Around the World of Exotic Plants, History and Science in 4 Days

Fig 1: *Strumaria chaplinii.* Fig 2*: Narcissus viridiflorus.* Fig 3: *Ptilotus manglesii.*

Fig 4*: Eriogonum crocatum.* Fig 5*: Ramosmania rodriguasii.* Fig 6: *Prospero talosii.*

Fig 7: *Cyclamen graecum*

Photos, Black, H., 2024

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Acknowledgement

Around the world of exotic plants, history and science in 4 days.

Phileas Fogg circumnavigated the world in 80 days, and I explored the world of exotic plants at the Royal Botanic Gardens, Kew, Richmond, in just 3, with an extra day attending the Royal Society of Biology's 'Plant Health' event, hosted at Kew with a tour of the Herbarium included, plus a visit to the Linnean Society, thanks to the generosity of the Merlin Trust.

Background

The idea for the trip first germinated in the Bothy yard, Castlewellan Arboretum and Annesley Gardens, where I had started my FdSc Horticultural Professional Work Placement, helping with an 18-month restoration project, funded by Newry Mourne and Down District Council in Northern Ireland and the National Lottery Heritage Fund.

Fig 8: Bothy yard. Fig 9: Scented garden and tea house. Fig 10: Merboy fountain. Fig 11: Renovated Propagation glass house. Photos, Black, H., 2024

The demesne was bought in 1741, and by the mid-1750s the 'Pleasure Gardens' had been started by William Annesley. I had first visited this captivating place with my Estate Management class, from College of Agriculture Food and Rural Enterprise, Greenmount Campus, in November 2023, when we were treated to a private tour with the Head Gardener, Alwyn Sinnamon, who enthusiastically pointed out champion trees and unusual specimens. We were also shown images taken by the 5th Earl, Hugh Annesley, who was both a talented amateur Victorian photographer, starting his albums around 1850, and an enthusiastic plantsperson, who together with his Head Gardener, Thomas Ryan, created a garden that was becoming internationally important by 1895.

In May 2024, when I returned to Castlewellan to assist with the mammoth restoration tasks, I was lucky to be included on a trip to The National Botanic Gardens of Ireland, Glasnevin, Dublin, and Kilmacurragh, Wicklow. It was at this stage I started to notice similar timelines and historical links which I found intriguing.

Fig 12: Palm House, Kew. Fig 13: Section of Glasnevin's Curvilinear Range, Dublin. Figs 14 & 15: Urn and outline, Richard Turner's glasshouse, Castlewellan. Photos, Black, H., 2024

Kew was bought in 1731 by Frederick Louis, Prince of Wales and Augusta, dowager Princess of Wales, who set up a garden for exotic plants in 1759. In the 1870s William Turner designed a rectangular shaped iron curvilinear glasshouse for Castlewellan and before him, during the mid-1840s, his father, Richard Turner, produced the Palm House in Kew and began work on the curvilinear ranges at Glasnevin.

Introduction

When the Royal Society of Biology (RSB) sent me an invitation to their free event, hosted at Kew, Richmond, which included a tour of the Herbarium and entry to explore the grounds, I knew at once that I wanted to go so, I applied for a bursary. When the Curator of 'Living Collections' offered me work experience, and the Linnean Society confirmed a visit, I knew I'd be cramming plenty into 4 days and learning a great deal because my plans were so ambitious. I was excited because I knew I'd be able to improve my knowledge of exotic plants and learn new skills to take back to Northern Ireland.

Aims and Objectives

Being involved with a heritage restoration at Castlewellan and visiting other botanic gardens had inspired me to improve my knowledge and skill set to become a better horticulturist and inspire others.

As the Royal Botanic Gardens, Kew is home to the world's largest collection of living plants, is set in a historic landscape and is renowned for scientific research, my main goal was to absorb as much information as possible working behind the scenes.

To achieve this, I knew I would need to work hard, listen attentively, make notes, take photographs, ask questions and conduct independent research to get the best from the opportunity.

I realised though, that the reward would be worth the effort as it would extend my knowledge of how to care for and propagate rare and endangered plants and equip me with new skills to become a more effective gardener at Castlewellan, where propagating and creating new displays in the greenhouses, gardens and arboretum is a top priority.

The experience would help to connect me with other professionals, which would greatly benefit my own botanical journey, but as I had been given permission, from the Head

Gardener, to extend an open invitation to other like-minded people, it also had the exciting prospect of creating interest in the community heritage project at Castlewellan.

Map of work experience areas

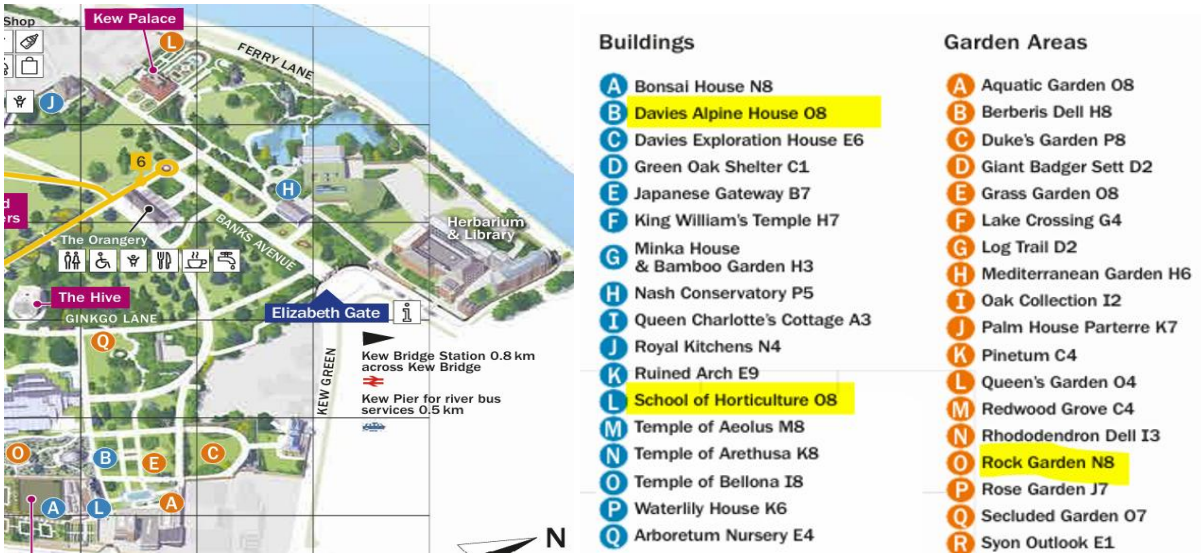


Fig16: Map of work experience areas. The Tropical Nursery is not on the map but is behind Kew Palace. The Alpine Nursery is beside the School of Horticulture. Photos, Kew, 2024

Itinerary

Days 1 and 2: work experience, Tropical Nursery.

Day 3: work experience, Alpine Nursery, Davies Alpine House, Rock Garden.

Day 4: Free time to explore Kew grounds; attend Royal Society of Biology's 'Plant Health' event, hosted at Kew. Guided tour of the Herbarium. Linnean Society visit.

Day 1, Tropical Nursery

My first day at Kew started promptly on Monday 7th October 2024 at 08:00 hrs when I met Martin Staniforth, Training Manager, in his office at the School of Horticulture. After an induction we walked the 15 minutes to the Tropical Nursery.

I listened attentively to absorb as much information as possible concentrating on landmarks to help me find my bearings as the place was vast.

As we approached the impressive pinkish-red Royal Palace we entered an area screened off by trees which was marked ‘Staff Only’, but as Martin had given me a staff pass that meant I would be able to access restricted areas on my own. Before leaving, we arranged to meet again so I could collect my Kew certificate and drop off the pass.

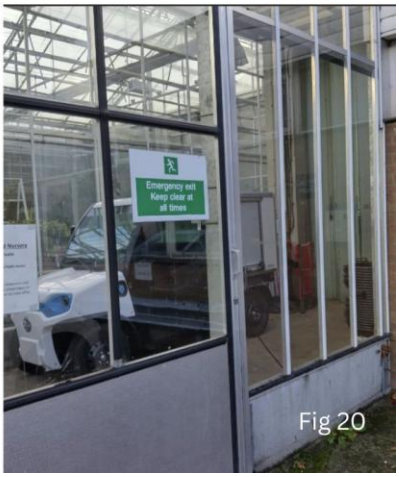


Fig 17: School of Horticulture with Davies Alpine House on right, viewed through *Eucalyptus dalrympleana*, mountain gum. Fig 18: Back of Kew Palace. Fig 19: Helen Black wearing Kew Staff Pass, Castlewellan uniform and CAFRE cap. Fig 20: Private Front Entrance to Tropical Nursery. Photos, Black, H., 2024

Upon entering the Tropical Nursery I was greeted by Paul Rees, the Head Gardener, who introduced me to his team, including his assistant, Alex Baribeau, who seemed both proud and pleased to show me around despite her busy schedule.

I quickly learnt that the Tropical Nursery is composed of 21 separate zones with a specialised gardening team assigned to each area.

A communal corridor connects each greenhouse making it seem like one huge building, rather than separate units, but the biggest surprise was the experience of being behind the scenes.

The first thing I noticed was the way things were organised. The plants were grouped in separate glasshouse environments, rather than by geographical location which is how they are generally arranged in public display greenhouses.

For integrated pest management reasons, the double doors to each unit were always kept shut. This also had the benefit of keeping temperature and humidity fluctuations to a minimum but made moving about uncomfortable and I could only imagine how it might feel on hot sunny days.

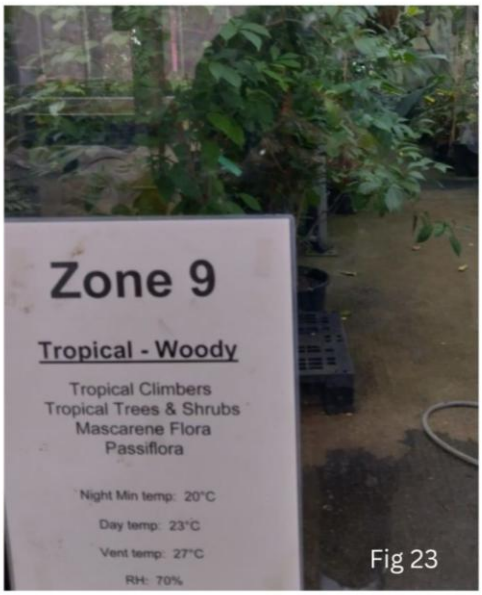


Fig 21: Zone 6 (night temp. 12C, Winter temp. 14C, Summer temp. 30C, RH ambient, Vent temp. 16C). Fig 22: Zone 8 & Fig 23: Zone 9 (night temp. 20C, day temp. 22-23C, RH 65-70%). Photos, Black, H., 2024

After tea-break, Neal Johnson gave me an in-depth tour of the Arid Collection in zones 6,7 and 14 so I could see and learn more about these specialised plants and what the team does to look after them.

I would be repotting Aloes because all the plants were being systematically given fresh compost and that was also a perfect time to conduct individual health checks.

What I did not know, however, was that the Tropical Nursery is home to ants, and I was about to become somewhat of a mealybug expert!

Ants harvest mealybugs, especially around plant roots where they happily multiply and thrive, and in return the ants always have an ample supply of protein and honeydew.

The first plant I re-potted was *Aloe nyeriensis*. It was tightly pot bound, but when I managed to release it, I disposed of all the compost, together with the pot which had mealybugs attached to the inside walls. I immersed the roots into a bucket containing a solution ratio of 1ml SB invigorator to 1L water for 1 hour to remove any remaining mealybugs.

I selected a bigger pot and cut a new piece of gauze to fit neatly inside the bottom. The replacement compost was a mix of 'Seramis', instead of traditional brick, as it has better water releasing properties, sand, pumice, grit, pine bark and a sprinkling of slow-release fertiliser to help invigorate growth.


Fig 24


Fig 26


Fig 29


Fig 27


Fig 25


Fig 28


Fig 30

Fig 24: *Aloe nyeriensis* Christian with roots emersed in SB invigorator solution and accession number stored safety beneath the bucket. Fig 25: Removed from solution and ready to re-pot. Fig 26: Mealybug infested roots. Fig 27: Replacement of damaged identification label. Fig 28: Selecting the correct pot size and cutting gauze to the correct diameter to line the base of the inside. Fig 29: Spraying the leaves with the SB solution. Fig 30: close-up of sprayed leaves. Photos, Black, H., 2024

Once the *Aloe* was well firmed in, I wrote out a new label because the old one had broken and finalised the task by dousing the stem and leaves with the same solution, using a handheld sprayer to eliminate any remaining mealybugs that had survived.

When the identity of a plant has been verified an unique accession number is assigned to it. This number is recorded by adding it to the 'Living Collections' database and a label is inscribed with the number which is inserted into the compost.

To ensure a plant can always be visually identified and in case of damage or loss to the label, the precaution of inserting three labels into each pot is taken. The locations for the labels are always the same so that every team member can locate them.

I learnt the technique as follows:

One full label is inscribed with the number. The pointed end is inserted securely into the compost, with the top half displayed with the number which is positioned at 12 o'clock.

A second full label is divided, by cutting it into two equal halves and the number is written on both parts. The part with the pointed end is inserted half-way into the compost with the number showing and the other part is shallowly buried. Both halves of the second label are positioned at 'quarter past'.

Day 2, Tropical Nursery

Arriving at 08:00 hrs on day 2, at the Tropical Nursery, I was met by the curator of 'Living Collections', Simon Toome, who invited me to accompany him on a tour of the surrounding grounds. This opportunity gave me a chance to see more of Kew, hear about his role, listen to stories about the history of the garden and learn about ongoing works and plans including the renovation of the Temperate House.

We started out in the direction of the Arboretum, heading towards the less frequented, but none-the-less very important areas including the Plant Quarantine and the Recycling Yard.

We passed through the Mediterranean Garden which I was informed was in the process of being re-designed to incorporate plants from additional hot countries, such as Australasia and South America to highlight the impact of climate change and educate members of the public about plants that thrive well in hotter, arid conditions.

We went as far as the Temperate House where Simon pointed out the vistas including the view to the Great Pagoda and continued to the Palm House along the Great Broad Walk passing the Princess of Wales Conservatory, then headed back passing The Orangery on the way.

When I returned to the Tropical Nursery it was time to help another team re-pot climbing plants which require supporting as they grow taller.

The first plant I selected was *Passiflora parritae*, which needed a bigger pot and fresh compost, but I could tell from the condition of its leaves that it was infested with mealybugs, so I picked off affected ones during the process.


Fig 31


Fig 32


Fig 33

Fig 31: Re-potted *Passiflora parritae* supported by three canes which have been firmly connected at the top with wire that has been twisted tightly. Fig 32: Extra wire length facilitates an easy twist around the stem to prevent stem damage. Fig 33: Mealybugs visible on leaves of *Passiflora parritae* and as part of integrated pest management compost and bamboo supports are renewed and affected leaves are removed. Photos, Black, H., 2024

When it was re-potted, I was ready to be shown the technique of supporting a climbing plant using three bamboo canes tied together at the top using wire.

The technique is: tightly twist one cut piece of wire securing the canes close to where they meet at the top, leave a long end of wire, lift the stem upwards and secure it close to the top of the stake by gently twisting the wire around it and hang the remaining stem over the top letting it fall downwards. This process ensures very little pressure is used to secure the stem and therefore does not damage it.

On my last afternoon in the Tropical Nursery, I had time to wander around on my own and take photographs.

One of the plants that caught my attention in Zone 9, was *Ramosmania rodriguasii* due to the beauty of its crisp white flowers, star-shaped petals, tiny yellow central crown and large glossy leaves. It reminded me of *Trachelospermum jasminoides,* from the family *Apocynaceae*, but I noticed that every 5-petalled flower had a downward pout, so I wondered if there was something wrong with the plant and then I noticed the labels.

Fig 34: *Ramosmania rodriguasii*. Fig 35: Red label denotes *Ramosmania rodriguasii* as Critically Endangered. Photos, Black, H., 2024

The identification label read *Ramosmania rodriguasii*, commonly known as 'café marron', or 'brown coffee', from the family *Rubiaceae*, but beside it was a red label marked Critically Endangered. Curious to find out more I researched it and discovered this plant is native to the Mauritian island of Rodrigues in the Indian Ocean and grows to 6 feet. It is a Genus of two species, *R. rodriguasii* and *R. heterophylla*, but unfortunately the latter is extinct which is the reason why it was placed on the Critically Endangered list. The story goes that when *R. rodriguasii* was rediscovered in 1979, cuttings were sent to Kew to see if it could be propagated to prevent its complete extinction. However, when vegetative propagation was successful it was thought generative reproduction would not be possible as only male flowers formed. Later, though, it was discovered that heat stress induced the formation of female flowers, so pollination was successful, and the cultivated plants were re-introduced to Rodrigues. Despite this positive result, though, it is still classified as Critically Endangered by the International Union for Conservation of Nature and Natural Resources.

Day 3, Alpines

Day 3 was completely different, not only because I'd been asked to start at 07:30 hrs, but because I was joining the Head Gardener, Faye Adams and her team who cover a vast site and are responsible for the 2nd most diverse range of plants at Kew that grow in areas such as the Alpine Nursery, the Rock Garden and the Davies Alpine House.

Rock Garden

The Rock Garden consists of 7 mountainous regions which are built on different heights making gardening more challenging as it is both vertical and horizontal. Each gardener is assigned an area where plants are arranged by geographical location and I joined the team to discuss a *Equisetum arvense*, horsetail, problem.

Controlling *Equisetum arvense* requires regular management due to its rhizomatous spreading habit and deep roots. For this problematic area it had been decided to remove all the plants, replace the soil, cover the ground and leave fallow for 12 months with periodic spraying as necessary.

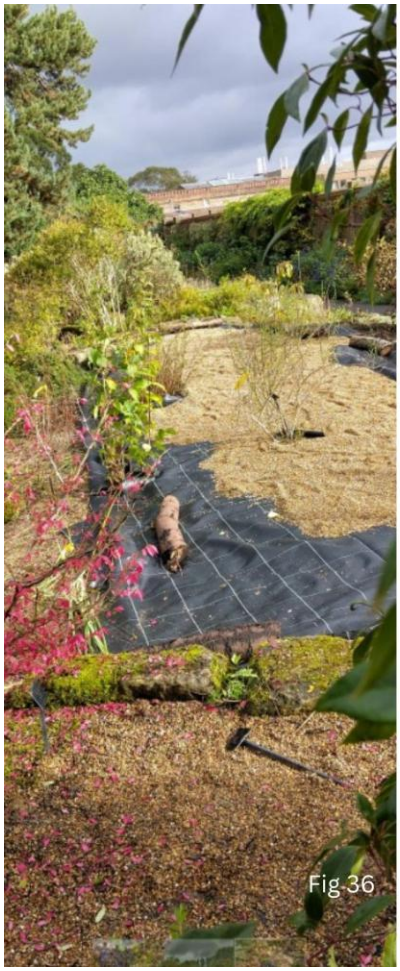


Fig 36: Rock Garden area covered and left fallow. Fig 37: Alpine staff discussing control of *Equisetum arvense.* Fig 38: View of horizontal and vertical terrain. Photos, Black, H., 2024

Alpine Nursery

The Alpine Nursery, fondly referred to as the Melon Yard, is strictly private, meaning it is off-limits to members of the public.

It is where the propagation for other areas takes place and is home to many beautiful plants and bulbs including the National Collections of *Juno* (*Iris* subg. *Scorpiris*) and *Tulipa*.

In the Melon Yard, there are several environmentally controlled greenhouses, but unlike the Tropical Nursery, there are also two other types of structure known as low or high All-Weather Frames (AWF).

The AWFs have roofs constructed from glass or plastic, to keep the rain and the worst of the weather off the plants, but the sides are open for cool ventilation, so they are a cross between out-door and indoor greenhouses.

In addition to covers they have a thermal screen lined with silver strips to provide shade in the summer and radiant heat in the winter which is especially important for the low laying plants as it is protection from ground frost.

All the plants are grown in terracotta pots which absorb water quickly which is advantageous for plants that like dry soil and they can help protect plants from rapid temperature changes such as winter cold snaps.

Although the main purpose of plunging the pots into sand is to keep the bottom of the plant cool, clay pots are more stable than plastic so when the sides of the AWF are open this is advantageous if it is windy, plus terracotta is more attractive and sustainable than plastic. One of the things said to me was: “alpines love hot tops and cool bottoms”!

I was asked to help re-pot Juno *Iris* bulbs from the National Plant Collection of *Iris,* subgenus *Scorpiris.* As I did not know anything about these plants, I did some research and discovered that *Iris* (the Genus) belongs to the plant family *Iridaceae* which contains another 80 Genus, like *Crocosmia, Gladiolus* and *Crocus. A*lthough the *Junos* were once considered distinct enough to be placed in their own Genus, *Juno*, recent research has since confirmed they are one of 6 recognised divisions, or subgenera, within *Iris.* Their leaves are arranged distichously, or one on top of the other, possess distinctive true bulbs with permanent storage roots, and are mainly found in W. and C. Asia. I re-potted *Iris magnifica* ‘Sunny Side Up’ which is a hybid of two species, *I. magnifica x* I*. bucharica*.

The task involved removing pots from the plunge beds, taking them on trolleys to the potting house, preparing different compost mixes, removing old foliage, cleaning bulbs, replacing the gauze over the hole in the bottom of the pot, repotting the bulbs in specially prepared compost, updating records and replacing any damaged labels.

Because a new compost mix was being trialled, any bulbs re-potted using it were given blue labels to identify them so that their progress could be monitored. When the pots are taken back to the AWFs they are plunged into sand to keep the roots of the plants cool and when there is adequate spacing, watering and fertiliser application rates can be controlled.

Fig 39: High AWF, glass and thermal cover. Fig 40: Low AWF, plastic sides partly raised, for ventilation, thermal screen fully rolled up. Fig 41: Label for *Iris magnifica* 'Sunny Side Up'. Fig 42: Gauze cut to correct size covers drainage hole at the bottom of the pot before new compost is added. Fig 43: Bulb preparation removing dead foliage. Fig 44: Two types of compost mix. Fig 45: Close-up of thermal screen with silver strips. Photos, Black, H., 2024

Millie Woodley told me she had recently been part of an expedition to Kyrgyzstan where the modern day 'plant hunting' team had worked with local botanists to collect wild seeds for the tulip collection, such as *Tulipa toktogulica* that has a peculiar, elongated bulb.

However, because they were collecting seeds, rather than blooming plants, which would have been easier to identify, they would have to wait to see what they managed to get. It can take many years for plants to grow from seed and even longer until they are mature enough to produce flowers and seeds, so it takes a great deal of patience.

I thought it was interesting that staff from the Herbarium, including botanical artists, are asked to visit the Melon Yard to document new varieties when they mature. These

professionals are the experts when it comes to pressing plant parts, sketching them and painting them in colour. This work is vital to help with specific identifications as often clues are very subtle between different species. A colour chart is used to ensure the right hues are recorded for prosperity and future referencing.

It was also interesting to hear that collecting wild seeds sustainably, is very important as it helps to prevent extinctions due to the fact many alpine plants are at risk in the wild because of rising global temperatures, illegal poaching and habitat destruction.

Davies Alpine House

The Davies Alpine House is open to the public, so is a wonderful place to show-case alpines all-year round, both in permanent displays and on temporary display benches which are refreshed weekly with the best blossoms taken from the Alpine Nursery.

It was designed to recreate the dry, cool, windy conditions that alpines enjoy and was constructed as two back-to-back arches creating a stack effect that draws warm air out while underground pumps cool air near the ground which then re-circulated.

When I was visiting, during the team inspection, there were discussions about how to clean the glass as it was filthy and had not been washed since construction in 2005.

The glass is delicate and contains a low-iron content which allows 90% of light to pass through and care needs to be taken when cleaning it. One of the suggestions was to use a drone, because of the hard-to-reach areas, but this had never been done before so would have been a first if implemented.

Figs 46 & 47: Temporary displays at either end of the Davies Alpine House with plants staged at the back for visibility and impact. Photos, Black, H., 2024

I had a wonderful time taking photographs in the Alpine Nursery and the Davies Alpine House. However, it was only on closer inspection that you really got to appreciate the beauty of some of the smaller plants which was the case with the tiny green *Narcissus viridiflorus*.

Fig 48: *Narcisus viridiflorus* in the permanent display, Davies Alpine House. Fig 49: *Narcisus viridiflorus* in the plunge bed, Alpine Nursery & information sign reads “The delicate fragrance of the *Narcissus* creates an inviting aura around this plant”. Figs 50 & 51: close-ups of *Narcisus viridiflorus*. Photos, Black, H., 2024

The flower heads are exceptionally difficult to view because of their size but leaning in very close you are rewarded both by an amazing fragrance as well as seeing how lovely they are.

The *Narcisus viridiflorus*, from the family *Amaryllidaceae*, flowers in autumn. It is native to southwest Spain and produces clusters of starry, spidery, emerald-green flowers, with swept-back petals, on 35cm high stems and interestingly it is pollinated at night.

Figs 52 - 54; *Strumaria chaplinii.* Photos, Black, H., 2024

In the Davies Alpine House on the temporary display units, there was an abundance of beautiful plants, taken from the nursery because they were in bloom and consequently looking at their best. The array included, *Strumaria truncata and Prospero talosii.Strumaria*

chaplinii is from the family *Amarylidaceae* and is confined to a small coastal area of the western cape in south Africa where it is threatened by development, mining, and grazing. It grows in depressions of granite rock sheets and flowers prolifically in autumn following the first rains. James Chaplin of the Royal Air Force made the first scientific collection of this curious bulb named after him.

Prospero talosii is from the *Asparagaceae* family and is an unusually large hyacinth that only grows wild on the cliffs and slopes of the islet of Dia, of the north coast of Crete. Flowering in autumn on an uninhabited island, it stayed unknown to botanists until recent times. The species name *talosii* comes from Talos, the giant bronze man built by Hephaestus, the Greek god of invention and blacksmithing, who was commissioned by Zeus, the king of the gods, to protect the island of Crete from invaders.

Fig 55 – 57: *Prospero talosii.* Photos, Black, H., 2024

The walls of the Davies Alpine House are lined with tufa rocks which are constructed over the top of porous limestone and a deep layer of sand.

To grow plants in these harsh conditions small holes are drilled downwards and sideways so that the plant's long tap root can be carefully lowered into the hole which is re-filled with the dust from drilling, grit and sand. This technique helps train the plant's roots to grow downwards towards the water source as the wall is watered, rather than the plant which helps prevent the plant from getting too wet and ensures the roots grow longer as they keep cool within the deep layers of the wall.

Fig 58: Inside the Davies Alpine House, view towards the Rock Garden, with permanent and temporary planting displays. Fig 59: Exterior. Fig 60: Team inspection before public opening. Fig 61: Planting along Tufa walls. Photos, Black, H., 2024

Day 4, RSB Plant Health Event, Herbarium and Linnean Society

The day started with a brief visit to the Marianne North Museum, which is an amazing place full of history and her wonderful botanical paintings.

Then it was time to hurry along to the science laboratory for the first of the morning's plant health talks hosted by the RSB.

Lectures included ongoing work to tackle *Hymenoscyphus fraxineus*, and tree damage caused by Sciurus carolinensis, grey squirrels.

Immediately afterwards I was thrilled to be presented with my Kew Certificate before joining a very informative tour of the Herbarium and then, unfortunately, my time at Kew ended.

Fig 62

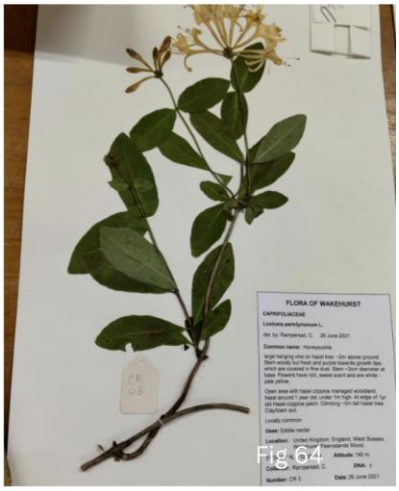


Fig 64

Fig 63

Fig 65

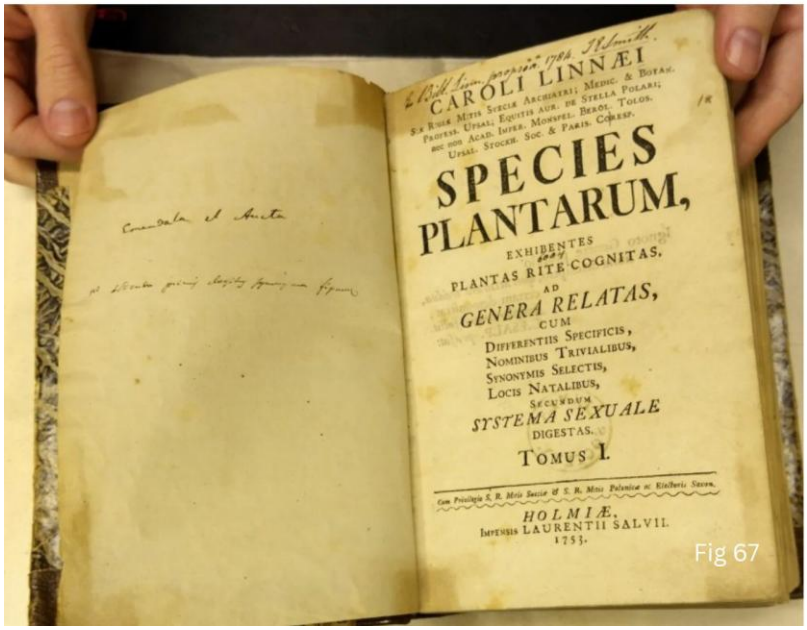
Fig 62: Exterior of The Wolfson Wing, part of the science laboratory where the RSB event took place. Fig 63: Commencement of RSB science lectures on 'Plant Health'. Fig 64: Pressing of *Lonicera periclymenum*, Herbarium. Fig 65: Interior of Herbarium and associated plant collection materials. Photos, Black, H., 2024

Before departing for Northern Ireland, I had one last visit planned and that was to the Linnean Society which was founded by James Edward Smith who saw himself as the successor to Carl Linnaeus when the Linnaean specimen and library collections were brought from Sweden to England in 1784.

On arrival the very knowledgeable librarian, Will, accompanied me to the 'vault' which safely houses many of Smiths and Linnaeus's collections and because it is not everyone who gets this rare opportunity, I had the honour of having my name added to the visitor's book!


Fig 66


Fig 68


CAROLI LINNÆI
SPECIES PLANTARUM,
EXHIBENTES
PLANTAS RITE COGNITAS,
AD
GENERA RELATAS,
CUM
DIFFERENTIIS SPECIFICIS,
NOMINIBUS TRIVIALIBUS,
SYNONYMIS SELECTIS,
LOCIS NATALIBUS,
SECUNDUM
SYSTEMA SEXUALE
DIGESTAS.
TOMUS I.
HOLMIÆ,
IMPENSIS LAURENTII SALVII.
1753.
Fig 67

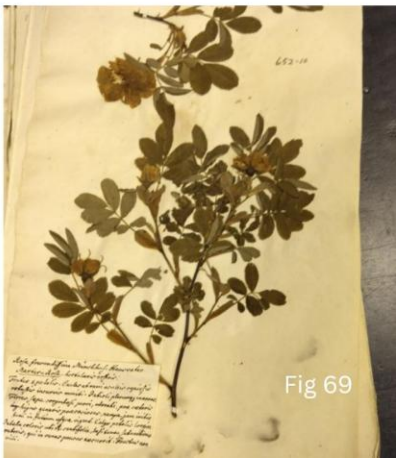


Fig 69

Fig 66: Vault library and collections, Linnean Society. Fig 67: First edition of 'Species Plantarum' by Carl Linnaeus, 1753. Fig 68: Parchment folders containing dried plant specimens arranged by family. Fig 69: Single *Rosaceae* dry flower pressing and hand-written notes from Linnaeus's collection. Photos, Black, H., 2024

Carolus Linnaeus (1707-1778) laid the foundations for modern taxonomy. The Species Plantarum lists every species of plant known at the time classifying them into genera which was the starting point for the naming of plants.

Will, the librarian, recounted the fascinating story of how James Edward Smith (1759-1828) bought the collections of Carl Linnaeus in 1784, at the age of 23 years, paying 1,000 guineas, which is approximately £250,000 today. At the time he was a medical student and didn't have sufficient funds, so he asked to borrow this huge sum from his wealthy woollen merchant father who granted it under two conditions, graduate from medical school, which he did in 1786, and marry which he did in 1796.

I was amazed to hear that at the age of only 27 years Smith had managed to establish the Linnean Society and I hope to return sometime to spend much longer as there is so much to see, learn and appreciate.

Conclusion

I had a truly terrific time during my 4 days. It was hard work, but it was totally worthwhile, and I made good professional contacts.

This opportunity has increased my plant knowledge exponentially, which is what I wanted, and I have learnt new skills which will hold me in good stead moving forward.

The experience has left me eager to learn more about alpines as prior to Kew I had not worked with this diverse range of plants which I found remarkably interesting.

Therefore, in the future, if I get a chance to work with alpines, either ex-situ or in-situ, I will pursue this specialism to become more experienced in their care, propagation, and conservation.

I was fascinated by the crevice rockery displays of saxifrages which were grown in stone troughs. Therefore, if it is possible, I will do something similar at Castlewellan as I think this would be a great way to educate members of the public on how to achieve all-year round displays of interest and a sustainable alternative to seasonal container planting.

I would like to use my new skills to assist the gardening team when it is time to re-plant the area around the Merboy, as traditionally it was surrounded by alpines.

There might also be an opportunity to create alpine displays in the unheated greenhouses so there will be many ways for me to implement my newly attained knowledge and put it to good use for the benefit of myself and the community.

Fig 70: Close-up of several S*axifrages* planted in a crevice rockery and displayed in a stone trough, Kew, with *Saxifraga marginata* Sorrento at the back identified by a white label which indicates recently planted. Fig 71: Several stone troughs outside the entrance into the Davies Alpine House. Fig 72: Seasonal planting in round wooden containers on the gravel terrace at Castlewellan. Fig 73: Stone troughs outside the other entrance into the Davies Alpine House. Photos, Black, H., 2024

This experience and fantastic opportunity would not have been possible without the help I received from a large group of people, so I would like to sincerely thank my family, Greenmount tutors, Castlewellan colleagues, all the teams at Kew, the RSB, the Linnean Society and the Merlin Trust.

Expenses

Flights including luggage: £216.21

Accommodation 5 nights: £400

Train fares: £110

Car parking at the airport and fuel: £57.99

Original proposed costings: £775

Actual total: £784.20

Appendix

Fig 74: Kew certificate, presented to Helen Black, for 3-day work exchange from 7th – 9th October 2024. Photo, Black, H., 2024