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# The Danish National Arboretum at Hørsholm

In June 2015 the IDS Council and Tours Committee held their meetings in Copenhagen, Denmark. **PETER HOFFMANN**, IDS Vice President for Scandinavia and Finland, organised a tour to see some of the dendrological attractons in both Copenhagen and southern Denmark, including the Danish National Arboretum at Hørsholm. Here he briefly describes the Arboretum's history, its present situation and future, and takes us on a walk through its grounds pointing out some outstanding specimens in the collection.

The Forestry Botanical Garden was established in 1838 in Charlottenlund about 8 km from the centre of Copenhagen; it was incorporated into the Royal Veterinary and Agricultural High School in 1863. At the time of establishment, the surrounding area was very much countryside, but over the following hundred years the collection was more and more affected by the growth of the city, roads and especially the widening of the railway. As a result in 1918, a commission was formed to set up a National Arboretum, and finally in 1936, the decision was made to create the Arboretum south of Hørsholm, about 25 km from the centre of the city. The Arboretum's first Director was Carl Syrach-Larsen, who had succeeded his father Georg Syrach Larsen three years before as Director of the Forestry Botanical Garden, an appointment he

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*Pinus sylvestris*, a significant plant, grafted from what is probably the last specimen of natural occurrence in Denmark (see page 164).

kept. Between them father and son enjoyed more than 80 years of leadership of the Forestry Botanical Garden.

From the beginning there were two aims for the new Arboretum. The main objective was to create a more or less complete collection of all woody plants suitable for the Danish climate. Here, especially forestry and horticulture students could learn about many exotic species, and in this sense the new Arboretum was a continuation of the Forestry Botanical Garden.

Photograph © Danish National Arboretum



*Catalpa ovata*, the Chinese Bean Tree, and a view along the main road towards the entrance to the Danish National Arboretum at Hørsholm.

The second major objective was to undertake research work to get improved trees for the forestry. This was new — not only for Denmark, but also from a global perspective. The Syrach-Larsens were especially interested in larch, and they carried out numerous experiments to get better larch trees, by selection and hybridization. Carl Syrach-Larsen and his team also studied genetics of ash, beech, oaks, birch, and several other species, and the findings on larch and ash were transformed into breeding activities with the establishment of commercial-scale seed orchards in 1946-47. This was indeed pioneering work and later many other species followed. The ideas inspired the establishment of large tree improvement programmes in North America, Australia and New Zealand. Trees that have been important in the various genetic studies can still be found in the Arboretum, e.g. the old ash tree (V#1; planted in 1936), which is a grafting of one of the first trees to be included in systematic testing by Carl Syrach-Larsen in 1934. The Arboretum is still used for various genetic studies. Today, a lot of these studies are based on DNA techniques but visitors will still notice pollination bags, labels, data loggers and active researchers working in the Arboretum. An unusual decision was made about how to organise the collection: the broad-leaved trees were planted taxonomically, whereas the conifers were planted geographically! It seems that this was an idea copied from the Forestry Botanical Garden, where Georg Syrach Larsen's predecessor Carl Hansen was said to have believed that a large planting of pines together would be too dull. Also, most systematics in plantings in the Forestry Botanical Garden had gradually disappeared, because the place was so overcrowded with plants. New acquisitions had to be squeezed in where an empty spot could be found...a situation quite a few of us know from our own gardens!

Søren Ødum was the charismatic director of the Arboretum in the 1990s, but after his early death it gradually seemed more difficult to retain good will from the management of the University towards the importance and preservation of the plant collection in the Arboretum, and following reorganization within the forestry research from 2004, the financial support to the Arboretum and dendrology research was dramatically reduced.

Presently, the upkeep of the Arboretum relies primarily on the efforts of the resident head gardener, and only sporadic new plantings take place. Thousands of samples of twigs are still taken each year for use in education, and the greenhouse and small nursery are full of plants used in various experiments. Support from a private foundation has allowed new labelling of all trees, restoration of roads, paths and waterways, new folders and electronic resources making the Arboretum more accessible to the public. Only the former nursery area in the middle of the Arboretum is now a closed off therapy area for people with traumas, but the rest of the Arboretum is open daily to the public. It is the policy to make still more information available to the public in order to increase the general interest and knowledge

about trees and other woody plants. As well as gaining knowledge, the visitors to the Arboretum are always exposed to interesting displays of colours and shapes—of bark, flowers, leaves and fruits.

To the right of the entrance to the Hørsholm Arboretum stand some “showy” plants, large specimens of *Davidia involucrata*, *Liriodendron chinense*, *Catalpa ovata*, the Chinese bean tree, which is said to grow better here than the more commonly known and similar American species *C. bignonioides* and *C. speciosa*. *Catalpa ovata* generally grows to a smaller size than its American cousins, from which it can be distinguished by its creamy yellow flowers, and small tufts of reddish brown hairs in the corners of the nerves on the underside of the leaves. There are also some magnolias, among these *Magnolia sieboldii* subsp. *sinensis*, which on two separate occasions has been admired by visiting IDS members; it is a particularly good specimen with downy leathery leaves.

Around the newer office buildings grow quite a lot of younger trees and shrubs, among them are *Acer argutum* and *A. micranthum* (the latter can develop into a very graceful small tree), *Picrasma quassioides*, *Azara microphylla* (here at the edge of its hardiness range) and *Phellodendron insulare* (from seed collected on the Ulleung-do island in Korea—perhaps a form of *P. amurense*). There is a good specimen of *Meliosma veitchiorum*, from Hillier’s nurseries. It was impossible to find this remarkable, hardy species in the trade for many years, until the Dutch nursery Arborealis succeeded in obtaining viable seed a few years ago. A group of *Maackia fauriei* (the correct name might be *M. floribunda*) coming from seed collected on an expedition to the Korean island Jeju-do in the 1970s impress with steel-blue leaves in spring, extensive flowering in July followed by an abundance of seed. Plants have been grown from seed of these trees and sold in Sweden labelled *M. fauriei* ‘Hørsholm’, but unfortunately at the moment it no longer seems to be available in the trade.

To the right hand side, just after the entrance one passes an *Aralia* cf. *chinensis*, which is overwhelmed with blossom and fruit every third year, *Stewartia pseudocamellia*, *S. rostrata* and *S. monadelpha*, and shrubs labelled *Securinega suffruticosa* (now, *Flueggea suffruticosa*) which is rarely seen, probably because it normally looks rather untidy with areas of dead twigs; it is popular in traditional Chinese medicine. The large lobed leaves of *Kalopanax septemlobus* make it look like a tropical species, but it is perfectly hardy.

On the way one notices two poor looking larches—remains of Carl Syrach-Larsens experiments—demonstrating that good parentage is no guarantee for good progeny, especially so where the parents are closely related, which has been the case here. Further on, one passes the Rosaceae: *Crataegus*, *Malus* and *Sorbus*, and on a small peninsula in the lake, which borders the Arboretum to the west, all the different species of *Prunus* make it a very beautiful place in early spring. Some *Taxodium distichum* grow on the far bank of the lake, but without the typical visible root knees.

Birches follow, amongst which possibly the most outstanding specimen is



*Nyssa sylvatica* dressed in autumn colours.

a grafted *Betula utilis* var. *utilis*, the form with an extremely beautiful bark, formerly known as *B. albosinensis* var. *septentrionalis*, with a very distinctive graft line between the roughly barked understock and the smooth bark of the grafting. On the other side of the road, hidden away, is the unusual *Pterostyrax corymbosus*, and then *Rhamnus imeretina*, the most remarkable of all the buckthorns, originating from Caucasus. Down the slope grow species of ash, where ash dieback so far seems to have caused minimal damage; a specimen of *Fraxinus excelsior* (V#1 mentioned above, the very first acquisition to the Arboretum, it bears number 1934-2001) seems to be very tolerant to the disease. Ash dieback may have been brought to Europe on plants of the



*Maackia fauriei* flowering in July.

probably resistant species *Fraxinus mandshurica*, a few specimens of this species are also growing here, though not particularly vigorously, probably because it originates from a more continental climate. A group of different ash species has been planted in the new part of the Arboretum, to assist in a research project in order to gather more knowledge about their tolerance to ash dieback disease.

The road turns into the section containing European conifers. Here can be seen a *Pinus sylvestris* which, at least from a Danish point of view, is of significant importance as it was propagated from a graft taken from what is perhaps the only remaining specimen from the original pine woods of this country. One of the

most conspicuous trees in this area is *Picea abies* f. *virgata* (snake branch spruce); lacking side branches, probably due to a hormone disorder, it looks most bizarre. In the Fagaceae section, mostly consisting of species of beeches and oaks, but also some *Nothofagus*, one can see another odd tree, namely *Fagus sylvatica* 'Tortuosa', which is found naturally in this part of Denmark, the gnarled appearance being a hereditary deformity.

On the main road are the large American conifers to the left, among these *Sequoiadendron giganteum*, which grows quite well, and its less hardy relative *Sequoia sempervirens* which has reached about 7 m. *Oplopanax horridus*, an impressive though terribly thorny shrub which invites the hatred of rangers in north-west America also grows nearby and further on can be seen a good pair of *Nyssa sylvatica*, a photo of these trees resplendent in their autumn colours adorns the front of the recruiting folder for the Danish Dendrology Society. The new part of the Arboretum which was added in 1986 is beyond the Rhododendron Valley. Planted in geographic order, mainly with collections from various expeditions in the 1970s, the plants have now reached a good size, and some parts of this area need thinning.

Going back to the main road there are several species of *Gleditsia* and other Leguminosae, and then a section of poplars. A detour through the extensive *Acer* Collection reveals rarities such as *Acer diabolicum*. Next to *Acer* are—or perhaps were—the Ulmaceae. Of course much has been lost due to Dutch elm disease, but some specimens seem unaffected, e.g. *Ulmus minor* with corky wings on the branches, the variety name "suberosa" seems

not to be valid anymore. This bizarre tree certainly divided the visiting IDS group into two. The rare *Hemiptelea davidii* can also be found here; this is a mature plant, and therefore without the characteristic dreadful spines seen on younger plants. Past one of the vistas is a section with trees with large pinnate leaves: Juglandaceae (*Juglans*, *Carya* and *Pterocarya*), Anacardiaceae (*Rhus* and *Toxicodendron*), *Phellodendron amurense* and *Ailanthus altissima*. Underplanted with large rhododendrons, this is a beautiful spot in early summer when the sunshine is filtered through the leaf canopy and the shrubs are in full bloom.

The path leads on to the Asian conifers, which unlike the American ones do not have the same importance in forestry, but they certainly do in horticulture. Among these are two relics of evolution: *Metasequoia glyptostroboides*, specimens from the first introductions in 1946 showing significant variation in their trunks, and *Ginkgo biloba*, all rather small trees; *Trochodendron aralioides* also thrives here and one wonders why it is not found more commonly in gardens. A selection of witch hazel is bordering this section, amongst which is *Hamamelis* × *intermedia* 'Nina', one of the first cultivars of witch hazel, originally found in the Forestry Botanical Garden and named after the wife of Carl Syrach-Larsen; sadly the original plant is lost. Parts of the Asian conifer section are suffering from spreading honey-fungus. Around the lawn grows a large selection of *Juniperus communis*, all grown from seed harvested at the same location in North-Zealand, but showing a wide variety of growth habit.

Climate changes will gradually but unavoidably transform the flora of the country. Research into the natural reintroduction of species after the Ice Age has shown that on average species move about half a kilometre a year, so instead of waiting for new species to arrive, we might as well introduce some species in advance. Following the future development of the about 2,000 different species in the Arboretum could be a way to determine which of these it could be worth taking a gamble on, and this could offer an alternative argument for preserving the Arboretum and its tree collection. The National Arboretum at Hørsholm may therefore prove even more important for the future than anticipated when the Arboretum was first established in 1936.

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A complete list of the plants in the Hørsholm Arboretum is available on the website: <http://ign.ku.dk/arboret-hoersholm/find-traer-buske/>