

Green Scene: The Reunion of Trees at Riverview

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The blossom of the American tulip tree, one of the tallest trees in Eastern North America, resembles a tulip. Even its leaf shape is somewhat reminiscent of a tulip. *Bruce Brandhorst photo.*

Most people probably drive by the Riverview Hospital site on the Lougheed Highway without realizing what a fascinating collection of trees can be found throughout the grounds. With over 160 species carefully selected from temperate zones mostly throughout North America, Europe and Asia, the trees of Riverview comprise a unique collection of approximately 1800 trees. Without a doubt, the site shows off these mature trees at their best as they cloak the graciously landscaped grounds with an arboreal splendour that is a perfect counterpoint to its magnificent heritage buildings.

This tree collection also has sound scholarly foundations which reveal the botanical planning that went into its creation. Such tree collections or arboreta, as they are sometimes called, grew out of a love of landscape initially associated with the fastidiously clipped hedges and geometric shapes of the gardens of the royal and rich in Italy and France. It was, however, the British who took the creation of arboreta to new heights with their focus on creating grand naturalistic landscapes of mature trees to serve as backdrops to the country homes of the aristocracy.

Starting in the 16th century, the early explorers to the Americas and Asia were bringing back to Europe exciting new species of plants including many trees. These novelty species were especially fascinating to the English as only 35 species of trees are found naturally in Great Britain. In 1545, the first botanical garden was established in Padua, Italy followed in 1621 with a botanical garden in Oxford, England. It is in the Oxford Botanical Garden that one of the first specimens of London plane trees still grows. This tree, a hybrid of the oriental plane tree from Turkey and its American cousin, the sycamore, first grew, quite possibly by accident, when John Tradescant, the gardener to King Charles I, planted a specimen of each tree in his garden in 1638. The famous London plane tree was the hybrid which resulted. It now graces Riverview as well as many avenues in cities throughout the world where it is appreciated for its regal stature, hybrid vigour and resistance to pollution.

But how was it that these two plane trees, so closely related that they could easily interbreed, came to be separated by such distances? The answer lies in the geological forces that have shaped our world. About 200 million years ago, all the continents of the world formed a single land mass, Pangaea which slowly, due to continental drift, became two large islands, the southern Gondwana and the northern Laurasia from which the continents of our present world were slowly reshaped. Thus, at the point when flowering plants – including a common ancestor to both plane trees - began to appear in the geologic record, the lands that were to become the eastern Mediterranean and eastern North America were not too far apart.

Over the last 2 million years, a series of ice ages has caused the loss of many plant species. However, during glaciated periods, north/south trending mountain ranges offered valleys where plants could, over generations, migrate south to escape inclement weather and thus survive and continue to evolve. In contrast, where mountain chains run in an east/west direction such as the European Alps, the appearance of an ice age left no corridor of refuge for plants. China has a series of mountain ranges which run north to south as does both the east and west coasts of North America. In areas such as these, plants were able to migrate along valleys and over time, these areas evolved into biological hotspots with a diverse mix of plant species. It was regions such as these where early plant explorers were delighted to discover many new exotic species.

The plane trees were not the only ones with disjunct appearances in the eastern Mediterranean and eastern North America. Horse chestnuts from Albania were introduced to Europe in 1616 and quickly became a popular park tree. In 1711, the red buckeye was introduced from eastern North America and became known as the scarlet-flowered horse chestnut. The Albanian species and a red-flowering hybrid with a buckeye parent can be found at Riverview.

Several of the first flowering plants in the primitive Magnoliaceae family also have disjunct distributions in China and eastern North America. These include several species in the Magnolia genus as well as the beautiful (and closely-related) tulip trees which bloom each May – several of which can be enjoyed at Riverview. Linden trees (sometimes called lime trees) are another genus with disjunct distributions in Europe, China and North America (where the tree is called basswood). Four species of linden can be found at Riverview. This month, the trees walks at Riverview on July 6 and 17 will focus on these lindens (see www.rhcs.org for more information). Without a doubt, the early planners of the tree collection at Riverview, which included the province's first botanist and a Kew Botanic Garden-trained Head Gardener did an outstanding job of establishing an interesting botanical tree collection at Riverview which has resulted in the "reunion" of several species of trees that had become separated over long geologic periods.