

Belsay Awakes: The Plant Collections of Sir Charles Monck and Sir Arthur Middleton

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1 Introduction

The gardens and landscape at Belsay Hall are primarily the work of Sir Charles Monck (1779-1867) and his grandson, Sir Arthur Middleton (1838-1993). Sir Charles Monck inherited the Belsay estate in the very late 1700s and in 1804, married his cousin Louisa and embarked on an extended tour of southern Europe. On his return, Monck began a reorganisation of the landscape as well as the building of Belsay Hall in an authentic Grecian style from 1810-1817. At the age of 89, Sir Charles died and his grandson inherited the estate. Whilst Sir Arthur Middleton served to maintain much of Monck's work, he also was an avid gardener himself and contributed new features (such as the Yew and Winter Gardens) to the landscape and also remodelled existing features.

Over the time that the estate was in the care of these two men, ideas in garden/landscape design were rapidly changing and the existing landscape at Belsay is a mixture of the Picturesque and Gardenesque. This research project hopes to shed light on the changing plant collection at Belsay through a systematic evaluation of the plant registers contained in diary entries made by Sir Charles and Sir Arthur between 1819 and 1939.

2 Historic Garden Design Influences

Whilst the gardens at Belsay reflect a number of distinct styles in garden design, Belsay is heavily associated with the Picturesque style, which became prevalent from 1760s into the early 1800s and coincides largely with Charles Monck's lifetime (1779-1867). The Picturesque style is defined essentially by its philosophy of equating the landscape with a picture; the observer's view of the landscape should be inspired by/inspire a landscape painting. This was achieved in part by dividing the landscape into three distinct sections; the fore-, middle- and backgrounds. The southern view from the Hall incorporates this element of the Picturesque in that the fore-ground is provided by the Terraces, the middle-ground by the Rhododendron Garden and the background by Crag Wood. The synonymy between landscape design and art is made with the intention that feeling should be invoked within the observer. This principal is at the core of the Picturesque style and marks it as a reactionary style to the preceding English Landscape Garden style that was led by Capability Brown. The Brownian landscape garden, though intended as natural, was deeply criticised by leaders of the Picturesque movement (Uvedale Price, Payne Knight and later Humphry Repton) for being a bland idealised version of nature and therefore just as deeply contrived as the formal gardens of the 17th and early 18th century. Payne, Knight and Repton sought to more authentically represent nature through irregular placing/shaping of natural focal points within the landscape (heaped rocks, tangled shrubs, meandering streams and dead trees). However, despite the use of rugged and dramatic natural scenery, the style also relies heavily on human focal points such as bridges, temple ruins, and grottos. Whilst this initially appears contradictory to the philosophy of the style, it is a technique that is commonly used in landscape painting as the combination of nature and human experience is a powerful means of invoking feeling within an observer.

The role of human features in the Picturesque style is so central that it is even said that the term Picturesque is applied to human behaviour, not to landscape, although landscape elements are involved in the ensemble (Hunt, 2004).

The later Gardenesque style, emerging in the early 1800s (around 1832), coincided with the industrial revolution in Britain and served to provide the latest fashions in garden design to the self-made businessman. Whilst it proved impossible to encapsulate the whole spirit of the dramatic Picturesque style within the smaller plots of land owned by these new clients, Humphry Repton was able to adapt the style and devise an interesting solution. Whereas the Picturesque style divided the landscape into three distinct sections, the Gardenesque style placed emphasis on one element; the foreground.

The foreground area of the Picturesque style is characterised by features that provide a transition from the house to the outdoors and therefore define the foreground as more formal than natural. Placing emphasis on this allowed for the revivalism of historic formal garden features as part of the Gardenesque style. At Belsay, this can be seen in the Terraces that lie directly in front of the Hall; the Upper Terrace is composed of features such as gravel walks and close-mown lawns that reflect the austere character of the Hall whilst the Lower Terrace contains a parterre and raised pies.

However, to juxtapose the incorporation of historic garden features within the Gardenesque style, a booming industry also led to advances in greenhouse technology, allowing exotic plants from around the world to be grown with greater ease across the UK. With such interesting plants more readily available, society developed a taste for enjoying gardens intellectually and specimen plants/trees were tagged and exhibited as focal points. In this way, an inherently natural object such as a tree/plant becomes deeply associated with human action by virtue of its presence in an entirely unnatural/foreign environment. Sir Arthur incorporates this element of the Gardenesque in the East Quarry garden, which, though initially structured by Sir Charles in a typically Picturesque style, is overlaid by Gardenesque planting (i.e. exotics).

Whilst the use of exotics in English garden design took off on a large scale during the industrial revolution (beginning in the late 1700s), it was the work of earlier plant hunters (such as John Tradescant, Sir Joseph Banks and William & Joseph Hooker) that paved the way. John Tradescant introduced a large number of exotic plants from Russia, N. Africa and N. America in the early 1600s. Sir Joseph Banks, who had accompanied Captain Cook on HMS Endeavour's voyage to the South Pacific (1768-1771), brought back a number of plants from Australia and New Zealand. Later in 1847-1849 William and his son Joseph Hooker later travelled to the central and eastern Himalaya collecting approximately 700 species in India and Nepal and added 25 new rhododendrons to the 50 already known. A key question that this research hopes to explore is the extent to which Sir Charles Monck and Sir Arthur Middleton contributed to the introduction of exotics to the UK from their travels to the southern Europe.

3 Databasing of Archived Plant Records in Iris BG

The data collected for this study includes plants recorded mentioned in diary entries from the following archives: ZMI B/53/1, ZMI S/33, ZMI S/35, ZMI S/36, ZMI S/37, ZMI S/38. Plants recordings (totalling 532) are made by Sir Charles Monck and Sir Arthur Middleton as part of registers of the trees, shrubs and other plants present at Belsay that were taken periodically between 1819 and 1939. Plant registers consisted of the scientific names as they would have been known at the time and occasionally also included the associated common names (given in brackets beside the scientific name). This information was used to determine the modern day equivalent of the archived scientific name as in many cases subsequent taxonomic research has led to historic plant names being altered. Plant databases including the Plant List, Beans Trees and Shrubs as well as the plant tables provided in Watkins & Wright, 2007 were used to determine synonymy of plant names where it occurs. Further information recorded from the archives includes a description of the location of a given plant within the site as well as any notes made in relation to a particular plant. The

latter included information on the form/structure of a particular species (e.g. colour, leaf structure, parent species etc.) as well as more generic information (e.g. plant nursery from which the plant was bought, when it was planted, dates and causes of death etc.). It is important to note that whilst these notes are extremely useful, it is provided only for a small proportion of the total plants recorded. In order to further explore the plant collection at Belsay, the introduction date and distribution of each plant species for which the modern scientific name was successfully found, was also researched.

In combination, this research was entered into the Belsay Hall collection in Iris BG (code 066) and the following section outlines the method applied. Historic locations were entered to A sequence of imports was required to fully enter the research into the relevant fields within the taxa and accessions forms in Iris BG. It was necessary to enter the taxonomic data prior to the accessions data in order to associate accession information (e.g. archive reference, date of mention etc.) to a given plant species.

3.1 Inputting Historic Locations

Prior to importing taxon or accession data, it was necessary to input the locations into Iris as they were mentioned by Sir Charles Monck and Sir Arthur Middleton. This ensured that when locations would be later imported as part of the accessions data, they would match to an existing and mappable location. Whilst locations were provided for the majority of plant records, many were very generic (e.g. grounds, quarry-on right, terrace- east end) and could not be identified accurately using existing maps of the site. For this reason, a 'Historic' locations subsection was created (separate to existing/modern locations). Further to this, it was also important to consider the fact that over the time period considered in this study (1819-1939), the site was evolving and therefore location references made each family member would also vary. In order to accommodate this, the 'Historic' subsection was further divided into two time slices: '19th Century' and '20th Century'. Based on this, locations were then entered; the 'Location Name' consists of the full location description as provided in the diaries and the 'Location Code' consists of a shorthand/more concise location description. Locations were mapped if the location reference was accurate enough to pinpoint a specific location. This is shown in figures 1 and 2 below:

Code	Name	Type	Map ref.	Item type	Comments	Coord. lat. x	Coord. long. y	Pu...	Ac...
066.00.00	Belsay Garden					55.099655	-1.863073		✓
Historic	Historic			Research		55.099858	-1.863245		✓ ...
19th Century	19th Century			Research					✓ ...
20th Century	20th Century			Research					✓ ...

Figure 1: Creating historic locations that are subdivided into two time slices; 19th and 20th centuries.

Collection locations
Manage collection locations

Save

Code	Name	Type	Map ref.	Item type	Comments	Coord. lat. [x]	Coord. long. [y]	Pu...	Ac...
066.00.00	Belsay Garden					55.099655	-1.863073		
Historic	Historic			Research		55.099858	-1.863245		✓ ...
19th Century	19th Century			Research					✓ ...
behind garden	behind garden			Research					✓ ...
castle 19C	castle 19C			Research					✓ ...
Garden	Garden			Research					✓ ...
Grounds	Grounds			Research					✓ ...
Hedges	Hedges			Research					✓ ...
in front of ...	directly in front of the House			Research					✓ ...
Near Old Ho...	Near Old House			Research					✓ ...
old garden	old garden			Research					✓ ...
Open border	Open border			Research					✓ ...
Orchard	Orchard			Research		55.100069	-1.865771		✓ ...
Pasture gro...	Pasture ground			Research					✓ ...
pleasure gr...	pleasure ground			Research					✓ ...
protection h...	for hedge 24 yards long. 4 to 5 ...			Research					✓ ...
quarry 19C	quarry 19C			Research					✓ ...
Shrubbery -...	Shrubbery - old			Research					✓ ...
shrubbery a...	shrubbery at Castle			Research					✓ ...
terrace 19C	terrace 19C			Research					✓ ...
Wood	Wood			Research					✓ ...
20th Century	20th Century			Research					✓ ...

Figure 2: Showing sublocations contained within 19th Century Historic locations.

3.2 Inputting Archive References

Archived diaries (e.g. ZMI S/33 etc.) are associated in Iris BG with a Library Catalogue Number. For reference, these are provided below:

- ZMI B/53/1 = 12
- ZMI S/33 = 10
- ZMI S/35 = 7
- ZMI S/36 = 5
- ZMI S/37 = 4
- ZMI S/38 = 3

A copy of the transcribed document can be downloaded from Iris by clicking on the 'three dots' icon in the E-document field (shown in figure 3). The reference details for all diary entries listed in the above section were entered manually into Iris.

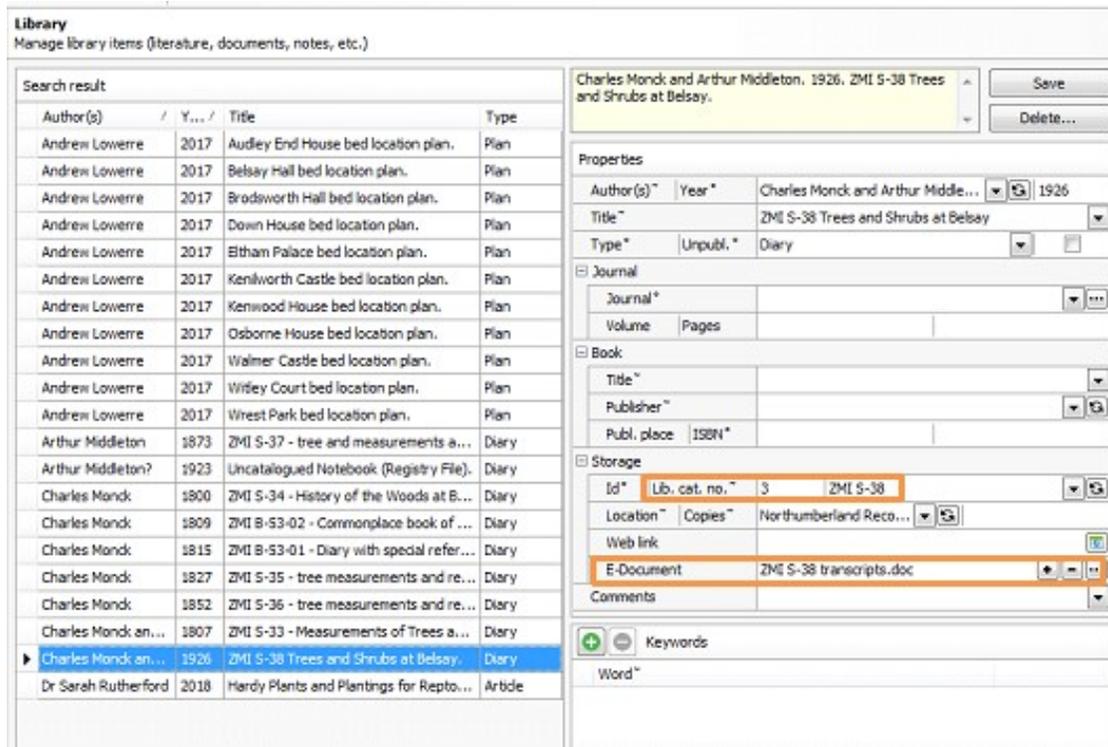


Figure 3: Library references upload to Iris BG for ZMI S/38 is assigned a Library Catalogue Numer (3) and the transcribed document can be found by clicking the 'three dots' icon.

3.3 Importing Taxonomic Data

Taxonomic data was imported in several stages; firstly the historic plant names (listing only the archived plant names that differ significantly from their modern equivalents) and secondly the modern plant names (listing modern equivalents of the historic plant names and plant names that have not changed). The data relating to the historic and modern plant lists can be found by searching within the Data Import section in Iris BG; they are named Historic Scientific Names and New Modern Scientific Names respectively. In order to import scientific names into the Taxon Name field in Iris BG, it was required to break down the name and import under the correct import headings: Genus, Species, InfraType1, InfraName1 and Cultivar (as shown in figure 4).

	A	B	C	D	E	F
1	Genus	Species	InfraType1	InfraName1	Cultivar	NameSource
23	Bambusa	gracilis				Belsay diary research
24	Belis	jaculifolia				Belsay diary research
25	Benthamia	fragifera				Belsay diary research
26	Berberis	japonica				Belsay diary research
27	Betula	alba	var.	pendula		Belsay diary research
28	Bignonia	radicans				Belsay diary research
29	Calycanthus	praecox				Belsay diary research
30	Caprifolium	syringifolia				Belsay diary research
31	Carpinus					Belsay diary research
32	Castanea					Belsay diary research
33	Ceanothus				'Gloire de Versailles'	Belsay diary research

Figure 4: Historic plant names list in Excel.

This data is mapped into the following fields in Iris BG as shown in figure 5.

Taxa and nomenclature
Manage taxa and nomenclature

Taxon name: **Belis jaculifolia** **HISTORIC PLANT NAME** Family: **Cupressaceae** Save Expre...

Names Details Parentage Images References

Scientific names

- Belis jaculifolia

Checked date Checked by Checked ref.

Common names

Type	Name	Rank	Comments

Name properties

Belis jaculifolia

Name status: **Accepted name**

Genus/monomial: Belis

Species: Author: jaculifolia

Infra-1: Name: Author:

Infra-2: Name: Author:

Cultivar: group:

Hybrid formula

Trade name: append

Infra group:

Information

LSID

Nomenci. status:

Publication

Description (original)

Distribution (original)

Name source: Belsay diary research

Comments

Reg. init. date jhamra 31/08/2018

Figure 5: Historic taxon form in Iris BG corresponding to *Belis jaculifolia* (highlighted in figure 4).

The same process was carried out to import the list of modern plant names. Figure 6 shows the modern equivalent of *Belis jaculifolia* (*Cunninghamia lanceolata*) as a taxon in Iris BG. Note also that the common name (Spear leaved bells) associated with this taxon is also highlighted in figure 6. Common names were imported third using the import headings shown in figure 7.

Taxa and nomenclature
Manage taxa and nomenclature

Taxon name: **Cunninghamia lanceolata** **MODERN PLANT NAME** Family: **Cupressaceae** Save Expre...

Names Details Parentage Images References

Scientific names

- Cunninghamia lanceolata

Checked date Checked by Checked ref.

Common names

Type	Name	Rank	Comments
English	Spear leaved Bells	1	Belsay diar...

Name properties

Cunninghamia lanceolata

Name status: **Accepted name**

Genus/monomial: Cunninghamia

Species: Author: lanceolata

Infra-1: Name: Author:

Infra-2: Name: Author:

Cultivar: group:

Hybrid formula

Trade name: append

Infra group:

Information

LSID

Nomenci. status:

Publication

Description (original)

Distribution (original)

Name source: Belsay diary research

Comments

Reg. init. date jhamra 31/08/2018

Figure 6: Taxon form in Iris BG for *Cunninghamia lanceolata* (the modern equivalent of *Belis jaculifolia*).

	A	B	C	D
1	TaxonName	TaxonCommonNameType	TaxonCommonName	TaxonCommonNameComment
24	Asplenium viride	en	Green spleenwort	Belsay diary research
25	Athyrium filix-femina	en	Lady fern	Belsay diary research
26	Cunninghamia lanceolata	en	Spear leaved Bells	Belsay diary research
27	Campsis radicans	en	maj & minor	Belsay diary research
28	Blechnum spicant	en	Hard Fern	Belsay diary research
29	Botrychium lunaria	en	Moonwort	Belsay diary research
30	Buxus	en	Box	Belsay diary research

Figure 7: Common names were imported under the heading 'Taxon Common Name'.

Common names (column C, figure 7) were imported by associating them to their modern name equivalents (column A, figure 7), which, by our sequence of imports, existed as taxon names in Iris BG. The import heading TaxonCommonNameType (column B) refers to the language that the common name is provided in. This was set to English (en) for all records. Note that both taxon forms (figures 5 and 6) show the taxon name status equal to 'Accepted' despite *Belis jaculifolia* currently being recognized as a synonym of *Cunninghamia lanceolata*. This synonymy was resolved in Iris BG by expiring the historic name (*Belis jaculifolia*) and treating it as a synonym of the modern name (figure 8).

The screenshot shows a taxonomic software interface with several panels. On the left, under 'Scientific names', *Cunninghamia lanceolata* is listed as the primary name, and *Belis jaculifolia* is listed as a synonym. Below this, a table of 'Common names' shows an entry for 'English' with the name 'Spear leaved Bells', rank '1', and comment 'Belsay diar...'. On the right, the 'Name properties' panel for *Cunninghamia lanceolata* shows it is an 'Accepted name' with the genus 'Cunninghamia' and species 'lanceolata'. The 'Information' panel shows the 'Name source' as 'Belsay diary research' and a registration date of '31/08/2018'.

Figure 8: Showing *Belis jaculifolia* (historical name) to be a synonym of *Cunninghamia lanceolata* (modern equivalent) and the associated common name as mentioned in the diary entry.

Further information also associated with the taxon is the plant distribution (native country/area) and introduction date (year in which the species was introduced to the UK). This was imported into Iris BG under the following import headings (figure 9):

	A	B	C	
1	Action	TaxonName	AtrT_Introduction_date	TaxonDistribution
45	U	Drepanostachyum falcatum		W. & Central Himalaya to Indo-China
46	U	Cunninghamia lanceolata	1804	China
47	U	Cornus capitata	1825	China - Himalaya
48	U	Berberis darwinii	1849	Chile
49	U	Mahonia fortunei	1846	China
50	U	Berberis prattii		China
51	U	Berberis vulgaris		Europe to NW. Iran

Figure 9: Import headings used to import the plant distribution and introduction date for a given plant e.g. *Cunninghamia lanceolata*

This information is imported into the following fields in Iris, as shown in figure 10.

The screenshot shows the 'Taxa and nomenclature' window in the Iris software. The taxon name is 'Cunninghamia lanceolata' and the family is 'Cupressaceae'. The 'Attributes' panel on the right shows the following values:

Name	Value
Introduction date	1804
Distribution	China

Figure 10: The plant distribution and introduction date for *Cunninghamia lanceolata* as it appears in Iris

3.4 Importing Accession Data

Accession data included the year of mention, the family member making the record, the plant name (historic and modern) and its location. This was provided for each plant species recorded in the archives and was imported under the headings shown in figure 11 and continued in figure 12.

	ProvenanceCode	DetComment	TaxonName	ItemStatusDate	AccYear	DetDate	AccNo	ItemNo
3	U	Bambusa gracilis	Bambusa gracilis		1852	1852		30 A
3	U	Belis jaculifolia	Belis jaculifolia		1852	1852		31 A
2	U	Benthamia fragifera	Benthamia fragifera		1852	1852		32 A
1	U	Berberis Darwinii	Berberis Darwinii		1852	1852		33 A
2	U	Berberis Fortunii	Berberis japonica		1852	1852		34 A
3	U	Berberis vulgaris	Berberis vulgaris		1852	1852		35 A
1	U	Betula alba pendula	Betula alba var. pendula		1852	1852		36 A

Figure 11: The following accession item data was imported under the following headings.

ItemTypeCode	ItemStatusCode	ItemStatusPerson	DetPerson	ItemLocation	ItemLocationComment	Comment	ItemComment
R	L	hist_101	Sir Charles Monck	in front of house	House - directly in front of t		2
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		
R	L	hist_101	Sir Charles Monck	Grounds	Grounds		Marked as (dead) in record

Figure 12: Continued from figure 6a..

Working from the 1st column of figure 11, the import headings are defined as follows:

1. **Provenance Code:** The provenance (i.e. origin; Wild, Garden Origin etc.) of the accession is entered as Unrecorded for all plant records as this information was in nearly all cases un-obtainable from the historical material used in this study. In very few cases, the nursery from which the plant was bought was also mentioned the family member, and this could allow for this field to be changed in the future. Similarly, when researching the plant distribution, some species were recorded to have a Garden Origin- these species could also be updated in the future.
2. **Det Comment:** This column contains all historic plant names exactly as they were mentioned in the diary entries. This is provided for future reference if necessary.
3. **Taxon Name:** This column contains the non-typo versions of the historic plant names. The accession information is associated to the historic plant records as oppose to the modern version as the accession data (listed in the caption of figure 6) is historic.
4. **Item Status Date, Accession Year and Determination Date:** These fields are all populated by the year in which the plant was recorded in diary entries.
5. **Accession Number:** The accession number for *Belis jaculifolia* is 31; this means that *Belis jaculifolia* was the 31st species mentioned in 1852 (the year it was recorded).
6. **Item Number:** This field is given as 'A' for each plant record, meaning that each is recorded to be independent of any other. This is not ideal as it would be best to be able to associate plant records that referred to the same plant with each other, allowing us to trace an individual plant through time. However, this is incredibly complex considering the number of plants as well as the time scale over which records were made and sadly the level of detail was not sufficient.
7. **Item Type Code:** The item type provided for all plant records was 'Research' (code; R).
8. **Item Status Code:** The item status provided for all plant records was 'Listed' (code: L). This is used as opposed to 'Planted', 'Dead' or Removed.
9. **Item Status Person/ Det Person:** Both these columns refer to the family member by which the plant record was made. In Iris BG, the family member' name is associated with a code, as illustrated below:

- Sir Charles Monck = hist_101

- Sir Arthur Middleton = hist_102
- Sir Arthur Charles Middleton = hist_103
- Sir Stephen Middleton = hist_104
- Belsay Unknown (1852-1939) = hist_105

Note that Belsay Unknown (1852-1939) was accounts for plant records made in ZM1 S/38 that are not attributed to a particular family member. The date range 1852-1939 is provided by the range of dates entered in that diary.

- Item Location:** Entries in this column contain the location associated with a plant recorded in the diaries written by the family member making the record. These match exactly with the historic Locations Code described in Section 3.1.
- Item Location Comment:** This column includes the full location descriptions and exactly matches to the Locations Name. These are provided for reference.
- Comment:** This column refers to comments made in the diaries that refer to descriptions of the form/structure of a particular plant.
- Item Comment:** This refers to comments made in the diaries that refer to more generic information (e.g. plant nursery from which the plant was bought, when it was planted, dates and causes of death etc.)

In Iris BG, the accessions data is entered into the fields shown in figures 13 and 14.

Accessions
Manage collection accessions and items

Accession: * 066.1852.0031 Taxon name: * Cunninghamia lanceolata Family: * Cupressaceae

Locality/origin:

Save Delete...

Details Items (1) Parentage Images References (2)

Properties

Acc. year *	no *	type *	1852	31
Taxon name *	Det. type *	Cunninghamia lanceolata		

Determination

Det. as taxon name	Belis jaculifolia			
Det. date	person	level	1852	Sir Charles Mo...
References	Comments	Belis jaculifolia		

Locality

Locality *				
Habitat				
Aspect	Slope			

Collection

Origin

Contact *	Donor type *			
Origin ~	ref.			
Provenance *	Prop. hist. *	Unrecorded		

Material

Determination history

Taxon name *	Det. type *	Det. date	Det. person *	Det. level *	References	Comment
Belis jaculifolia		1852	Sir Charles Monck			Belis jaculif...

Figure 13: Showing the Accessions details entered into Iris BG for Cunninghamia lanceolata (modern). Note; this information can also be obtained by searching by the historic name (Belis jaculifolia).

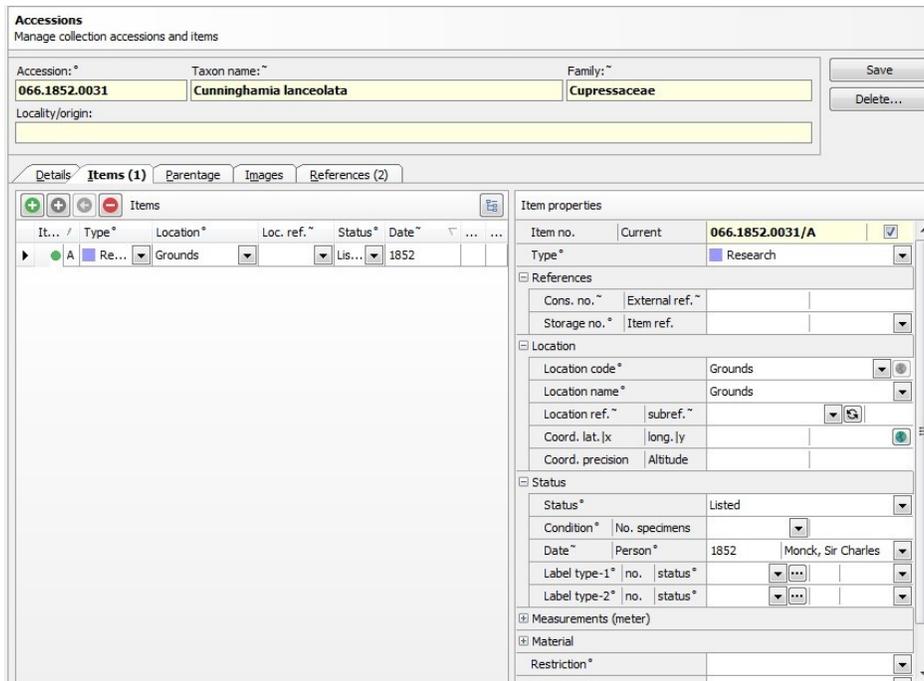


Figure 14: Showing the Accession item information entered into Iris BG for *Cunninghamia lanceolata*.

3.5 Importing References for the Accessions Data

Given that our Accessions data relates to information solely gained from the historical archives and that the archive information was manually entered into Iris BG (as described in Section 3.2), it was possible to link the accession items to the related archive reference. This was achieved using an excel spreadsheet (figure 15) containing the Accession Item Code (made up of the collections code, the accession year, the accession number and the item number; e.g. 066.1852.0031/A) and the associated Library Catalogue Number. In addition, a comment was included containing the historic and common name provided in the diaries.

A	E	F
PublAccComment	PublID	Accession Item Code
Azalea amoena	5	066.1852.29/A
Bambusa gracilis	5	066.1852.30/A
Belis jaculifolia / Spear leaved Bells	5	066.1852.31/A
Benthamia fragiferia	5	066.1852.32/A
Berberis Darwinii	5	066.1852.33/A
Berberis Fortunii	5	066.1852.34/A

Figure 15: Excel file provided used to import accession reference information. The information contained within this file can be viewed by searching in the 'Import Data' section for 'Accession references' and 'Accession references - test 2'.

This allows Iris to populate the Accession References information as shown in figure 16:

Accessions
Manage collection accessions and items

Accession: ° **066.1852.0031** Taxon name: ~ **Cunninghamia lanceolata** Family: ~ **Cupressaceae** Save Delete...

Locality/origin:

Details Items (1) Parentage Images **References (2)**

Library items

Author(s)°	Title°	Pages	Comments	Item	Type
Charles Monck	ZMI S-36 - tree measurements and registers of trees and ...	1852		Belis jac... 066.1852.003...	Diary

Belis jaculifolia / Spear leaved Bells

Permits

Status° Status comment

Events

Event kind / Text

Task Task 4: ZMI S-36 - tree measur... OK Cancel

Figure 16: Accession reference for *Belis jaculifolia* in Iris BG.

3.6 Creating Tasks

Once all taxa and accessions data was successfully imported, it was possible to organise information within Iris BG so that a user can view all plant records associated with a particular diary or view all plant records found in all diaries. This information can be viewed by searching within the 'Tasks' section, as shown in figures 17 and 18:

Tasks
Manage tasks

Search result

No	Name	Status	Date	Entry kind	Priority	Owner	Start	End
7	All taxa found researching Belsay archive	Completed	1939	Taxon	0: None	jhamra	1819	1939
6	ZMI S-38 Trees and Shrubs at Belsay	Completed	1926	Item	0: None	jhamra	1926	
5	ZMI S-37 - tree and measurements and registers of trees and shrubs	Completed	1909	Item	0: None	jhamra	1873	1909
4	ZMI S-36 - tree measurements and registers of trees and shrubs	Completed	1854	Item	0: None	jhamra	1852	1854
3	ZMI S-35 - tree measurements and registers of trees and shrubs	Completed	1827	Item	0: None	jhamra	1827	
2	ZMI S-33 - Measurements of Trees and Shrubs at Belsay	Completed	1807	Item	0: None	jhamra	1807	
1	ZMI B-53-01 - Diary with special reference to horticultural practices	Completed	1834	Item	0: None	jhamra	1815	1834

Figure 17: Tasks created include all plants recorded in all diaries (first row) and plant records by diary entry (all other rows).

Tasks
Manage tasks

Task

No^o | Status^o | date[~] | 6 | Completed | 1926 | Date start[~] | end[~] | 1926

Name^o | ZMI S-38 Trees and Shrubs at Belsay | Contact^o | ...

Type^o | Research | Exp. cost | Act. cost

Description | Charles Monck and Arthur Middleton | Comments

Priority^o | Owner^o | 0: None | Bhamra, Jaskirit | Reg. init. | date | jbhamra | 03/09/2018

Entry kind^o | Item

Code/Name ^o	Info-1	Info-2	Comments	Image	Status	Status date	Sort
* Click here to add a new row							
▶ 066.1839.0001/A	Douglasii	Historic•19th Century...			● Compl...	03/09/2018	1
066.1848.0001/A	Araucaria imbricata	Historic•19th Century...			● Completed	03/09/2018	2
066.1852.0020/A	Araucaria	Historic•19th Century...			● Completed	03/09/2018	3
066.1852.0062/A	Chamaerops excelsa	Historic•19th Century...			● Completed	03/09/2018	4
066.1854.0001/A	Adiantum capillus-veneris	Historic•19th Century•			● Completed	03/09/2018	5
066.1854.0002/A	Adiantum pedatum	Historic•19th Century•			● Completed	03/09/2018	6
066.1854.0005/A	Asplenium adiantum-ni...	Historic•19th Century•			● Completed	03/09/2018	7
066.1854.0006/A	Asplenium ruta-muraria	Historic•19th Century•			● Completed	03/09/2018	8
066.1854.0007/A	Asplenium septentrionale	Historic•19th Century•			● Completed	03/09/2018	9
066.1854.0008/A	Asplenium trichomanes	Historic•19th Century•			● Completed	03/09/2018	10
066.1854.0009/A	Asplenium viride	Historic•19th Century•			● Completed	03/09/2018	11
066.1854.0010/A	Athyrium filix-femina	Historic•19th Century•			● Completed	03/09/2018	12
066.1854.0011/A	Blechnum boreale	Historic•19th Century•			● Completed	03/09/2018	13
066.1854.0012/A	Botrychium lunaria	Historic•19th Century•			● Completed	03/09/2018	14
066.1854.0015/A	Cryptogramma	Historic•19th Century•			● Completed	03/09/2018	15
066.1854.0016/A	Cystopteris fragilis	Historic•19th Century•			● Completed	03/09/2018	16

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Figure 18: The tasks list for ZMI S/38 listing 337 plant records for this diary.

4 Results

A key part of this study was to identify plants that were recorded at Belsay very close to their introduction dates to the UK. The table below provides a list of plant species that were recorded within 20 years of their introduction:

Modern Name	Date Mentioned	Introduced	Difference (yrs)	Distribution
<i>Rhododendron thomsonii</i>	1852	1850	2	Himalaya
<i>Berberis darwinii</i>	1852	1849	3	Chile and Argentina
<i>Fitzroya cupressoides</i>	1852	1849	3	Chile and Argentina
<i>Cephalotaxus fortunei</i>	1852	1849	3	China
<i>Sequoia sempervirens</i>	1850	approx. 1843	7	California (Western USA)
<i>Forsythia viridissima</i>	1852	1845	7	China
<i>Hydrangea macrophylla</i>	1852	Soon after 1845	7	Japan
<i>Jasminum nudiflorum</i>	1852	1844	8	W. China
<i>Weigela florida</i>	1852	1844	8	N. China and Korea
<i>Ligustrum japonicum</i>	1854	1845	9	N. China and Korea, Japan
<i>Cryptomeria japonica</i>	1852	1842	10	Japan and China
<i>Papaver bracteatum</i>	1828	1817	11	Iran and S. Russia
<i>Pseudotsuga menziesii</i>	1839	1827	12	Western N. America
<i>Cedrus atlantica</i>	1852	1840	12	Algeria and Morocco
<i>Ilex latifolia</i>	1852	1840	12	Japan
<i>Sequoiadendron giganteum</i>	1865	1853	12	California (Western USA)
<i>Pinus gerardiana</i>	1852	1839	13	NW Himalaya and N. Afghanistan
<i>Pinus montezumae</i>	1852	1839	13	Mexico
<i>Abies pinsapo</i>	1852	1839	13	SE Spain
<i>Tsuga dumosa</i>	1852	1838	14	Himalaya (India to China)
<i>Cupressus macrocarpa</i>	1852	1838	14	California
<i>Kerria japonica</i>	1852	1834	18	China
<i>Buddleja davidii</i>	1890	1901	18	C & W China, Japan
<i>Pinus radiata</i>	1852	1833	19	California
<i>Azara microphylla</i>	1880	1861	19	Chile and Argentina
<i>Cedrus deodara</i>	1852	1831 or 1856	21 or -4	Western Himalaya

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From this table it is interesting to note that 18 of the 26 plants had an earliest mention date of 1852, coinciding with the period of Belsays history associated with Sir Charles Monck.

5 Further Steps

- This study only provides initial results and it would extremely useful to carry out further research on the plants identified in the table above in order to provide further insight.
- To provide an even richer database, plant records from the Uncatalogued Notebook could also be incorporated into this study.
- A key area for improvement is the Locations; it has proven very difficult to interpret historic locations and identify where these lie on modern site maps. As many historic locations are very generic, it may be useful to map them to general but sensible points in Iris. This at least provides the potential to produce maps that plot plants belonging to a particular time slice so that information can be visually displayed.
- It will be possible to import references for taxon data (introduction dates, distributions and the modern taxon name determination) using a future version of Iris BG.

References

- [1] Hunt, J. (2004). *The picturesque garden in Europe*. London: Thames & Hudson, p.16.
- [2] Losse, M. (2018). *Adventure and discovery around the world with the plant hunters — Kew*. Retrieved from <https://www.kew.org/blogs/library-art-and-archives/adventure-and-discovery-around-world-plant-hunters>
- [3] Watkins, J., & Wright, T. W. (2007). *The management & maintenance of historic parks, gardens & landscapes: The English Heritage handbook*. London: Frances Lincoln.