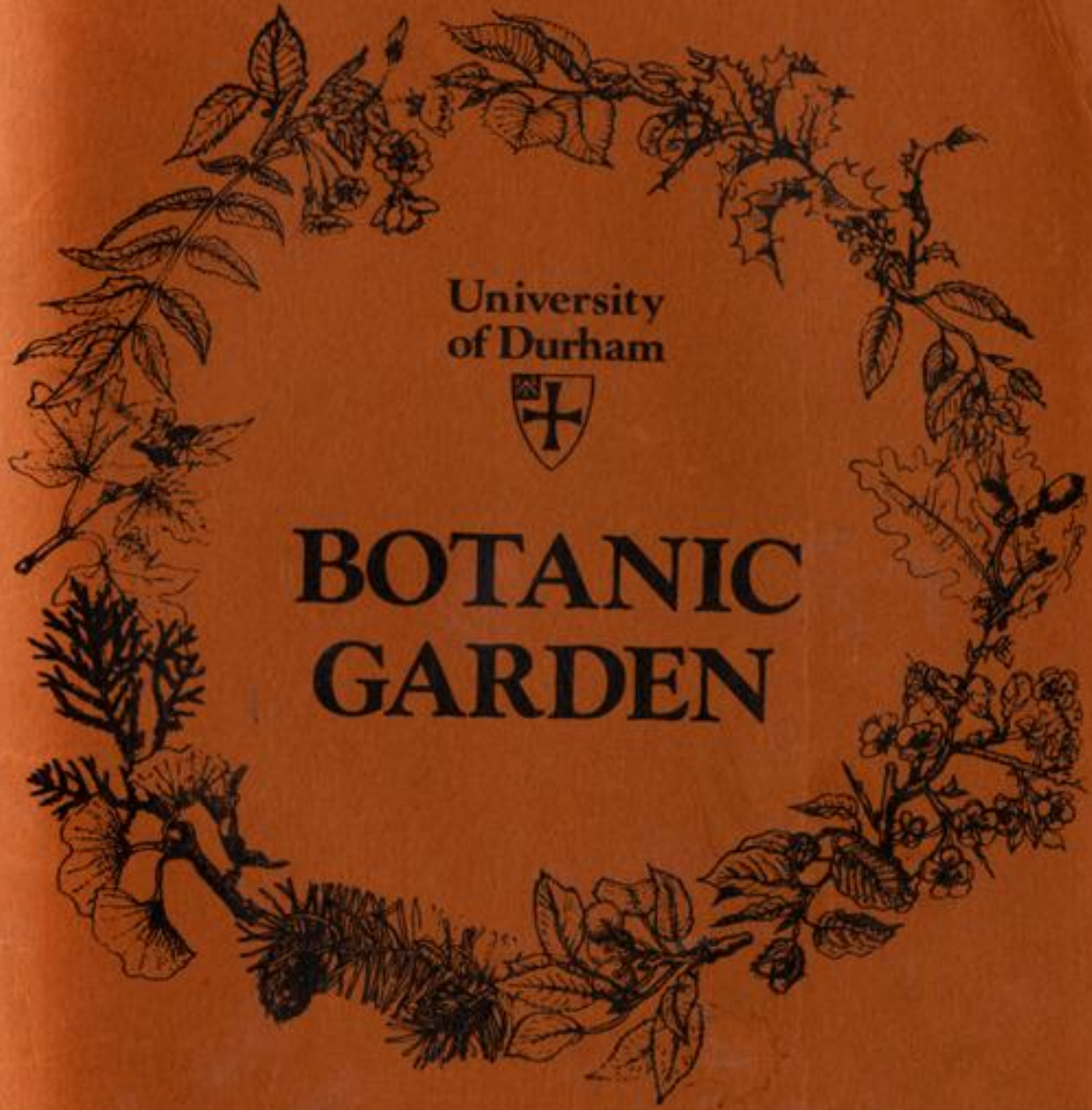


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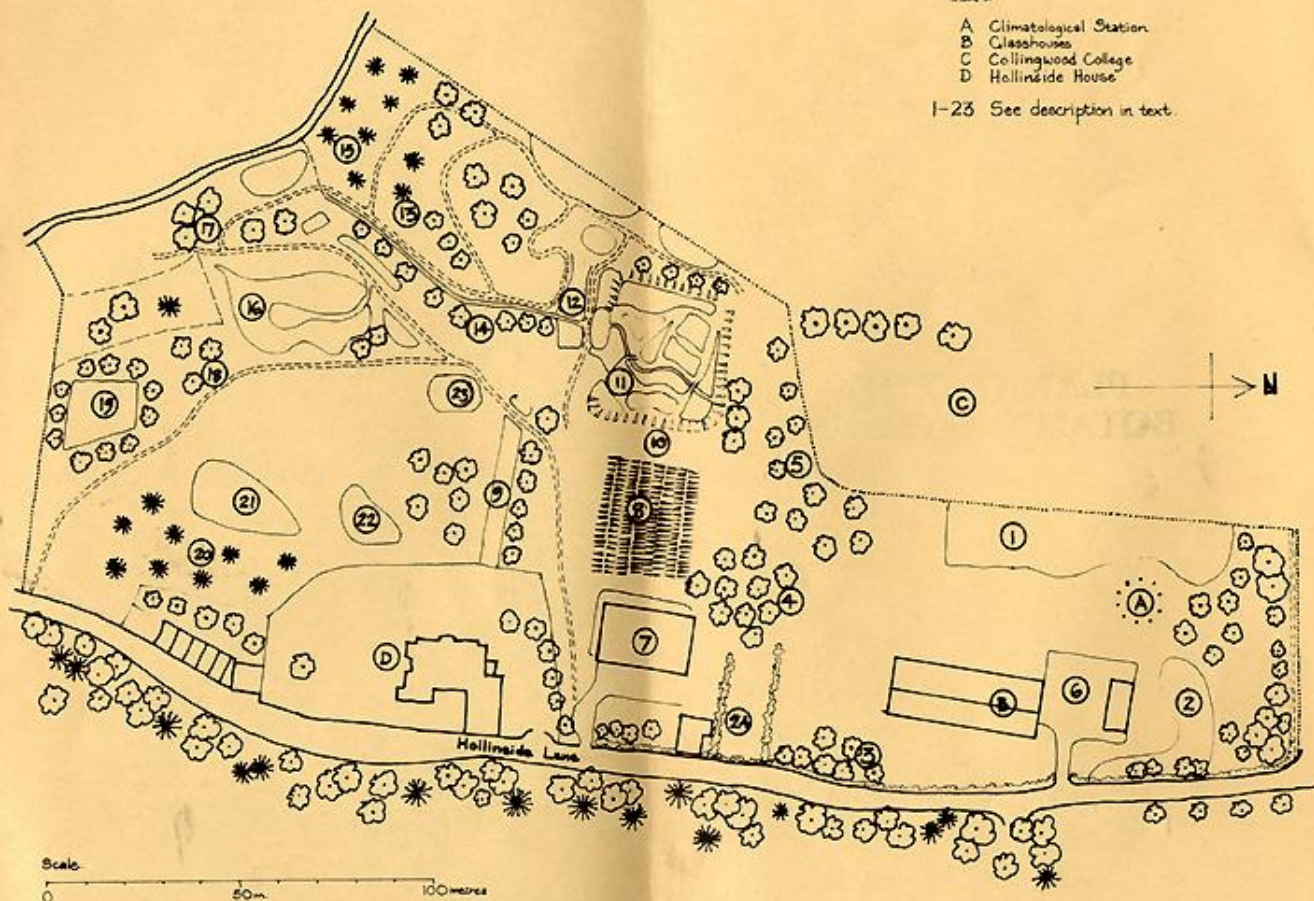
**BOTANIC
GARDEN**



KEY

- A Climatological Station
- B Classhouses
- C Collingwood College
- D Hollin-side House

1-23 See description in text.



University of Durham
BOTANIC GARDEN



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The Horticultural Officer,
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illustrations by **Rosanna Tooley**

Because the garden is still only in its early developmental stage, it is not appropriate to encourage visits from the general public at the present time. The Department of Botany, meanwhile, welcomes visitors from the University and from organisations with specific natural history or horticultural interests. As you will by now appreciate it is hoped to create a garden which will contribute to scientific endeavour and at the same time become a pleasant place of interest and quiet relaxation for visitors. We therefore ask you to comply with our rule that no dogs be allowed into the garden.



PLAN OF THE BOTANIC GARDEN

Work on the new garden situated in Hollinside Lane commenced in 1971. Since all the planting is so recent and therefore barely established, the visitor is asked to follow this guide with an eye to the future maturity of the garden, based on the new planting and the proposals detailed below.

Only a small basic collection of plant taxa is needed for most undergraduate teaching today, so space and opportunity is available to us to develop additional projects of wider value and interest to form the real character of the garden. These additional projects will include such topics as plant geography, ecology, conservation, early agriculture and regional flora. It is hoped that the new garden will rapidly become a focus of interest for horticulturists, landscape architects, naturalists, conservationists, planners and teachers.

The garden is spatially divided into a North Section and a South Section. The North Section will be devoted to mostly British and European species, conservation programmes, plants of horticultural merit and living exhibits of special interest such as modern drug plants. The garden here slopes to the south west and gets the full force of the prevailing wind. The meteorological station, run by the Department of Geography, is exactly 99 metres above sea level. The soil is a mixture of glacial sands and clays and was

previously down to pasture. pH is 7.5 (alkaline) and average rainfall 650mm. Access to this North Section is from Hollinside Lane. This lane follows a ridge to the east of which is Hollinside Wood, a mixed deciduous woodland of beech, oak, sycamore, larch, birch and holly, now recognised by the Nature Conservancy as an S.S.S.I. (Site of Special Scientific Interest).



The South Section is situated at the end of Hollinside Lane and is divided into two areas. The first, being the North American Collection, is a ridged field surrounded by a sycamore and larch plantation established in 1947. pH is again about 7.5. Some planting has already been done and nine different woodlands are planted to represent major dominant forest types of North America. The second area, to the west, the Sino-Himalayan Collection, is a steeply

sided valley with a stream running along its length. Its western slopes are bare of trees while the eastern slopes are planted with avocare and larch, again dating from 1947. There is evidence of early mining activities and the pH drops in places to 4.5 (very acid) but the soil is free of substances toxic to plant life. Although two simple bridges and some pathways have been constructed little planting has yet been possible. It is hoped that in time the Himalayan area will be planted in as natural style as possible to simulate the kind of plant associations found in Nepal around the 3-4,000 metre altitude range.

Work on the South Section is not yet sufficiently advanced to receive visitors.



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North Section. Shelter and visual screening are the first priorities of any garden and locations numbered 1 to 5 on the map (see end of booklet) will eventually meet this need. Location 1 and 5 will be planted with trees and shrubs of outstanding horticultural merit - those that have been given commendations and awards by the Royal Horticultural Society and which will succeed in northern gardens. Until these are obtained trees and shrubs nearly all raised from seed sown in the winters of 1970/71 and 1971/72 are being grown on until they are large enough for planting in the South Section.

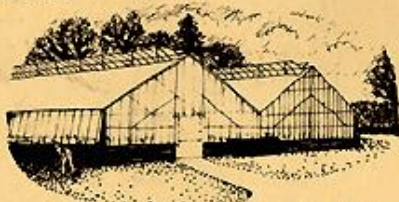
Location 3 is a screen of paper birch, Betula papyrifera, raised from seed in 1970. This birch is widespread in North America, develops a very attractive white bark, and is used for making canoes.

Location 5 is a group of mixed trees planted to eventually represent the kind of mixed deciduous woodland one might expect to find in Central Europe. It is one of a series of living demonstrations which it is hoped will show how different woodland species may be found growing naturally together, and should be of particular interest when contrasted with the mature British woodlands surrounding the garden. At the same time this woodland association will provide shelter and visual screening.

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At Location 4 it is intended eventually to form a shelter belt using various forms of common holly, Ilex aquifolium, interplanted with a collection of European oak species. Some of these have already been planted and for immediate effect common alder, Alnus glutinosa, and rowan, Sorbus aucuparia, have been included as well.

Location 6, the new glasshouses. These are primarily for research but they also provide propagating facilities for raising trees and shrubs for use on the University estate in new landscape developments or for replenishing existing planting schemes. It is hoped in time to build further houses to include a tropical rain forest ecosystem and an Arizona cactus desert with its associated spring annuals.



Location 7, the grounds maintenance building, completed in 1973. This building provides equipment stores, workshops and facilities for all the university grounds maintenance staff who are responsible not only for the botanic garden but some college grounds and grounds around all the teaching and administrative buildings together with the university woodlands.

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Location 8. The lower part of this lawn area shows evidence of ridge and furrow ploughing, thought to date from Napoleonic times.



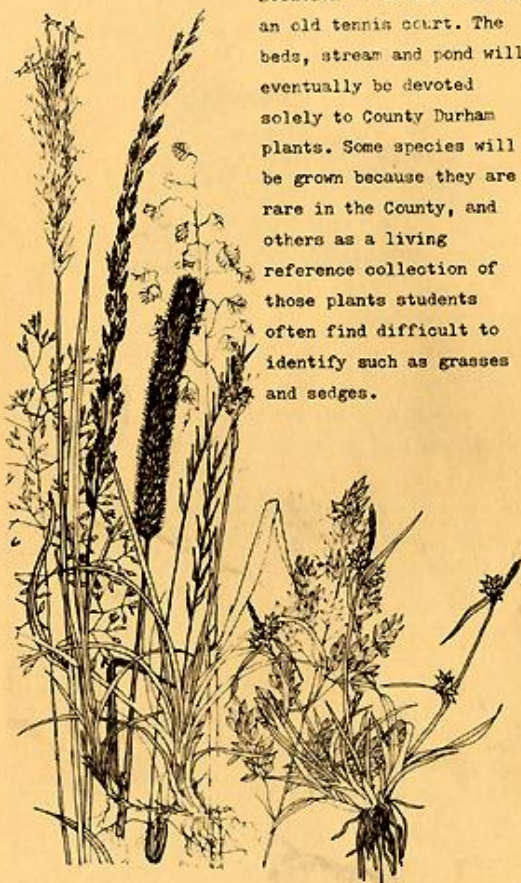
Location 9. The laurels are for shelter and to the south a collection of birch species is slowly developing. When the birch are large enough it is planned to create beds between them for Exbury azaleas raised from seed sown in the spring of 1972.

Location 10. In summer this grassy bank is attractive with flowers of wild hieracia followed by harebells, Campanula rotundifolia, and other native grassland plants. Primroses were transplanted from a development site after they had flowered in 1973 and are now spreading in their new home.



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Location 11 is the site of an old tennis court. The beds, stream and pond will eventually be devoted solely to County Durham plants. Some species will be grown because they are rare in the County, and others as a living reference collection of those plants students often find difficult to identify such as grasses and sedges.



Location 12. The overflow from the pond, fed by a spring, soaks into this bed before following the ditch to the main boundary stream. It is planned to plant the entire bed with moisture loving plants as a display feature, especially with primulas.

Location 13 is the copse. This is the only sheltered part of the garden and nicely demonstrates how effective plants are in creating microclimates. The large holly and other trees break up the prevailing wind and, because it is on raised ground cold air and frost drains away. Winter and early spring flowering plants will be grown here, where the protection will give shelter to both flowers and visitors.

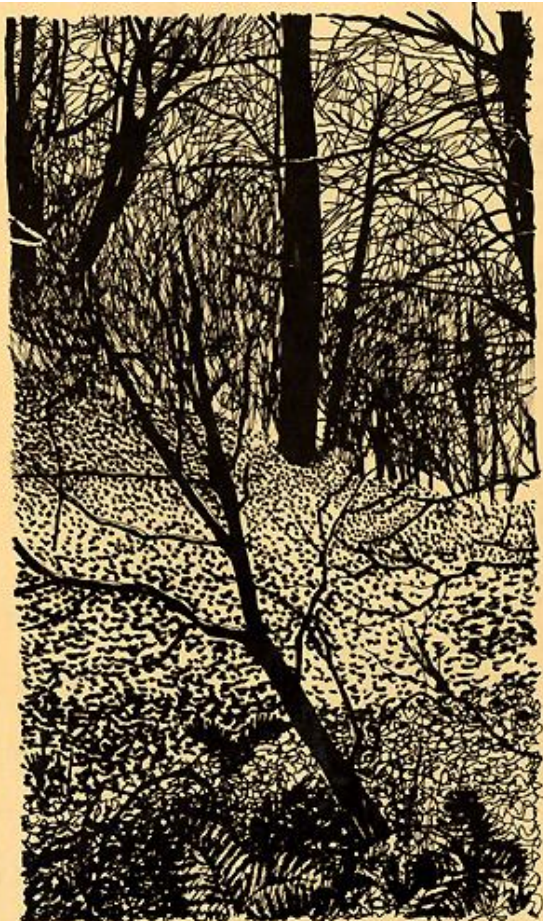
Location 14. On the grassy banks facing the copse are to be found a collection of willows all propagated by cuttings. These Salix species are from County Durham and represent both good species and some of the numerous hybrids that occur.



Location 15. Between the boundary stream and the copse are some Christmas trees, Picea abies, about ten years old. These have been extended and interplanted with Pinus sylvestris to eventually reproduce a North European coniferous forest. As the trees become larger the associated ground flora will be introduced.

Across the footbridge at Location 16 the steep south west slope has been planted with heathers occasionally heightened by Rosa species, dwarf broom and spreading conifers. This is purely a horticultural feature which at the same time overcomes the difficulty of maintaining an otherwise steep grass slope.

Location 17 at the bottom of the heather garden, across the path, a small group of hornbeam, Carpinus betulus. At this point, situated in a deep hollow, it is almost possible to imagine oneself in another time. Hornbeam was a dominant tree in Britain during the last interglacial phase and when the associated herb flora is established it may be possible to stand amongst the planting and imagine the vegetation as it was 10,000 years ago. On a nearby slope adjacent to the hornbeam are two 'Montpelier Maple', Acer monspessulanum, a species once fairly common in Britain but eliminated by the last glaciation; it is still abundant in Europe.



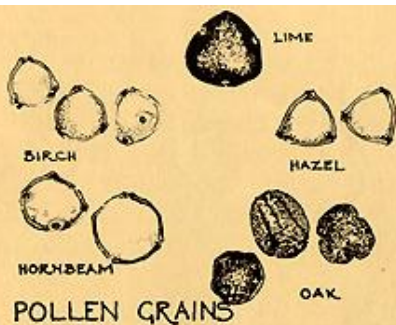
At Location 18 are a number of trees planted in the grass. They are the beginning of a collection of cultivars of Malus and Crataegus, all suitable for planting in small gardens. The turf in this part of the garden is from time to time badly torn by badgers in search of worms.



Location 19. The small enclosure formed by the growth of alder, hazel and birch is to be used for simulated primitive ploughing practices. Agricultural crops appropriate to the periods demonstrated will be grown along with their associated weed species with the objective of providing for students and visitors a tangible experience of early agriculture and its weed flora. The surrounding tree and shrub planting comprises those species which pollen studies show as commonly invading cleared land.

Location 20. Eventually this planting will represent Picea omorika forest which has a very limited distribution and is one of the Tertiary relicts of the Balkan Peninsula. The trees grow on steep hillsides usually with Pinus sylvestris, Picea abies, Abies alba, Fagus sylvatica, Acer pseudoplatanus and a limited development of undershrubs.

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At Location 21 the trees and shrubs are grouped to form an interesting arrangement of foliage. All the subjects have coloured or variegated leaves and when the planting matures should become an attractive feature.

Location 22. Rather than cultivate endangered or rare British wild flowers in pots or formal beds we are here attempting to create artificially a natural habitat in which we can try and establish certain rare plants and encourage them to naturalise.



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A number of rare County Durham species occur on magnesian limestone grassland: three tons of limestone have gone into this bed and turf from a quarry now used for tipping was carefully transplanted, and laid on top. Orchids and other rare plants will slowly be introduced and we shall hope eventually to have a successful collection of plants for conservation programmes and interpretation.



It is planned to create further habitats within the garden for the region's wild flowers and possible habitats include a colliery waste tip, sand dunes and a collection of salt marsh species. Future horticultural features will include displays of herbaceous perennial cultivars

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best suited to the north east climate and an alpine garden to demonstrate plant adaptation to mountain environments. Demonstrations to show progress in plant breeding of both agricultural and ornamental plants, species evolution and other topics are planned.

The development of the garden has been based on an extremely low-cost budget. The projects and the overall design have been tailored to meet the demands of minimum maintenance wherever possible. It is expected, however, to demonstrate that a modern botanic garden can still fulfill certain scientific requirements and provide an amenity of great value without incurring high costs.



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