaws, and Crows feed in the fields on either side of the Drive.

Pass through the iron gate on the left and continue along the track that leads back to Keele Hall.

Clock House Drive. Location M.

Smooth-leaved Elm behind Physics Research block. Location (d)

Additional Sites

a). The lower end of the drive to the University from Keele village is lined by an avenue of Common Limes giving way to Horse-chestnuts and Sycamores higher up. There are a number of such avenues of the former estate in the area one can be seen along the drive to Home Farm, at the top of Keele bank just by the end of the new section of stone wall while another may be found at the bottom of Clock House Drive.

Looking to the right of the drive, the landscape is one of open fields with scattered mature trees. This is known as a parkland type of habitat and much of the Keele estate would have looked like this in its heyday. Many of the large oaks were felled on the break-up of the estate in the 1950s.

b). An avenue of Silver Limes has been planted on either side of the road in front of the Church Plantation flats to replace an avenue of mature Sycamores. They are native to SE Europe and SW Asia and are frequently planted in city and town parks, and in many larger gardens. The name derives from the densely hairy grey undersides of the leaves.

c). Between the University's workshops and the rear of the Chemistry Department stand two mature Sycamores. To conservationists and naturalists the Sycamore is an unwelcome species, for it is yet another example of an alien species that is too successful. In a mixed woodland it grows so quickly that it soon shades out the native species and in time comes to dominate the

Pedunculate Oak. Location (e).

whole wood. However, in an open situation it can form a magnificent tree.

d). Directly behind the Physics Research block stands a fine Smooth-leaved Elm. As its name suggests the leaves, unlike those of many other elms, are smooth. It was, until the outbreak of Dutch Elm disease, the countryside elm of much of east Kent and East Anglia and an uncommon parkland tree over much of England. This tree seems, so far, to have escaped unscathed.

e). Between the ring road and the Chancellors Building stands a magnificent Pedunculate Oak; it is without doubt one of the finest that you will find anywhere.

f). In the copse behind the Sports Centre, by the side of the running track, is a Crack Willow. It takes its name from the way in which a twig, bent away from the twig to which it is attached, snaps off cleanly at the base.

g). Three mature trees stand by the side of the road in front of Barnes Hall of Residence. The one on the far right of the group is a Pedunculate Oak, the magnificent tree in the centre, by the lay-by, is another Smooth-leaved Elm, which the one to the left is one of only two mature Large-leaved Limes at Keele; the other being at location 4 on the woodland trail.

A small group of Grey Poplar saplings is planted on the edge of the playing field, in front of the Oak. Note the silky while undersides of the leaves and the diamond-shaped indentations on the trunks.

In the early summer, a blue haze appears on the side of the road bordering the playing field, especially' around the bases of some of the saplings. A closer examination will reveal a small blue flower - Slender Speedwell. The occurrence of this plant in North Staffordshire is quite interesting. It was unknown until some ten years ago, when it was found growing on a grass verge on the Westlands housing estate a few miles away. Since then it has spread rapidly through the estate no doubt aided by mowing machines. Two years ago it was found at Keele, growing around some saplings. It was probably brought in with the young trees or via a mowing machine.

From autumn through to spring, it is not unusual to find flocks of gulls resting on the playing fields. They are usually Black-headed Gulls but occasionally you may find a Common Gull, Herring Gull or Lesser Black-backed Gull with them. They are sometimes joined by Starlings in search of cranefly larvae. Small flocks of Pied Wagtails may also be seen. Indeed, there are records of 30 to 40 near to the Chancellor's Building car-park.

h). The avenue of Silver Willows, Wedgwood Avenue, was planted in 1972 to celebrate the 21st Anniversary of the University. The Silver Willow is a form of White Willow Salix alba, with long, lanceolate leaves that are covered with white silky hairs. They are well suited to this damp corner.

Hawthorns Hall of Residence

Situated in Keele village, the Hawthorns is a pleasant Hall of Residence; spacious in nature and set amongst mature trees. Although there is little that cannot be found elsewhere on the campus, there are a few trees that are of interest. The entrance to the grounds is lined by Horse-chestnuts while the tall conifers, with long needles in pairs, that are dotted around the grounds are Austrian Pines. In front of the large white building - the Warden's House - stand three trees of note. The first is a Holm Oak with leathery green holly-like leaves and a reticulated bark (see location 4 on the woodland trail). Of the remaining two, one is a fine Weeping Ash and the other a Weeping Beech. These two trees are grafted specimens, the line of the graft is still visible, part way up the trunk.

Latin names of plants mentioned in the text

Alder	Alnus glutinosa
Angelica	Angelica sylvestris
Ash	Fraxinus excelsiar
Beech, Common	Fagus sylvatica
Beech, Fern-leaved	Fagus sylvatica 'Heteraphylla'
Beech, Roble	Nothofagus obliqua
Betony	Betonica afficinalis
Birch, Downy	Betula pubescens
Birch, Silver	Betula pendula
Bird's-foot Trefoil	Lotus corniculatus
Bluebell	Hyacinthoides non-scripta
Box	Buxus sempervirens
Bracken	Pteridium aquilinum
Cedar, Japanese Red	Cryptomeria japonica
Cedar of Lebanaon	Cedrus libani
Cedar, Western Red	Thuja plicata
Centaury	Centaurium erythraea
Coast Redwood	Sequoia sempervirens
Common St.John's Wort	Hypericum perforatum
Common Sow-thistle	Sonchus arvensis
Creeping Buttercup	Ranunculus repens
Cypress, Lawson	Chamaecyparis lawsoniana
Cypres, Swamp	Taxodium distichum
Dawn Redwood	Metasequoia glyptosroboides
Deodar	Cedrus deodara
Devil's-bit Scabious	Succisa pratensis
Dock, Broad-leaved	Rumex obtusifolia
Dock, Curled	Rumex crispa
Dog's Mercury	Mercurialis perennis
Elder	Sambucus nigra
Elm, Smooth-leaved	Ulmus carpinifolia
Elm, Wych	Ulmus glabra
Enchanter's Nightshade	Circea lutetiana
False Acacia	Robinia pseudoacacia
Fern, Lady	Athyrium filix-femina
Fern, Male	Dryopteris filix-mas
Fir, Douglas	Pseudotsuga menzieii
Fir, Noble	Abies procera
Fool's Water-cress	Apium nodiflorum
Golden Saxifrage	Chrysosplenium oppositifolium
Handkerchief Tree	Davidia involucrata
Harebell	Campanula rotundifolia
Hawthorn	Crataegus monogyna
Heath Bedstraw	Galium saxatile
Hedge Woundwort	Stachys sylvatica
Hemlock, Eastern	Tsuga canadensis
Hemlock, Western	Tsuga heterophylla
Herb Bennet	Geum urbanum
Himalayan Balsam	Impatiens glandulifera
Hogweed	Heracleum sphondylium
Holly	Ilex aquifolium
Hornbeam	Carpinus betulus
Horse-chestnut	Aesculus hippacastanum
Horse-chestnut, Red	Aesculus X carnea

Hybrid Catalpa	Catalpa X erubescens
Japanese Knotweed	Reynoutria japonica
Japanese Larch	Larix kaempferi
Katsura Tree	Cercidiphyllum japonicum
Knapweed	Centaurea nigra
Knotgrass	Polygonum aviculare
Lady's Smock	Cardamine pratensis
Lesser Burdock	Arctium minus
Lime, Common	Tilia X vulgaris
Lime, Large-leaved	Tilia platyphyllos
Lime, Silver	Tilia tomentosa
Lime, Small-leaved	Tilia cordata
Maple, Ash-leaved	Acer negundo
Maple, Downy Japanese	Acer japonica
Maple, Field	Acer campestris
Maple, Moose-bark	Acer pensylvanicum
Maple, Norway	Acer platanoides
Maple, Pere David's	Acer davidii 'Rufinerve'
Maple, Vine	Acer circinatum
Maple, Smooth Japanese	Acer palmatum
Marsh-marigold	Caltha palustis
Meadow Vetchling	Lathyrus pratensis
Mugwort	Artemesia vulgaris
Oak, Holm	Quercus ilex
Oak, Lucombe	Quercus X hispanica
Oak, Pedunculate	Quercus robur
Oak, Red	Quercus rubra
Oak, Sessile	Quercus petraea
Oak, Turkey	Quercus cerris
Orache, Common	Atrilex patula
Orache, Spear-leaved	Atriplex hastata
Ox-eye Daisy	Leucanthemum vulgare
Pagoda Tree	Sophora japonica
Pine, Arolla	Pinus cembra
Pine, Austrian	Pinus nigra nigra
Pine, Jack	Pinus banksiana
Pine, Lodgepole	Pinus contorta contorta
Pine, Macedonian	Pinus peuce
Pine, Monterey	Pinus radiata
Pine, Scots	Pinus sylvestris
Poplar, Grey	Populus canescens
Poplar, Hybrid Black	Populus X euramericana

Ragged Robin	Lycnis flos-cuculi
Red Campion	Silene dioica
Redleg	Polygonum persicaria
Rosebay	Chamerion angustifolium
Rowan	Sorbus aucuparia
Sallow	Salix caprea
Scentless Mayweeed	Tripleurospermum inodorum
Self-heal	Prunella vulgaris
Skunk Cabbage	Lysichitum americanum
Slender Speedwell	Veronica filiformis
Spruce, Norway	Picea abies
Spruce, Sitka	Picea sitchensis
Stinging Nettle	Urtica dioica
Sweet Chestnut	Castanea sativa
Sweet Gum	Liquidamber styraciflua
Sweet-flag	Acorus calamus
Sycamore	Acer pseudoplatanus
Thistle, Creeping	Cirsium arvense
Thistle, Marsh	Cirsium palustre
Thistle, Spear	Cirsium vulgare
Tree of Heaven	Ailanthus altissima
Vetch, Bush	Vicia sepium
Vetch, Common	Vicia sativa
Vetch, Tufted	Vicia cracca
Water Forget-me-not	Myosotis scorpioides
Water Mint	Mentha aquatica
Weld	Reseda luteola
Wellingtonia	Sequoiadendron giganteum
Willow, Crack	Salix fragilis
Willow, Goat	Salix caprea
Willow, Silver	Salix alba 'Argentea'
Wood Anemone	Anemone nemorosa
Wood-sorrel	Oxalis acetosella
Yarrow	Achillea millefolium
Yellow Archangel	Lamiastrum galeobdolon
Yellow Water-lily	Nuphar lutea
Yew	Taxus baccata

Birds seen at Keele since 1972

Little Grebe
Cormorant
Grey Heron
Mallard
Tufted Duck
Shoveler
Pochard
Canada Goose
Mute Swan
Sparrowhawk
Buzzard
Merlin
Kestrel
Red-legged Partridge
Grey Partridge
Pheasant
Water Rail
Moorhen
Coot
Golden Plover
Lapwing
Snipe
Woodcock
Whimbrel
Curlew
Green Sandpiper
Common Sandpiper
Greenshank
Black-headed Gull
Common Gull
Lesser Black-hacked Gull
Herring Gull
Greater Black-backed Gull
Kittiwake
Stock Dove
Wood Pigeon
Turtle Dove
Collared Dove
Cuckoo
Barn Owl
Tawny Owl
Little Owl
Swift
Kingfisher
Hoopoe
Green Woodpecker
Great Spotted Woodpecker
Lesser Spotted Woodpecker
Skylark
Swallow
House Martin
Sand Martin
Carrion Crow
Rook
Jackdaw
Magpie
Jay
Great Tit
Blue Tit
Coal Tit
Marsh Tb
Willow Tit
Long-tailed Tit
Nuthatch
Treecreeper
Wren
Dipper
Mistle Thrush
Fieldfare
Song Thrush
Redwing
Blackbird
Wheatear
Whinchat
Redstart
Robin
Grasshopper Warbler
Sedge Warbler
Blackcap
Garden Warbler
Whitethroat
Lesser Whitethroat
'Willow Warbler
Chiffchaff
Wood Warbler
Goldcrest
Firecrest
Spotted Flycatcher
Pied Flycatcher
Dunnock
Meadow Pipit
Tree Pipit
Pied Wagtail
White Wagtail
Grey Wagtail
Yellow Wagtail
Starling
Greenfinch
Goldfinch
Siskin
Linnet
Redpoll
Bullfinch
Chaffinch
Brambling
Yellowhammer
Reed Bunting
House Sparrow
Tree Sparrow

Butterflies Recorded at Keele since 1972

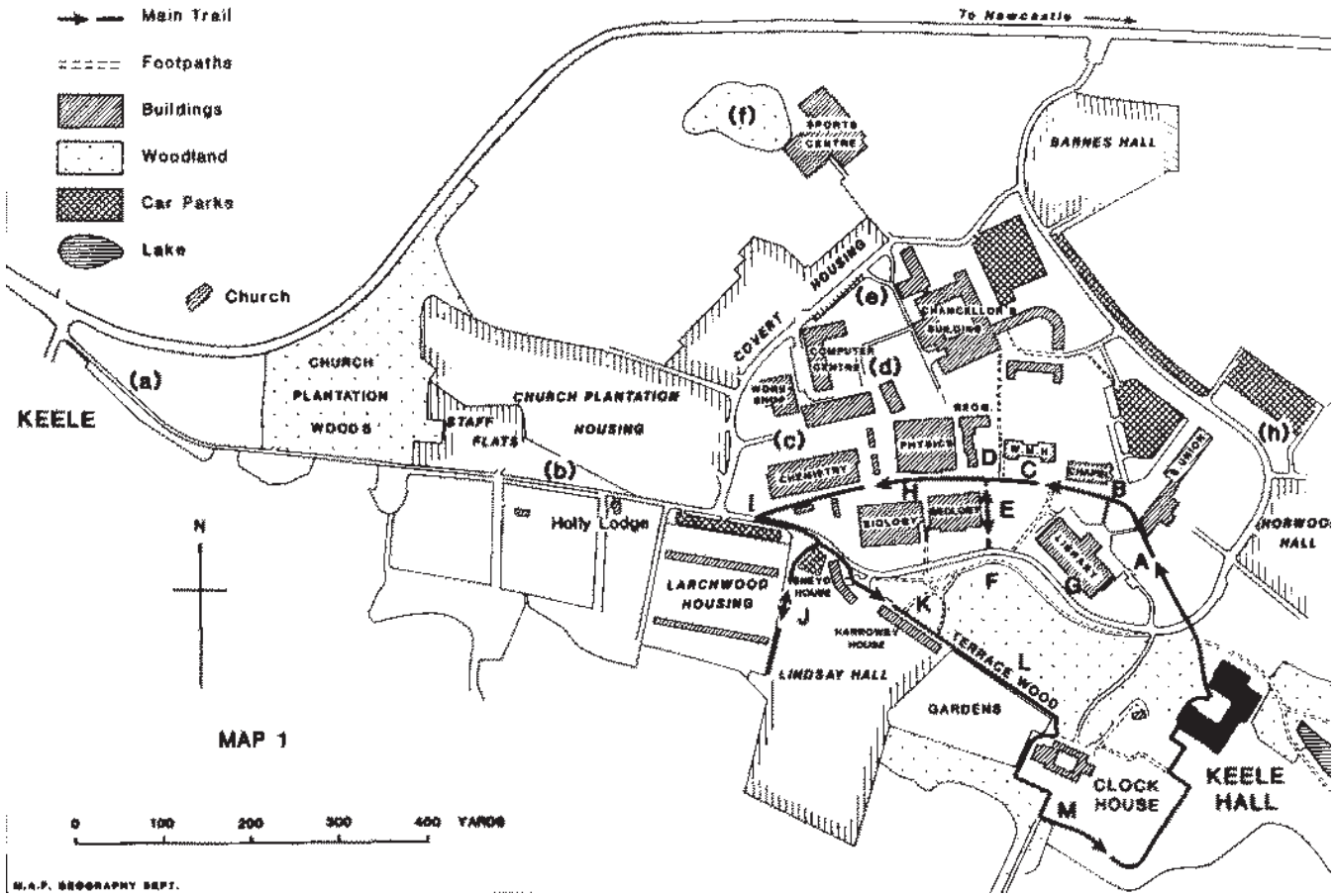
Brimstone
Camberwell Beauty
Comma
Common Blue
Dingy Skipper
Gatekeeper
Green-veined White
Holly Blue
Large Skipper
Large White
Meadow Brown
Orange-Tip
Painted Lady
Peacock
Red Admiral
Small Copper
Small Heath
Small Skipper
Small Tortoiseshell
Small White
Wall
White-letter Hairstreak

Flower of the Handkerchief Tree

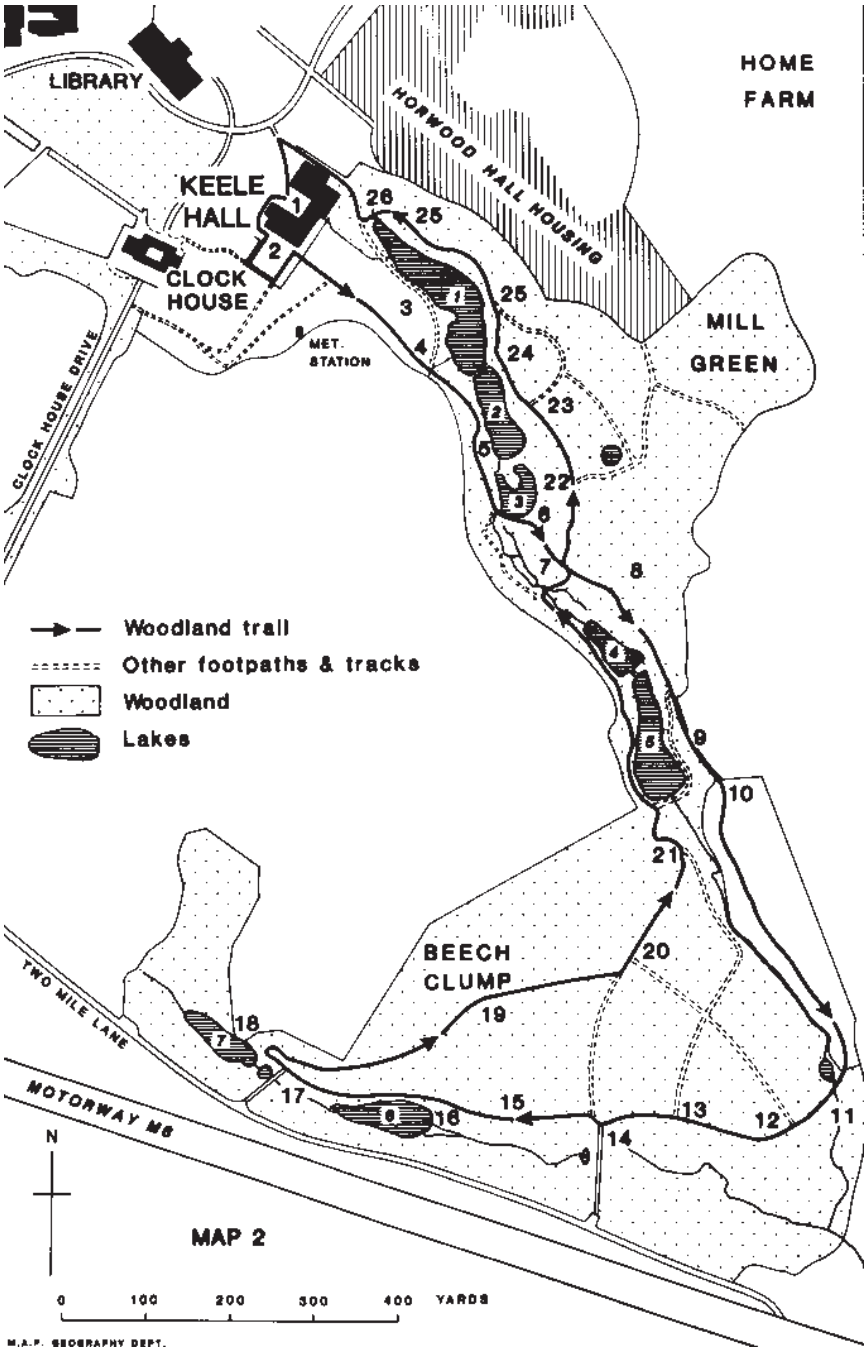
Former sewage-works site. Location 10.

White-letter Hairstreak

Clouded Magpie


Main Trail
Footpaths
Buildings
Woodland
Car Parks
Lake
Church
To Newcastle
KEELE
(a)
CHURCH PLANTATION WOODS
STAFF FLATS
CHURCH PLANTATION HOUSING
(b)
Holly Lodge
LARCHWOOD HOUSING
COVERT HOUSING
(c)
(d)
(e)
(f)
SPORTS CENTRE
COMPUTER CENTRE
WOMEN'S SHOP
CHANCELLOR'S BUILDING
PHYSICS
RECR.
CHEMISTRY
BIOLOGY
GEOLOGY
LIBRARY
CHAPEL
UNION
BARNES HALL
(h)
NORWOOD HALL
LINDSAY HALL
TERRACE WOOD
GARDENS
CLOCK HOUSE
KEELE HALL
A
B
C
D
E
F
G
H
I
J
K
L
M
N
0
100
200
300
400 YARDS
M.A.P. GEOGRAPHY DEPT.

MAP 1


LIBRARY
HOME FARM
HORWOOD HALL HOUSING
KEELE HALL
CLOCK HOUSE
MET. STATION
MILL GREEN
CLOCK HOUSE DRIVE
BEECH CLUMP
TWO MILE LANE
MOTORWAY M6
Woodland trail
Other footpaths & tracks
Woodland
Lakes
N
MAP 2
0 100 200 300 400 YARDS
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