Lost and found: the Benmore and other Clydeside fernery buildings constructed by James Boyd & Sons of Paisley

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Abstract

Digital library searches undertaken by the author have recently uncovered a small but significant archive of information about the Benmore fernery, linking it to glasshouses and other contemporaneous fernery buildings in Scotland. It is now possible to verify the date of the original building to the early 1870s. Wider context and background details are provided by briefly exploring horticultural trends and architectural innovations from this period. Thereafter, the known Clydeside fernery buildings constructed by James Boyd & Sons are reconsidered, providing insight into unknown and previously missing details of the Benmore version.

In 2009, from a ruinous condition, the Benmore fernery was the subject of a significant restoration led by a Glasgow-based team of conservation-accredited architects. Aspects of this practical work are summarised.

The article concludes by exploring the wider topics of garden history and conservation and highlights the role of botanic gardens in promoting the sometimes overlooked value of garden heritage.

Introduction

As manufacturing flourished in the 1800s, the River Clyde and the west of Scotland became a source and centre of unprecedented global trade. Industrialisation and wealth creation provided widespread opportunities that encouraged innovation and artistry in many pursuits, including gardening and architecture. The construction of buildings dedicated to nurturing ferns and other plants reflected the ambitions and personalities of the period. As always, overlapping and interwoven amongst such aspirations and tribulations are the applied trades and professions of many ordinary, unseen and now vanished lives.

The recent availability of free-to-use online search engines provided by the Biodiversity Heritage Library have allowed unprecedented and immediate reference to rich sources of primary documents with otherwise limited access.[2] Rediscovered fragments and articles can now be cited to augment understanding of the Benmore fernery (Fig. 1) within this distinct period of Scottish garden history.

Pteridomania

The Reverend Charles Kingsley (1819–1875) is credited with gifting the term 'pteridomania', meaning 'craze for ferns', to the world of horticulture in 1855 (Boyd, 2005). Fully fledged fern fever possessed many individuals who actively sought rarities and other specimen plants. The expansion of trade

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Fig. 1 The Benmore fernery building, viewed from the south-west, 2019. Photo: Rachel Keenan.

routes and international travel allowed access beyond previously known frontiers and introduced a seemingly endless supply of new species to a Victorian public gripped by the curiosity and excitement of collecting (Whittingham, 2012). Collections of hardy ferns flourished in rockeries, woodland garden settings and dedicated fern houses that provided protection for tender species. Such enthusiasms led to the creation and application of the word 'fernery' as a specific and distinct garden feature (Symes, 1993). Established by a group of like-minded individuals dedicated to the advancement of fern studies and cultivation, the British Pteridological Society was formed in 1891 (Camus, 1991).

Early glasshouses and fernery buildings

Early, minimally glazed glasshouses with arcade-style frontages can be broadly categorised as orangeries. A prominent example dating from c. 1760 can be found at Beanston House near Haddington in East Lothian (McWilliam, 1978). Technical progression in glassmaking and ironwork ensured that whatever the terminology, flat roofs, lintels and key-stoned masonry gave way to elegant fully glazed winter gardens, conservatories and glasshouses (Woods & Warren, 1988). This transformative era has sparked the retrospective interest of many academic researchers and prompted several noteworthy publications. The well-presented *Houses of Glass – A Nineteenth Century Building Type* (Kohlmaier & von Sartory, 1986) provides an excellent worldwide overview of manufacturing, design and architectural innovations from this period.

Within the United Kingdom the Egerton family privately commissioned the construction of perhaps the earliest purpose-built fernery at Tatton Park, Cheshire in 1859

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(Fig. 2). The surviving L-plan building has a glass roof supported by high red-brick walls and originally housed a collection of slender (or rough) tree fern (*Dicksonia squarrosa*) collected from New Zealand (Whittingham, 2012).

A multitude of recreational structures appeared through the Victorian era, including

Fig. 2 Tatton Park fernery, pre-1891. Reproduced with the permission of Tatton Park/Cheshire East Council/National Trust.

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bandstands and glass pleasure domes, both often associated with seaside culture and heritage as well as the early public parks which developed across Britain from the mid-1800s (Conway, 1991). The popularity of glasshouses endured, further capturing and inspiring the collective imagination. In Blackpool, Lancashire, a winter garden development to a design by Montreal-born architect Thomas Mitchell (b. 1839) included a dedicated fernery building open to the public from 1878 (Brodie & Whitfield, 2014).

Horticultural builders

Prefabricated cast-iron modular components were pioneered by gardener and architectural luminary Sir Joseph Paxton (1803–1865), most notably in his proposal for the gargantuan Crystal Palace (1851) erected at Hyde Park, London (Hix, 1974). His high-profile success created a demand for goods and services that allowed ambitious tradesmen to diversify and rebrand themselves as 'horticultural builders' (Woods & Warren, 1988). The availability of cast iron revolutionised design and created a global demand – precipitated by accelerating socioeconomic change. Within Scotland, the scale and reach of scores of indigenous firms, exemplified by Walter Macfarlane & Co's Saracen Foundry at Possilpark in Glasgow, was made possible by a combination of plentiful local natural resources, new technologies and, perhaps most importantly, the early urbanisation and rapid growth of the working population (Devine, 1999).

To meet contemporary demand for advice and practical instruction, publications such as the two-volume *Book of the Garden* (McIntosh, 1853, 1855) dedicated entire chapters to plant house construction and management. Such works would have been an indispensable source of reference for many garden-minded structural wrights and artisans.

In the latter stages of the 19th century several Scottish firms harnessed the technological innovations with sound business acumen to achieve remarkable levels of success. James Boyd & Sons (Paisley), Simpson & Farmer of Partick Bridge (Glasgow) and Mackenzie & Moncur Ltd of Balcarres Street (Edinburgh) attained reputations for craftmanship, quality and efficiency in glasshouse design and manufacturing. Such ambitions were rewarded by burgeoning domestic and international markets (Grant, 2013).

Horticultural journalism

By the mid-19th century the relaxation of duties and taxes upon newspapers, allied to innovations in print technology and improved distribution networks, had triggered a profusion of titles and garden writing. Weekly journals disseminated industry news, innovated, educated, reported and reviewed; as knowledge became more accessible, growth and demand increased (Desmond, 1977). Amongst the most popular titles were *The Gardeners' Chronicle*, self-declared as 'a weekly record of everything that bears upon horticulture and botany', and *The Garden – An Illustrated Weekly Journal of Gardening in all its Branches*. All titles depended heavily upon advertisement revenues and paid-for content. This subject matter now provides a valuable present-day archival resource made easily accessible by specific word search options and instant downloads that reveal hitherto unrealised detail directly related to the Benmore fernery. On 20 February 1875 *The Garden – An Illustrated Weekly Journal of Gardening in all its Branches* featured a short notice (Fig. 3) linking James Boyd & Sons of Paisley with the fernery at Benmore and other Glasgow-located versions built to similar specifications. The text was accompanied by

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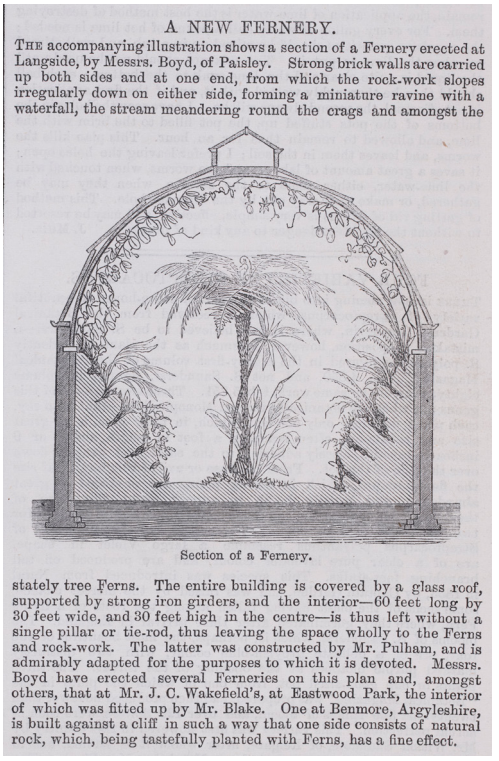

A NEW FERNERY.

THE accompanying illustration shows a section of a Fernery erected at Langside, by Messrs. Boyd, of Paisley. Strong brick walls are carried up both sides and at one end, from which the rock-work slopes irregularly down on either side, forming a miniature ravine with a waterfall, the stream meandering round the crags and amongst the

Section of a Fernery.

stately tree Ferns. The entire building is covered by a glass roof, supported by strong iron girders, and the interior—60 feet long by 30 feet wide, and 30 feet high in the centre—is thus left without a single pillar or tie-rod, thus leaving the space wholly to the Ferns and rock-work. The latter was constructed by Mr. Pulham, and is admirably adapted for the purposes to which it is devoted. Messrs. Boyd have erected several Ferneries on this plan and, amongst others, that at Mr. J. C. Wakefield's, at Eastwood Park, the interior of which was fitted up by Mr. Blake. One at Benmore, Argyleshire, is built against a cliff in such a way that one side consists of natural rock, which, being tastefully planted with Ferns, has a fine effect.

Fig. 3 A New Fernery. Published in *The Garden – An Illustrated Weekly Journal of Gardening in all its Branches* (1875). Image reproduced from the copy held in the Library of the Royal Botanic Garden Edinburgh.

a clearly recognisable, albeit representational, sectional drawing. The following month *The Gardeners' Chronicle* (Anon., 1875b) carried promotional material that confirmed the above (Fig. 13).

James Boyd & Sons of Paisley – 'hot-house builder'

Listed as Wrights & Joiners, the firm of James Boyd & Sons originated with glazier James Boyd (d.1889) who opened a shop in Paisley High Street around 1826. Taking advantage of the 1845 abolition of tax on glass, he advertised himself in 1851 as 'hot-house builder'. Joined by his sons John and Duncan S. Boyd, the company relocated in 1869 to premises at MacDowall Street, Paisley (Fig. 4) where extensive sawing and moulding mills operated (Robertson *et al.*, 2014).

The category-A listed Kibble Palace (Fig. 5), exquisitely constructed with Saracen Foundry iron, is the embodiment of 19th-century Scottish glasshouse engineering. Designed as the Kibble Crystal Art Palace by architects James Boucher (1826–1906) and James Cousland (c. 1832–1866), it was built in 1860 by James Boyd & Sons at Coulport in Argyll and Bute for patron and impresario John Kibble (1815–1894). Dismantled a decade later and destined to be repurposed as a city-centre public performance venue, the glass and iron structure was loaded onto a raft piece by piece and floated up the River Clyde. Awarded the contract for the removal and reassembly of the modified and much enlarged structure, it was once again James Boyd & Sons that completed the task at Glasgow Botanic Garden in 1873 (Curtis, 1999).

Overlooking Glasgow Green and attached to the People's Palace is another prominent example of work completed by James Boyd & Sons. The imposing 18.3 m high winter garden (Fig. 6), designed by Glasgow City Surveyor Alexander Beith McDonald (1847–1915), opened to the public in 1898 (King, 1985). Glasgow architects Walker & Ramsay's design for a winter garden tearoom within the Scottish National Exhibition of 1908 at Saughton Hall Estate in Edinburgh was constructed by Boyd's and retained as a permanent feature (now replaced) in Saughton Park. This collaboration further demonstrated James Boyd & Sons' workmanship and capacity for successful partnership (Walker & Ramsay, 1908).

The James Boyd & Sons catalogue of 1905 contained a summary of services offered by the company for the horticultural and domestic market. Construction was a choice

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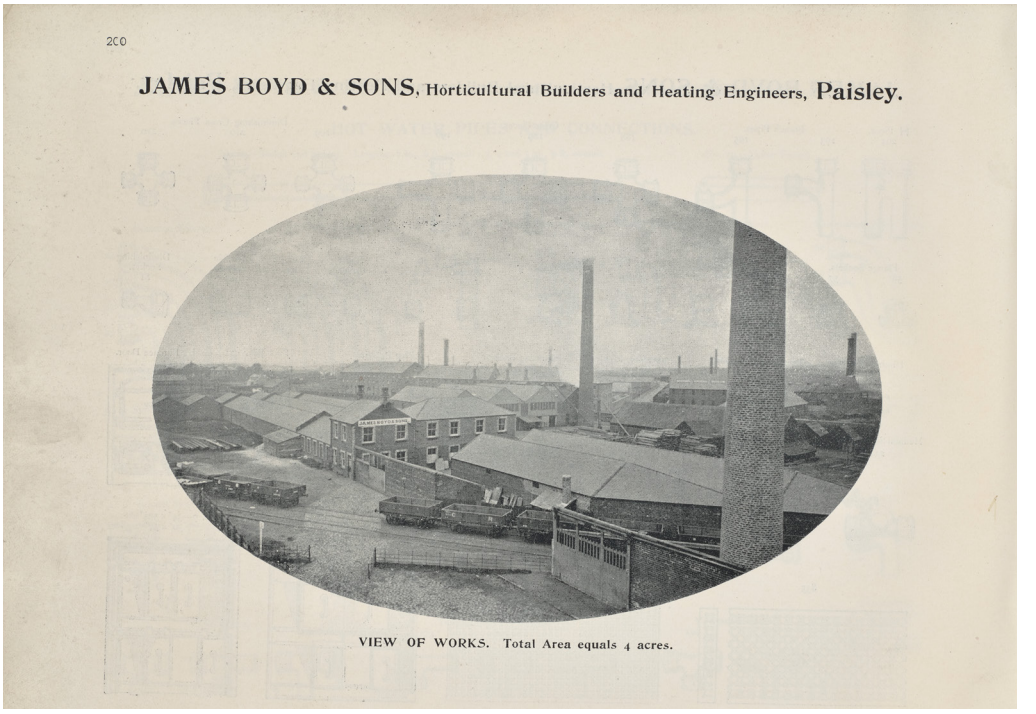

Fig. 4 View of James Boyd & Sons works (total area 4 acres (1.6 ha)) at MacDowall Street, Paisley. Reproduced with the permission of the National Library of Scotland under a Creative Commons Attribution CC-BY 4.0 International Licence.

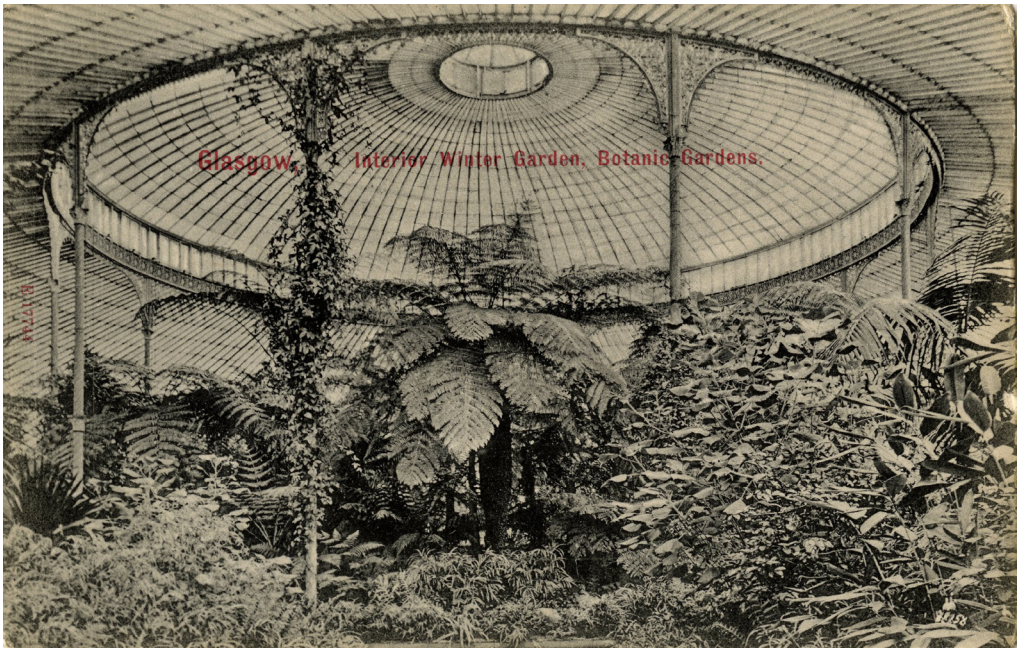

Fig. 5 Kibble Palace, Glasgow. Interior Winter Garden, Botanic Gardens. Postcard view, Stengel & Co, Dresden, R386818, undated. Private collection.

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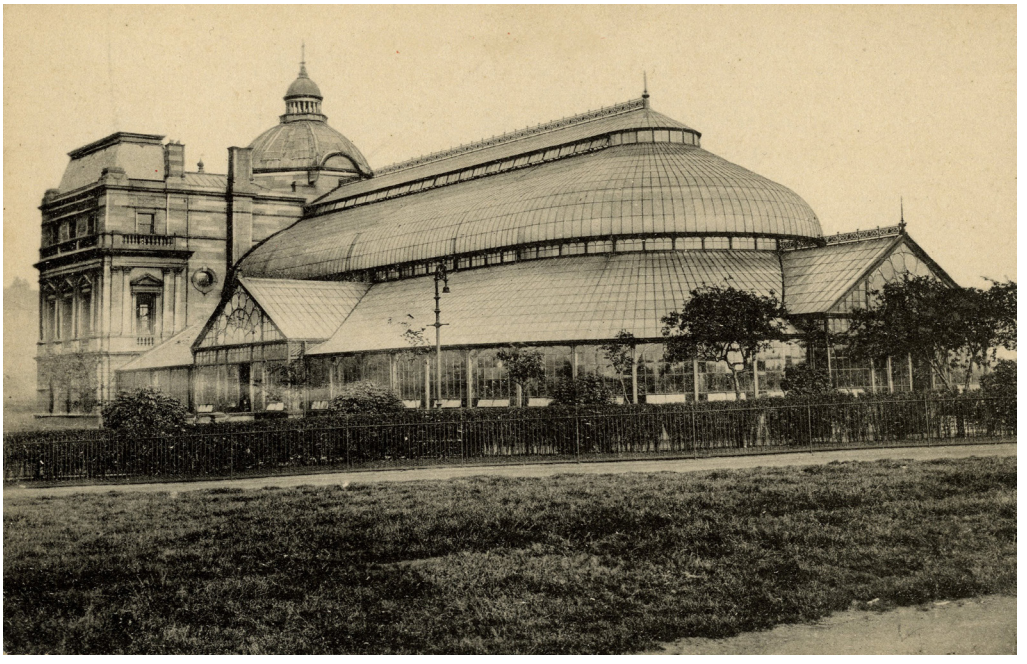

Fig. 6 People's Palace Winter Garden, Glasgow. Postcard view, Westminster series, c. 1900s. Private collection.

of seasoned red pine or more durable teak wood advertised alongside features that emphasised 'substantiality, tastefulness and durability in workmanship'. The firm offered full design and manufacturing alongside installation services. Logistics and distribution presented no problems, with orders carefully pre-fitted and the different parts marked, securely packed and delivered to the ship's side for transport from Glasgow. Commissions came from private and public bodies, with national and international botanic gardens, private landowners and prominent horticulturists amongst listed clients (Boyd & Sons, 1905). Notable is an abundance of customers from a large industrial and business class. Eminent Victorians such as Sir William Arrol (1839–1913), partially responsible for landmark structures such as the Forth Bridge (1890) and Tower Bridge (1894), contracted James Boyd & Sons to embellish his newly constructed mansion Seafield House, in Ayr, with a tasteful conservatory (Boyd & Sons, 1905).

By the mid-1920s James Boyd & Sons had become a firm of boilermakers, iron founders and structural engineers. Hothouse design no longer featured as a speciality (Robertson *et al.*, 2014).

Lost – the Wakefield fernery at Eastwood House (East Renfrewshire) by James Boyd & Sons

Joseph Colen Wakefield (b. c. 1812) was born in England but moved to Glasgow in early 1850. He leased Eastwood House (Fig. 7) in the Thornliebank area for a short period around 1857 before eventually purchasing the property and surrounding land. Wakefield was a partner in the Inglis & Wakefield company at the nearby Busby Printworks. The company specialised in printing calico – a heavy cotton-based textile (McVicar, 2009).

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Fig. 7 Eastwood House, Giffnock, East Renfrewshire. Postcard view (uncredited), post-franked September 1905. Private collection.

With a keen interest in plants, Wakefield became involved with the Glasgow & West of Scotland Horticultural Society, which must have brought him into direct contact with the fashionable Glasgow set that included renowned and dedicated gardeners such as Alexander Bannatyne Stewart (1836–1880) at Langside and Sir Thomas Coats (1809–1883) at Ferguslie (Paisley). By 1873 Wakefield had commissioned James Boyd & Sons to construct a fernery 'of more than ordinary pretensions' within the grounds of Eastwood House (Anon., 1873a). The new building, supplementing existing glasshouses, was celebrated and illustrated within the March edition of that year's *Gardeners' Chronicle*, and is among the best-documented of any fernery constructed by James Boyd & Sons, providing detail directly related to the Benmore version.

The most striking aspect of the Wakefield fernery review is two illustrations (Figs 8 & 9) prepared by polymath Worthington George Smith (1835–1917) of north London who, as a commercial illustrator (Fig. 10), regularly contributed artwork to the pages of *The Gardeners' Chronicle* (Dyer, 1978). The views by Smith from opposite ends indicate that the rectangular building was orientated east to west and followed a natural slope or incline. Details of the roof construction are perhaps the most enlightening, with glazed lights positioned on full-length bearers, supported in turn upon curved iron trusses, carrying an overarching cupola or ridge light – structurally analogous and providing insight into missing or unknown components of the original Benmore fernery. It is also possible to discern from the illustrations that the glass was fluted (of which samples were found at Benmore – Fig. 20) or at least lightly ribbed. Dimensions for the Wakefield fernery are not available, but slightly sharper roof angles created by columns of only four glazed lights (rather than six at Benmore) can be detected.

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FIG. 81.—VIEW IN MR. WAKEFIELD'S FERNERY, LOOKING EASTWARDS, AND FROM AN EMINENCE.

Fig. 8 Wood engraving of Wakefield fernery (Eastwood) by Worthington George Smith, looking eastwards. Published in *The Gardeners' Chronicle*, 1873. Image reproduced from the copy held in the Library of the Royal Botanic Garden Edinburgh.

FIG. 82.—VIEW IN MR. WAKEFIELD'S FERNERY, LOOKING WESTWARDS, AND UPHILL.

Fig. 9 Wood engraving of Wakefield fernery (Eastwood) by Worthington George Smith, looking westwards and uphill. Published in *The Gardeners' Chronicle*, 1873. Image reproduced from the copy held in the Library of the Royal Botanic Garden Edinburgh.

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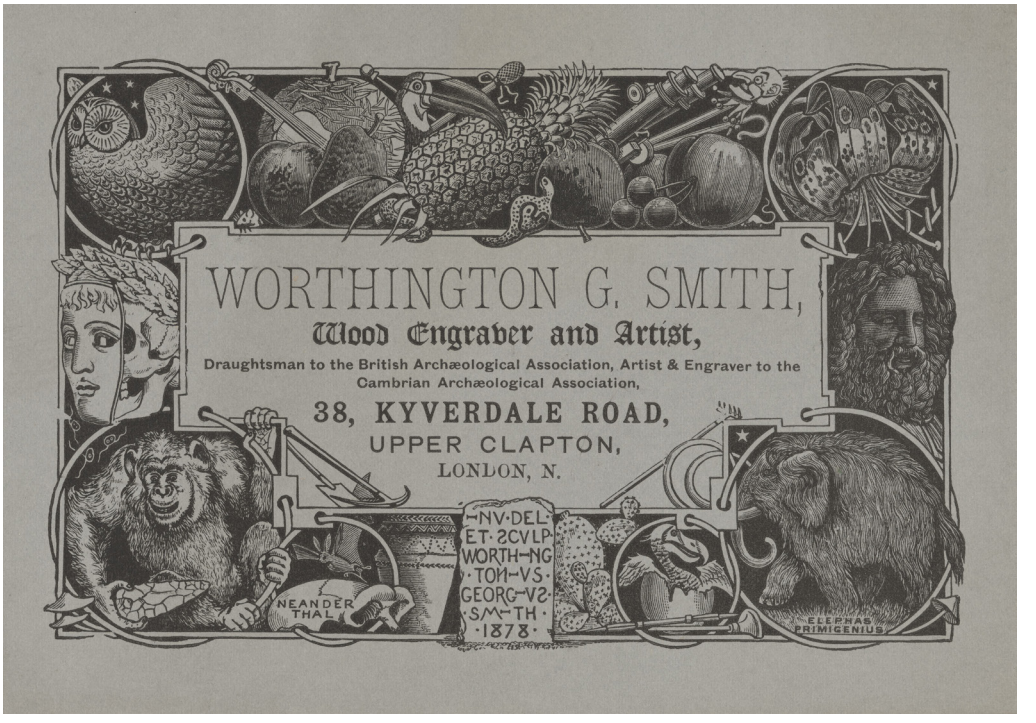

Fig. 10 Trade card of Worthington George Smith, with central inscription space surrounded by images of birds, fruits, a violin, plants, a mask, a sculpted head, a vase, and (lower left) a Neanderthal and (right) a mammoth. The British Museum, registration number 1897,1231.40. © The Trustees of the British Museum. Shared under a CC BY-NC-SA 4.0 Licence.

Construction materials are not disclosed but instead a description of 'parallelogram with its two lofty sides … built to assume a rocky face' must suffice (Anon., 1873a). No mention is made of ventilation, but heating was 'provided for by hot water in concealed stacks of pipes'. The reviewer (identified only by the initials JA) presented a piqued 'objectionable' dissatisfaction with the internal appearance of the roof but commented favourably on the use of well-established climbing plants, *Passiflora* sp. and *Plumbago auriculata* (syn. *Plumbago capensis*), to disguise perceived shortcomings (Anon., 1873a).

An unexpected element and seemingly unbridled success of the Wakefield fernery was the involvement of Alexander Blake (of Britannia Road, Fulham, London), who created the internal landscape that featured rockwork, a pond, a waterfall and a stream – the latter crossed by a bridge (Anon., 1873a). Near-contemporary editions of *The Gardeners' Chronicle* carried adverts that promoted Blake as a landscape gardener and plant merchant operating from Aberdeen and London with the punchy tagline 'ferneries, as arranged by Mr Blake, are a source of the purest enjoyment' (Anon., 1874).

Despite the almost ubiquitous caveat that 'to name all the plants that are employed with effect would take up too much space' the planted content of the Wakefield fernery is comprehensively reviewed (see Appendix). Perhaps the most surprising revelation is that the building housed a varied collection that was not exclusive to ferns and their allies; represented throughout the planting arrangement were a gymnosperm and many

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angiosperms. In terms of plant hardiness, it is worth noting that while collections from higher altitude can often compensate for southern latitude, to survive in Scotland some selections would have been heavily and extravagantly reliant upon the carefully concealed heating apparatus. Supplementing and adding contrast to a truly cosmopolitan fern collection was an unexpected assortment of tropical and subtropical palms which sat alongside unspecified species of *Maranta* and *Musa*. Satisfying differing cultural requirements within the same growing environment would have proved challenging and necessitated careful planning and management, but nonetheless this diverse arrangement chimed with recommended indoor fernery displays of the period: 'they [tree ferns] are grand plants mixing admirably with such plants as *Dracaena australis* and *lineata*, *Cordyline indivisa*, *Chamaerops humilis*, *Seaforthia elegans*, *Areca sapida* and *baueri* … *Dasylirions*, *Yucca* and *Agave*; and there are many other splendid ornamental plants, with which they associate well' (Williams, 1873).

The sole conifer represented in the Wakefield fernery was a specimen of *Araucaria heterophylla* (syn. *Araucaria excelsa*) (Norfolk Island pine). Much of the structural planting was accompanied by the presence of *Ficus pumila* (syn. *Ficus repens*) and the liverwort *Marchantia polymorpha*, both of which covered the gable ends. Lycophytes and other bryophytes added to the diversity. A quote from 'gardener, Mr Fleming' praising the performance of the plants 'once liberated from their pots' concluded the article (Anon., 1873a).

Joseph Wakefield created a building at Eastwood that trumpeted his horticultural ambition. The rarity and selection of his plants must have become a celebrated attraction that both astonished and delighted visitors, as well as enlivening the classes of many show benches. Dramatically, for reasons not fully disclosed, an announcement in the summer of 1876 declared that Wakefield had given up exhibiting. Furthermore, just as the exuberant mix of exotic plants and ferns brought to the south side of Glasgow from the faraway mountains and jungles of the world gained prominence, he appointed 'auctioneer and valuator' David Mitchell of Hamilton to dispose of his entire ornamental collection, citing a desire 'to devote his houses to other purposes' (Anon., 1876). A detached and business-like advertisement in *The Gardeners' Chronicle* of 26 August 1876 (Fig. 11) concluded 'the whole to be sold without reserve'. Joseph Wakefield put Eastwood House up for sale in 1877. However, the story does not quite end on this plaintive note. A decade later, *The Gardeners' Chronicle* of 1888 noted that the (seemingly) new proprietor 'Mr Tod is devoted to horticulture generally'. After a lengthy review of the collection of Orchidaceae the article concluded: 'The only other special feature at present is a fernery in rockwork, which is one of the most perfect things of the kind we have seen under glass. Entering at one end of the house the visitor is introduced to an enchantingly pretty glen, with rugged craggy sides, which are luxuriantly clothed with well-developed specimens of Tree Ferns in variety, with water below. The house terminates in a cave-like continuation, which is devoted to *Leptopteris superba* (syn. *Todea superba*) and *Leptopteris hymenophylloides* (syn. *Todea pellucida*) being the principal species; and the spaces surrounding the plants are clothed with masses of seedlings' (Anon., 1888).

The 2nd edition Ordnance Survey map published in 1897 (Renfrewshire XIII.13) records the presence of a 3.5-acre (1.4 ha)

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Highly Important Sale of Specimen Stove and
GREENHOUSE PLANTS, rare ORCHIDS, FERNS, &c.

DAVID MITCHELL, AUCTIONEER and VALUATOR, Hamilton, has been favoured with instructions from J. C. Wakefield, Esq., to SELL, by PUBLIC AUCTION on AUGUST 31 and SEPTEMBER 1, each day at half-past 11 o'Clock, at Eastwood Park, the whole of the magnificent collection of EXHIBITION PLANTS, consisting of handsome specimen Azaleas (fine varieties), from 3 to 6 feet high, and proportionate; splendid examples of Cape Heaths, many in flower; elegant Palms, from 2 to 8 feet high; splendid Marantas, all the new sorts; choice specimen Crotons, such as Weismanni, interruptum, Veitchii, limbatum, spirale, &c.; beautiful plants of Adiantum Farleyense, and (Moore's new Fern) Adiantum gracillimum; splendid Todeas and Gleichenias, including Mendelli and other rare sorts; fine lot of specimen Greenhouse Plants, in splendid health; also a very choice collection of beautiful Orchids, consisting of Odontoglossum Alexandræ, Lælias of sorts, Masdevallia Lindeni, &c.; beautiful Dendrobes, fine healthy plants of Phalænopsis Schilleriana, amabilis, and grandiflora; Cattleya Dawsoni, and others; also a magnificent specimen of Lapageria alba, one of the finest plants in the country, and showing a large quantity of flowers.

The whole to be Sold without Reserve, as Mr. Wakefield has given up Exhibiting, and intends to devote his Houses to other purposes. There will also be Sold an excellent PLANT VAN, adapted either for Road or Rail.

Note.—Mr. MITCHELL would beg to call the attention of plant cultivators to this most important Sale. The whole of the plants are in the best possible health, and may be seen ten days before the sale at Eastwood Park, near Ginnock Station (Glasgow and East Kilbride Railway).

Catalogues in preparation, and will be forwarded on application.—Hamilton, August 16, 1876.

Fig. 11 Notice of Sale by Public Auction at Eastwood Park. Published in *The Gardeners' Chronicle*, 1876. Image reproduced from the copy held in the Library of the Royal Botanic Garden Edinburgh.

formal garden directly north of Eastwood House (Fig. 12). Occupying the northern part of this site are a multitude of glasshouses and horticultural outbuildings. Subsequent demolition work has ensured that locating the exact site for the Wakefield fernery is no longer possible. Renfrewshire County Council (as it was at the time) acquired the house and estate in 1967, and local knowledge suggests that some glasshouses were still standing in the late 1960s with the site repurposed as a Parks Department nursery. A tall, square-built, red-brick chimney stack, marking the former boiler house of the site, survived a few decades longer until it was razed in the early years of the 21st century (A. Robb, pers. comm.). The category-B listed Eastwood House now serves as a local authority owned function and marriage suite with the former

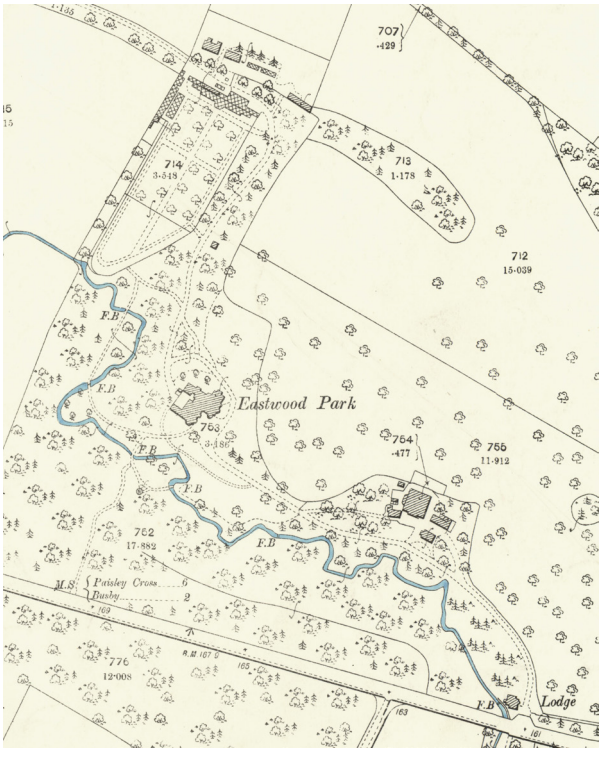

Fig. 12 Detail from 2nd edition Ordnance Survey map published in 1897 (Renfrewshire XIII.13) records the presence of a 3.5-acre (1.4 ha) formal garden and glasshouses directly north of Eastwood House. Reproduced with the permission of the National Library of Scotland.

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garden site now managed by the Eastwood Nursery Allotment Association.

Lost – the Findlay fernery at Maryfield/Langside (Glasgow) by James Boyd & Sons

The location of the Findlay fernery at Langside is the most elusive of all the known ferneries constructed by James Boyd & Sons, although it is perhaps the best described in terms of detail and construction notes. Initially, advertising material in *The Garden* article of February 1875 named only the district of Langside as the location (Anon., 1875a). *The Gardeners' Chronicle* feature of slightly later (Fig. 13) offered 'Maryfield, Glasgow' as an alternative and more detailed reference. By merging these fragments and scrutinising archive Ordnance Survey maps of the area, it is possible to highlight number 36 on Mansion House Road, in a desirable residential locale on the south side of the city, as the exact position. Maryfield and Violet Bank (the neighbouring property at number 38), both designed by architect John Honeyman (1831–1914) and built at costs of £3,051 and £3,130 respectively in 1867 for businessman James Findlay (HES, 2007–2025), added to the proliferation of newly constructed houses within the area. Violet Bank was occupied (and part financed) by John Goldie (HES, 2007–2025). *The Scottish Post Office Directory* featured prominent citizens within its pages and the 1872–1873 edition links both James Findlay and John Goldie with the business of Carslaw & Henderson, muslin manufacturers and handkerchief printers based at 68 Gordon Street, Glasgow. The two neighbours and business partners also established a local reputation for horticultural excellence and regularly competed alongside Rawcliffe House and Eastwood House at local shows (Anon., 1872). A Glasgow and West of Scotland Horticultural Society report from this era named 'Mr Beveridge, as gardener to James Findlay Esq., Maryfield, Langside' (Bullen, 1877). *The Garden* of February 1875 provides insight into the design and appearance of the Maryfield fernery with the following description: 'Strong brick walls are carried up both sides and at one end, from which the rockwork slopes irregularly down on either side, forming a miniature ravine with a waterfall, the stream meandering round the crags and amongst the stately Tree Ferns. The entire building is covered by a glass roof, supported by strong iron girders,

Fig. 13 Ferneries. Published in *The Gardeners' Chronicle*, 1875. Image reproduced from the copy held in the Library of the Royal Botanic Garden Edinburgh.

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and the interior – 60 feet long by 30 feet wide, and 30 feet high in the centre – is thus left without a single pillar or tie-rod, thus leaving the space wholly to the ferns and rockwork' (Anon., 1875a).

The short feature concludes with the unexpected revelation that 'the latter [rockwork] was constructed by Mr Pulham and is admirably adapted for the purposes to which it is devoted' (Anon., 1875a). The landscape design work by multigenerational firm James Pulham & Son is amongst the most renowned and celebrated of Victorian and Edwardian horticulture. Although well versed in working with natural stone, the company formulated artificial stone known as Pulhamite (Hitching, 2012). The year 1873 is verified by company literature as that in which work was undertaken for James Findlay, and the description in its brochure of 'Temperate and Exotic fernery with Waterfalls and Stream through it' matches the details published in *The Garden*, although an apparent record-keeping glitch erroneously lists the site as at Kelvingrove Park (Pulham, 1877). Further general construction details relevant to all the James Boyd & Sons ferneries are described within the promotional booklet: 'When there are two walls opposite each other, they may be rockified to appear as a fern-clad ravine … a desirable cavernous recess is generally made at one corner of the fernery … to form the dropping-well and pool … if sufficient water a cascade may be formed, the water then flowing away through a fissure in a rocky pool … The paths being usually made of light brown cement concrete, imitating fine hard gravel well rolled and laid' (Pulham, 1877).

The 2nd edition Ordnance Survey map published in 1913 (Lanarkshire X.2) shows that James Findlay enjoyed an extensive collection of glasshouses and conservatories at Langside (Fig. 14). The known detail and dimensions of the fernery suggest that it was attached to Maryfield House. Archived job books compiled by John Honeyman contain records of payments to various tradesmen, but the nature of the intended work is not specified and there is no mention of James Boyd & Sons or James Pulham (Honeyman, 1867). By the time of the 1935 survey in preparation for the OS map revision of 1936, the glasshouse facilities at Maryfield had been reduced significantly and the fernery building removed. The unremitting nature of regeneration and change within urban

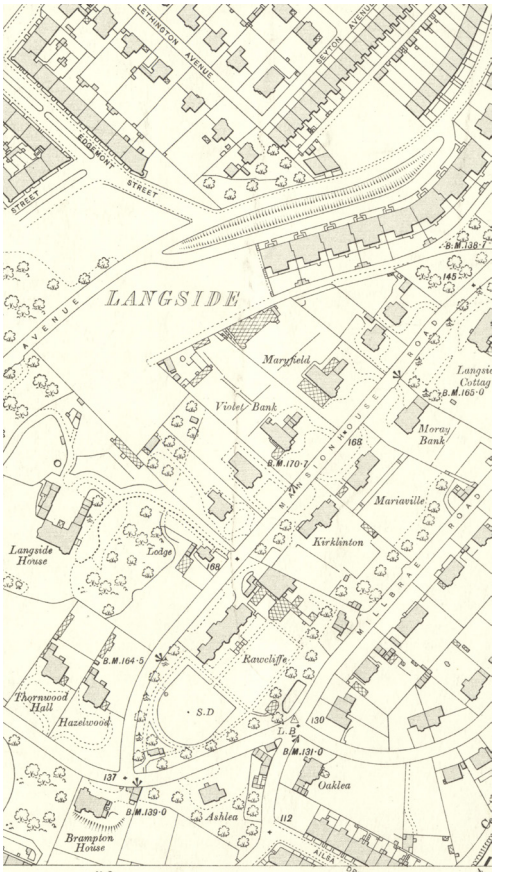

Fig. 14 Detail from 2nd edition Ordnance Survey map published in 1913 (Lanarkshire X.2) showing extent of glasshouses at Maryfield, Violet Bank and Rawcliffe. Reproduced with the permission of the National Library of Scotland.

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settings is inevitable; Violet Bank has survived but the site formerly occupied by James Findlay's Maryfield has been redeveloped.

Found – the Duncan fernery at Benmore (Argyll & Bute) by James Boyd & Sons

Benmore Botanic Garden is located 11 km north of Dunoon on the Cowal peninsula within Argyll & Bute on the west coast of Scotland. At 49 ha it is the largest – and oldest – of three regional gardens within the Royal Botanic Garden Edinburgh (RBGE). Prior to 1928, the fate of Benmore reflected the aspirations and fluctuating personal wealth of a succession of private landowners (Webster, 1925). The surviving buildings scattered throughout the site mark each era of lairdship and provide a commentary on changing social and cultural trends. One such structure can be found on the south side of the garden, high on a hillside and overlooking the River Massan – the stone-walled and glazed barrel-vault roofed fernery. The profile, masonry and rockwork associated with the Benmore fernery may best be described as robust, self-assured and uncompromising.

The life story and vicissitudes of Glasgow-born sugar refiner and entrepreneur James Duncan (1834–1905) are inextricably linked to the development of Benmore estate. His reputation as an industry trailblazer has endured alongside a personal gift for creativity and inventiveness. Business and markets flourished. His subsequent accumulated vast industrial wealth transmogrified, perhaps inevitably, into a model Highland estate. His time and investment as laird of Benmore from 1870 onwards expanded and revitalised the estate beyond all recognition. The many building projects, assemblage and display of a major international art collection, horticultural development, agricultural improvement and extensive reforestation programme demonstrated his restless energy and zest for progressiveness. It is also clear that James Duncan, unquestionably a determined and highly successful captain of industry, possessed a social conscience; throughout his life he gained a reputation for acts of philanthropy (Watson, 2010).

In their 1902 advertisement in *The Architects' Compendium*, James Boyd & Sons continued to highlight the gold medal they had obtained at the 1878 Paris Universal Exhibition (Fig. 15). Another exhibitor at the Exhibition that year was James Duncan of Benmore (Watson, 2010): the event would have provided the possibility of a reunion between contractor and client. Duncan had recently focused most of his horticultural ambition at Benmore on a new 5-acre (2 ha) walled garden replete with a large-scale winter garden standing more than 9 m in height, a stove house and other conservatories. The 'courteous Mr Murray' is named as the gardener who cared for specimens of *Musa cavendishii* (banana), *Allamanda schotii* (bush allamanda), *Selenicereus grandiflora* (night-flowering cactus), *Coffea arabica* (coffee) and *Urceolina amazonica* (Amazon lily) which are itemised within an 1882 inventory of plants cultivated at Benmore (Anon., 1882). The survival of a James Boyd & Sons teak house dating from the mid-1870s, located on the south-facing side of the north wall, recalls these former glories (Gray, 2019).

As stated previously, *The Garden* article of 1875 featured a representational drawing of a fernery (Fig. 3). An accompanying commentary noted that 'Messrs. Boyd had erected several ferneries upon this plan – one at Benmore Argyllshire built in such a way that one side consists of natural rock,

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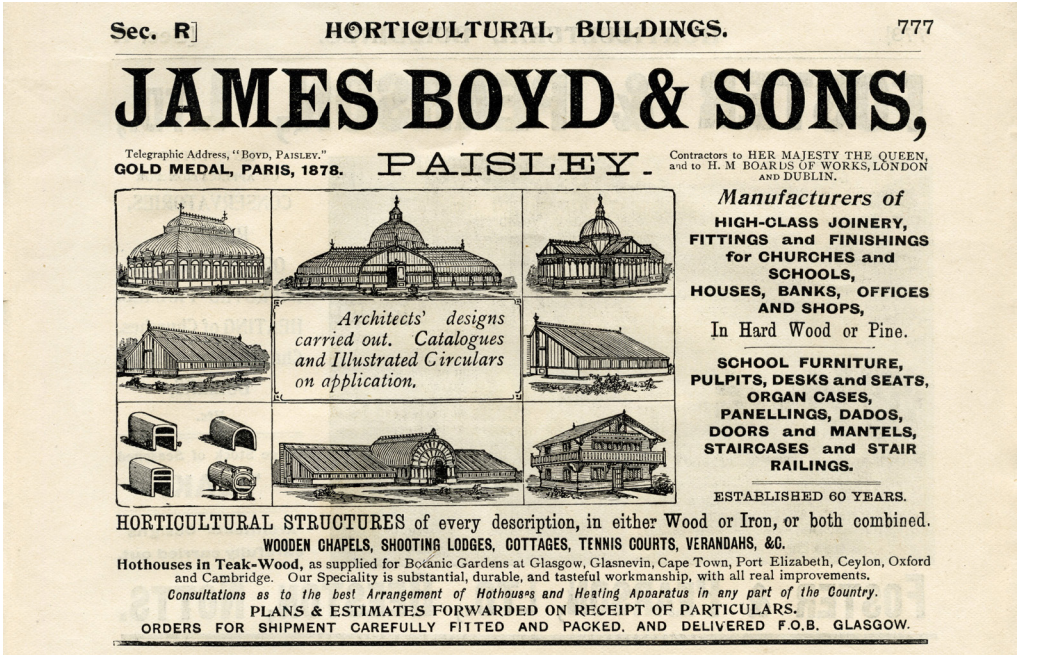

Fig. 15 Advertisement for James Boyd & Sons. Reproduced from *The Architects Compendium*, 1902. Private collection.

which, being tastefully planted with ferns, formed a fine effect' (Anon., 1875a). The near-contemporary advertisement within *The Gardeners' Chronicle* (Fig. 13) asserted that by means of strong wrought-iron girders, buildings of any length could be 'roofed in with a clear span of 30 to 35 feet' (Anon., 1875b).

The stand-alone 50 ft x 30 ft (15.24 m x 9.14 m) fernery is constructed at some distance from Benmore House, partway up a steep gulley. The natural rock face mentioned in the article forms the east wall of the structure, and it is most likely that quarrying on the site created this feature – contributing to a practical and convenient source of building stone (Burgoyne, 1993). The fernery survived as a ruin into the late 20th century, allowing assessment and appraisal of its original features. Robust walls of schist rubble and lime mortar supported the remains of curved iron trusses shouldering full-length timber purlin-like bearers and attached glazed wooden lights (Fig. 16). Fragments of broken glass unearthed from the overgrown beds revealed original glazing panes to have been fluted or at least lightly ribbed – identical to the effect suggested in the wood engraving of the Wakefield fernery at Eastwood (Fig. 20). The shaped gables indicated a ridge vent or lantern of unknown construction. A small boiler house and the remnants of cast-iron pipes had served a primitive low-pressure hot-water heating system. Internally stone-built stairways allowed changes of floor level that added drama and altered viewing perspectives. The arc of the sun, interacting with the high south gable end, offered variable concentrations of light and shade and the possibility of differing microclimates or planting opportunities – augmented by many protruding flat stones on the interior gables. Ground water, constantly trickling down the quarried rock

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Fig. 16 Benmore fernery in a ruined state (c. 1990) and with remains of original roof clearly visible. Photographer unknown, image from miscellaneous archive in Garden Curator's office.

face, created a seep effect that added further to the diversity of niche habitats. Embellished by naturally sculpted rockwork blasted directly from the nearby Glen Massan falls, a quartz-rich hollowed-out grotto dominated the floorplan and protected a shady ornamental elliptic pond. Visitors gained access by a vault (formerly demolished but now rebuilt) and double-leaf entrance door in the middle of the south gable.

The nurturing of ferns at Benmore embraced every aspect of their collecting, cultivation and display. The original plantings of James Duncan's fernery are, however, unknown and therefore open to speculation. Late 19th-century editions of *The Gardeners' Chronicle* contained many advertisements for choice and rare plants, with general catalogues and special lists available upon request. John H Ley (Croydon) and William Bull (Chelsea) operated prototype mail-order businesses; auction houses regularly offered specially imported consignments from across the globe as well as helping to redistribute private collections no longer wanted. Based upon the uniformity of selections offered by these commercial suppliers, and the contemporary detailed reviews available for the ferneries at Eastwood in Glasgow and Ascog on the Isle of Bute (see Appendix), it is reasonable to assume that the Benmore collection of ferns resembled its west coast neighbours. The known presence of a functional heating system at Benmore would suggest a mixed planting arrangement that included less hardy ferns and tender members of other plant families such as *Moraceae*, *Asparagaceae* and *Arecaceae* (syn. *Palmae*). This general viewpoint is backed up by James Pulham who referred to Maryfield as a 'Temperate and Exotic fernery' (Pulham, 1877).

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Diversification into manufacturing sugar from imported beet generated vast personal wealth for James Duncan in the early 1870s but ultimately this was not enough to save his stewardship of Benmore. He was destined to fall victim to partisan pan-European market forces – overseas competitors (benefiting from national government subsidies) flooded the market with cheap sugar products. Honouring his creditors, Duncan resolved to sell his assets and clear his debts. Compounding the tragedy of personal bankruptcy was a realisation that his intended gift of estate and gallery to the nation would remain unrealised (Watson, 2010). James Duncan disposed of Benmore in 1889. A solitary brief description of the fernery as built of stone, with a glass roof, and filled with New Zealand and other rare ferns was included in the sale brochure prepared by estate agents based in London and Edinburgh (Lyall Watson and Co. & Blair and Findlay, 1889).

Benmore and the neighbouring estates were purchased in 1889 by Henry J Younger (1832–1913), a descendant of Edinburgh-based brewers William Younger & Co Ltd (Younger, 2004). In 1925 Harry George Younger (1866–1951), the last private laird of Benmore, offered the combined estates of Benmore, Bernice and Kilmun to the nation for afforestation purposes and presented 36.5 ha of former policies to RBGE in 1928. From this period, a single monochrome image of the Benmore fernery (RMA-H-2376, Fig. 17) has survived.

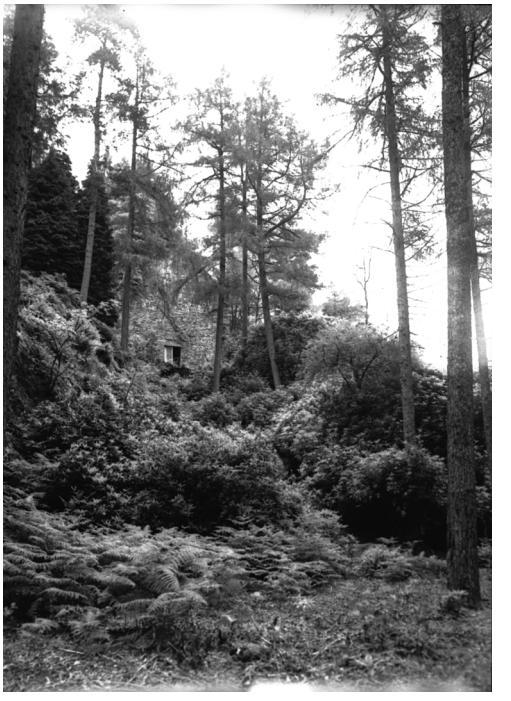

Fig. 17 Fern House at Benmore by Robert Moyes Adam, 1930. Courtesy of the University of St Andrews Libraries and Museums (ID: RMA-H-2376).

Found – the Stewart fernery at Ascog (Isle of Bute) by James Boyd & Sons

Summarising neatly the twin driving passions in his life, Alexander Bannatyne Stewart served as presidents of both the Royal Fine Art Institute of Glasgow and the Glasgow and West of Scotland Horticultural Society. A prominent businessman, his character and demeanour were described as 'affable and generous' (Craik *et al.*, 1886). Stewart, who made his money in a highly successful international wholesale clothing business, divided his time between Glasgow and his ancestral home, the Isle of Bute on the River Clyde estuary. Both his properties were renowned for the quality and exuberance of their horticultural displays (McDowall, 2010).

His city residence, known as Rawcliffe Lodge, was located at 29 Mansion House Road in Langside, making Stewart a near neighbour of James Findlay at Maryfield, number 36 (Fig. 14). Within landscaped and highly developed ornamental grounds James Boyd & Sons erected a wide range of glasshouses and conservatories (Anon.,

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1877a). The interior settings and extensive plant collections included specialist displays of *Trichomanes* (filmy or bristle ferns) and Orchidaceae, both reviewed in some detail within the pages of *The Gardeners' Chronicle* (Anon., 1873b; Anon., 1877b). While a much modified and now category-B listed Rawcliffe still stands on the south side, nothing much beyond faded newsprint remains of Stewart's intrinsic and irrefutable passion for plants. A more enduring legacy of Stewart's rampant pteridomania can be found 46.5 km due west of Glasgow within the grounds of his former Isle of Bute residence at Ascog Hall, in the form of a sunken fernery erected in the 1870s by James Boyd & Sons (1905) (Fig. 18). Most of the information available regarding the fernery comes yet again from the archive of *The Gardeners' Chronicle* which sent plantsman and author Benjamin Samuel Williams (1822–1890) of Victoria and Paradise Nurseries, London, to review the building in October 1879. His article commences: 'the place is well laid out, and it is surprising to see such a fine collection of trees and shrubs thriving so well near the sea'. He wasted little time in identifying his motivation to travel across the Firth of Clyde, writing 'the principal attraction of the garden is a most beautiful fernery'. Williams expanded his description: 'a span roofed house with rounded ends, the roof rests on stone walls, and is composed of an iron framework. To reach the entrance of this charming and natural looking fernery we go down a flight of rustic stone steps' (Williams, 1879).

He commented favourably upon the internal landscape that featured an intricate footpath paved with pebbles collected from the beach before adding his satisfaction

Fig. 18 Fernery erected by James Boyd & Sons at Ascog Hall, Isle of Bute. Reproduced with the permission of the National Library of Scotland under a CC-BY 4.0 Licence.

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with the appearance of a stone footbridge and waterfall/stream combination (Williams, 1879). The comprehensive article was illustrated by a wood engraving (Fig. 19) completed by Worthington George Smith, who several years earlier had undertaken a similar task for the Wakefield fernery at Eastwood.

The L-shaped floor plan and cast-iron propped shallow roof at Ascog Hall is a significant departure from the regular barrel-vaulted oblong fernery repeatedly deployed by James Boyd & Sons. This may or may not reflect input from garden designer Edward La Trobe Bateman (1816–1897) who undertook unspecified landscaping work at Ascog Hall for Alexander Bannatyne Stewart around this period (Anon., 1898). Described as kidney-shaped, or as a glass-roofed grotto, the Ascog Hall fernery was unheated. This too sets it apart from the Eastwood and Benmore ferneries, albeit compensated generously by a skilful design and a sheltered position within a most favoured growing locality.

Cool or temperate selections dominated the original planting inventories (see Appendix). More fragments of original fluted or lightly ribbed glass, consistent with samples found within the Duncan fernery at Benmore and suggested at the Wakefield fernery at Eastwood, are plentiful at Ascog Hall (Fig. 20).

The ability of 'Mr Todd, the gardener' to Alexander Bannatyne Stewart at Rawcliffe

Fig. 19 Wood engraving of fernery at Ascog Hall by Worthington George Smith. Published in *The Gardeners' Chronicle*, 1879. Image reproduced from the copy held in the Library of the Royal Botanic Garden Edinburgh.

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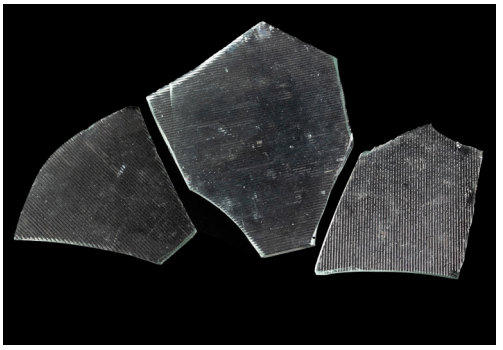

Fig. 20 Samples of ribbed or lightly fluted glass recovered by the author from Ascog Hall fernery building, Isle of Bute. Identical fragments were unearthed at Benmore (2009) as part of planting preparations.

and Ascog Hall impressed the reviewer, who was fulsome in his praise – particularly of the selection and display of rockwork (collected directly from the seashore) within the fernery (Williams, 1879). (The pages of *The Gardeners' Chronicle* often fleetingly name-checked head gardeners, otherwise garden staff remained largely anonymous.)

The 1881 census records that Mr Robert Todd, age 38, was born near Belfast. He lived at Rawcliffe Lodge in the parish of Cathcart with his wife Isabella and his two daughters and son – his position disparaged somewhat by the description 'gardener/domestic servant'. Todd appeared on the 1885 valuation roll (still working at Rawcliffe) but the family moved to Much-Woolton in Lancashire some time before 1891. They were still there in 1901 but by 1911 Robert was dead and his wife and children had moved to London (McMillan, 2023).

There can be no doubting the quality and standard of horticulture at 19th-century Ascog Hall. Just as national recognition was achieved, Stewart died in London at the relatively young age of 43 (Anon., 1880a). Later that year *The Gardeners' Chronicle* carried an advertisement stating that auctioneers had been appointed to 'offer … without reserve' the prized contents of his glasshouse collections (Anon., 1880b).

More than a hundred years later, in 1986, Wallace and Kathy Fyfe, the new owners of Ascog Hall, readily allowed themselves to become distracted with the garden, in particular the entrance to a bramble-infested subterranean building set beneath dilapidated and dangerous ironwork with broken glass. The long-forgotten fernery was almost instantly given category-B listed status in 1987 – the precursor to a remarkable revitalisation undertaken by the owners in conjunction with Historic Scotland (Dunbar, 2005). The success and sheer romance of the rehabilitation project, including the survival of a 1,000-year-old specimen of *Todea barbara* (syn. *Todea africana*), which miraculously survived decades of dereliction, captured the public imagination. An extensive replanting programme based upon the well-publicised 1879 review by Benjamin Samuel Williams was supported by specialist staff at RBGE (Merryweather, 2003).

The present owners of the fernery at Ascog Hall are currently undertaking a programme of maintenance aimed at securing the long-term survival of the structure and collection within.

The Benmore fernery – renewal

For much of the 20th century the Benmore fernery building was categorised as low priority, with effort concentrated upon preventing further deterioration and restricting public access. In 1992 the structure was recognised as a 'rare survivor' of this type of building in Scotland, and, although ruinous, was awarded category-B listed status within the national inventory (HES, 1992). The statutory designation provided the catalyst to consider a potential

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rebuild and rehabilitation. In 2005 the appointment of Glasgow-based Michael & Sue Thornley Architects, initially to carry out an investigation and study, enabled the later preparation of tender documents and the setting of the building contract for the fernery restoration (Thornley *et al.*, 2005–2009). A funding campaign was supported by the Younger Benmore Trust and the Friends of Benmore group as well as RBGE membership. With funding secured from multiple sources, including a substantial donation from the Heritage Lottery Fund, rebuilding commenced in 2008. Amongst project goals were the development of increased public awareness of built heritage, improved garden visitor experience, professional workshop and training initiatives, shared knowledge and the availability of volunteering opportunities (Thornley *et al.*, 2005–2009).

Suspicions persisted that a structurally inadequate original roof had failed, leading to early abandonment of the Benmore fernery. Remnants of the original roof allowed the architects to determine that the extant hooped iron trusses had supported traditional timber and putty glazed lights. The missing lantern was accurately reimagined (Thornley, 2007) – now verified by the 19th-century archive details highlighted earlier. To help counter the heavy annual rainfall experienced at Benmore, while assenting to practicalities and original function, a modern reinterpretation following the known roof profile and glazing pattern was agreed (Thornley, 2007). In the spring of 2008, staff from Historic Environment Scotland recorded baseline data using a plane-table survey to provide accurate ground plan and sectional drawings (Figs 21 & 22). Before on-site work commenced a mobile crane was positioned to lift material to a temporary landing

Fig. 21 Surveyor Ian Parker at work in 2008 amongst the ruined Benmore fernery building on behalf of the Royal Commission on the Ancient and Historical Monuments of Scotland. Photograph: Peter Baxter.

platform constructed from scaffolding at the south corner of the fernery building. Following masonry work to strengthen springing points a new 350 m^2 roof featuring steel bearers, aluminium glazing bars and 320 laminated glass planes (fixed in place using synthetic rubber seals) was fabricated in Belgium[3] before being transported to Scotland to be assembled and fitted onto the recently refurbished fernery walls (Fig. 23). Incorporated within the reconstructed cupola or lantern were new manually operated rack-and-pinion vents (Deforche Construction Group, 2008).

A sustainability-based decision not to artificially heat the refurbished fernery

[3] www.hedafor.com/en/realisations/benmore-botanic-garden

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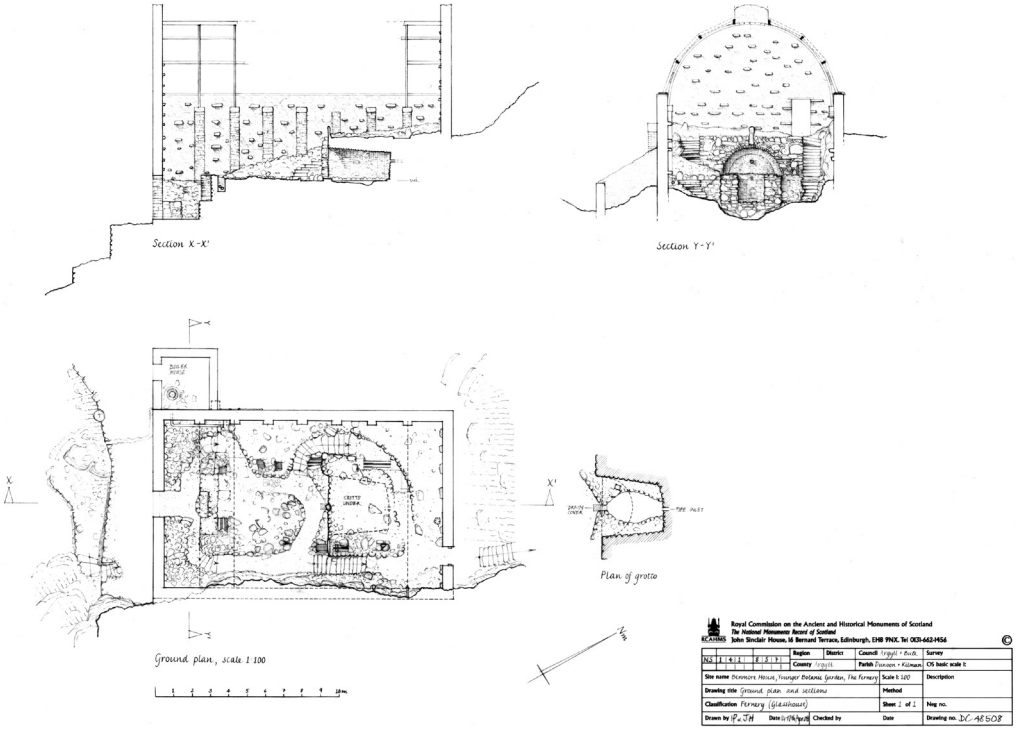

Fig. 22 Benmore fernery, ground plan, grotto plan and sections, scale 1:100, 2008. Image: SC 1132438. Crown copyright: Historic Environment Scotland.

Fig. 23 Steel sections lifted into place to form the new roof, 2009. Photograph: Peter Baxter.

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building prompted RBGE fern specialists to prepare and source a planting list of temperate ferns (Gibby, 2010). The installation of a new gravity-fed water supply preceded the landscaping and replanting of the interior by the Benmore horticultural team with valuable support from other RBGE staff. In 2009 a high-profile reopening allowed guests and visitors to enter the fernery from the rebuilt vault (that briefly hints labyrinthian) before emerging into the fully fledged exposure of frond-dappled delight (Fig. 24). At this time the Benmore fernery was the subject of a 40-page RBGE booklet (Gibby, 2009).

Recognising the quality of the re-established fernery at Benmore, the Glasgow Institute of Architecture bestowed the conservation category award for 2009 on the building (Glasgow Institute of Architecture, 2009).

Conclusion

Heritage, in the simplest terms, represents shared identity and what is inherited. Heritage assets celebrate invention and creativity while helping to reconcile and balance the inevitability of progression or change. Research and archives play a valuable role in reconstructing the past and safekeeping knowledge for the future – in the case of the Benmore fernery the realisation of a small historically accurate cache, rediscovered amongst archived primary sources, is significant.

The resilience and longevity of gardens are vulnerable; demonstrating this unfortunate but self-evident truth, all the ferneries by James Boyd & Sons were demolished or fell into a state of disrepair. Social and economic restructuring in the immediate aftermath of World War I saw the loss of many private gardens in Scotland.

Fig. 24 Interior of Benmore fernery, replanted, 2019. Photograph: Rachel Keenan.

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To help offset such losses the response was often a transfer of property from private to public ownership. A growing awareness of collective responsibility and the emergence of voluntary organisations (reflected worldwide) preceded change at UK government level, prompting the introduction of conservation-minded statutory bodies tasked with identifying, evaluating and protecting built and environmental assets (MacKellar Goulty, 1993). Eventually, in 1987, as part of this undertaking, a long-awaited national *Inventory of Gardens and Designed Landscapes in Scotland* (HES, 1987–2025) was compiled and published.

Conservation of the built environment and gardens, however, must also be something of a game of chance. Neglect and abandonment precede loss. Most cultural trends, including pteridomania, dwindle to leave fragments that render a glimpse of lost, forgotten or faded grandeur. Yet such fragments can captivate imagination and, in time, motivate resolution. Garden conservation allows for elements of preservation, restoration and adaptation as required. Rarity has ensured that designated statutory authorities (in Scotland) have valued and protected surviving fernery buildings in any condition; the addition of documented provenance is of inestimable value. Legacy and the endurance of work representative of James Boyd & Sons, home-grown horticultural pioneers that achieved a reputation overseas, are valuable symbols. The surviving works of James Boyd & Sons, whilst of especial Scottish historical importance, are deserving of international significance in 19th-century garden architecture.

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Appendix

Table 1 has been compiled from the plants name-checked in the pages of *The Gardeners' Chronicle* that reference the collections held within the fernery buildings of Joseph Wakefield at Eastwood (1873) and Alexander Bannatyne Stewart at Ascog Hall (1879). It is probable that the original 19th-century planting within the Benmore fernery building at least resembled these listings (which can never be considered absolute or exhaustive). The known presence of an artificial heating system inside the fernery at Eastwood permitted a wider range of tropical and subtropical selections not exclusive to ferns.

Taxonomic revision has rendered many older names obsolete. Accepted replacement names (referencing the latest version of World Flora Online)[4] are followed by synonyms as they appeared within original publications. Origin details are from the same source.

[4] www.worldfloraonline.org

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Table 1 Inventory of planting at Eastwood (1873) and Ascog Hall (1879) ferneries

Plant	Eastwood	Ascog	Origin
	1873	1879	
Ferns			
Adiantum sp.	✓	✓	Cosmopolitan
Alsophila australis		✓	E & SE Australia
Alsophila tricolor (syn. *Cyathea dealbata*)	✓	✓	New Zealand & Chatham Islands
Asplenium bulbiferum		✓	New Zealand
Asplenium nidus	✓		Malesia to N & NE Queensland
Blechnum brasiliense (syn. *Blechnum corcovadense*)	✓		South America
Blechnum inflexum (syn. *Lomaria lanceolata*)		✓	South Africa
Cibotium schiedei		✓	Mexico
Cyrtomium falcatum		✓	China & Temperate E Asia
Davallia bullata		✓	Himalaya to S Central China
Davallia solida var. *pyxidata* (syn. *Davallia pyxidata*)		✓	E & SE Australia
Dennstaedtia davallioides		✓	E & SE Australia
Dicksonia antarctica	✓	✓	E & SE Australia
Dicksonia fibrosa		✓	New Zealand & Chatham Islands
Dicksonia squarrosa		✓	New Zealand & Chatham Islands
Dryopteris filix mas 'Cristata'		✓	Temperate N Hemisphere (cultivar)
Hemionitis rotundifolia (syn. *Platyloma rotundifolia*)		✓	New Zealand & Chatham Islands
Hymenophyllum demissum		✓	New Zealand & Chatham Islands
Hymenophyllum flexuosum		✓	New Zealand & Chatham Islands
Hymenophyllum tunbridgense		✓	Europe to Turkey & Africa
Leptopteris hymenophylloides (syn. *Todea pellucida*)		✓	New Zealand & Chatham Islands
Leptopteris superba (syn. *Todea superba*)	✓	✓	New Zealand
Paesia scaberula (syn. *Pteris scaberula*)		✓	New Guinea & New Zealand
Pityrogramma chrysophylla (syn. *Gymnogramma chrysophylla*)	✓		Caribbean to NW Venezuela
Platycerium alcicorne	✓		E Africa & Madagascar
Polystichum setiferum 'Proliferum wollastonii'		✓	Europe & Mediterranean (cultivar)

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Plant	Eastwood	Ascog	Origin
	1873	1879	
Pteris argyraea		✓	India & Sri Lanka
Pteris dentata (syn. *Pteris serrulata*)	✓		Iran, Arabian Peninsula & Africa
Pteris parkeri (syn. *Pteris cretica* var. *albolineata*)		✓	Korea, Japan, Nansei Shoto & Taiwan
Pteris tremula		✓	Australia & South Pacific
Pyrrosia heteractis (syn. *Niphobolus heteractis*)		✓	Nepal, S China & Indo-China
Sphaeropteris medullaris (syn. *Cyathea medullaris*)	✓	✓	New Zealand & S Pacific Islands
Todea barbara (syn. *Todea africana*)		✓	SE Africa, SE Australia & New Zealand
Trichomanes capillaceum (syn. *Trichomanes trichoideum*)		✓	Mexico, Central & S America
Trichomanes crispum		✓	Trinidad to S Tropical America
Trichomanes radicans		✓	Cuba to S Tropical America
Woodwardia radicans	✓	✓	Mediterranean & N Africa
Palms and architectural			
Araucaria heterophylla (syn. *Araucaria excelsa*)	✓	✓	Norfolk Island
Archontophoenix cunninghamiana (syn. *Seaforthia elegans*)	✓		NE Australia
Dracaena sp.	✓		Tropics & Subtropics
Hyophorbe verschaffeltii (syn. *Areca verschaffeltii*)	✓		Rodrigues
Latania lontaroides (syn. *Latania borbonica*)	✓		Reunion
Musa sp.	✓		Tropical & Subtropical Asia
Pandanus utilis	✓		Mauritius, Reunion & Rodrigues
Phoenix dactylifera	✓		Arabian Peninsula to S Pakistan
Rhapis excelsa (syn. *Rhapis flabelliformis*)	✓		SE China & N Central Vietnam
Climbers			
Ficus pumila (syn. *Ficus repens*)	✓		Temperate E Asia & Indo-China
Hedera hibernica Variegata	✓		W & Central Europe (Cultivar)
Passiflora antioquiensis (syn. *Tacsonia vanvolxemii*)	✓		Colombia

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Plant	Eastwood	Ascog	Origin
	1873	1879	
Passiflora kermesina	✓		SE Brazil
Plumbago auriculata (syn. *Plumbago capensis*)	✓		Mozambique to S Africa
Herbaceous and groundcover			
Begonia sp.	✓		Tropics, Subtropics & Central China
Drosera rotundifolia	✓		Northern Hemisphere
Farfugium japonicum (syn. *Farfugium grande*)	✓		S China, Japan & Korea
Maranta sp.	✓		Mexico to Tropical S America
Saxifraga stolonifera (syn. *Saxifraga sarmentosa*)	✓		Himalaya, SE China & Japan
Liverwort			
Marchantia polymorpha	✓		Cosmopolitan
Moss			
Hylocomium splendens (syn. *Hypnum proliferum*)	✓		Northern Hemisphere
Spikemoss			
Selaginella densa	✓		W USA & Central Canada
Selaginella denticulata		✓	Central Europe & N Africa
Selaginella plumosa (syn. *Selaginella stolonifera*)	✓		Caribbean
Selaginella willdenowii		✓	Tropical & Subtropical Asia

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