

The Garden History Society

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Author(s): W. R. Trotter

Source: *Garden History*, Vol. 16, No. 1 (Spring, 1988), pp. 71-89

Published by: [The Garden History Society](#)

Stable URL: <http://www.jstor.org/stable/1586906>

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W. R. TROTTER

THE GLASSHOUSES AT DANGSTEIN AND THEIR CONTENTS

INTRODUCTION

During the latter part of the nineteenth century, a remarkable collection of tropical and sub-tropical plants flourished in a remote corner of rural Sussex. Inspired and directed by Lady Dorothy Nevill, it attracted much attention in horticultural circles, and was the subject of a number of articles in the journals of the time. From these accounts, together with the published and unpublished writings of Lady Dorothy, and inspection on the site of what now remains of the glasshouses, I have tried to re-construct the situation and structure of the various houses, and to get some idea of what was grown in them.

The Dangstein estate is situated on the southern slopes of a greensand ridge, in the north-west corner of Sussex (NGR SU 823245); the nearest village is Rogate, and the nearest town Petersfield, just across the Hampshire border. The upper part of the ridge is wooded, with farmland on the lower slopes. The garden was created, mainly out of woodland, in the 1830s by Captain James Lyon (c.1790–1854), a retired East India Company officer, who had inherited a substantial fortune from his father. In his time, the garden consisted of little more than the present walled garden.

In 1851, the estate was bought by Mr Reginald Nevill (1807–78) and his wife Lady Dorothy Nevill (1826–1913). Lady Dorothy was a Walpole, daughter of the 3rd Earl of Orford; Reginald Nevill, a grandson of the 1st Earl of Abergavenny, also had a Walpole grandmother, and had inherited a considerable fortune from a Walpole uncle. He was a man of retiring disposition, interested in farming, shooting and coaching; but not in gardening. He subsequently enlarged the Dangstein estate to over two thousand acres, and spent much of his time managing the various farms included in it. He was content to leave organization of the house and garden entirely in the hands of his wife.

Lady Dorothy (Figure 1) was a very different character, and far from reticent. Consequently, we know a great deal more about her than about her husband; she herself has left us three substantial volumes of reminiscences;^{1,2,3} her son,⁴ and a collateral Nevill descendant,⁵ have both written biographies; and for an insight into her character we have a perceptive sketch by her friend Edmund Gosse.⁶ From these various sources we get an impression of a small, neat person of intense vitality and abounding energy,

Surrey End Cottage, Tennyson's Lane, Haslemere, Surrey.



Figure 1.
Lady Dorothy Nevill in
middle age, from a
photograph of unknown date,
by Messrs Thompson of 141
New Bond Street, used as a
frontispiece for the 1908
edition of her *Reminiscences*,
published by Thomas Nelson
& Sons, London

with an astonishing range of interests and aptitudes, and a lively wit. It would not be appropriate to list here all her multifarious activities (they ranged from the skilled illumination of manuscripts to the setting-up of a school of laundering for poor girls and a near-successful attempt to start a silk industry on the estate), or the many classes of object which she collected (from corset-buttons to Sussex firebacks); but what mattered most to her were *plants* and *people*, and she collected both with equal avidity. Her wide acquaintance with people eminent in all walks of life, and her great powers of persuasion, helped her to garner rare plants from all over the world. She was a gifted and knowledgeable plantswoman, appreciative of the beauties of the countryside, but with no great interest in landscape gardening. Her great passion was the growing of exotic plants, and the more unusual they were the better. In exercising this passion she was profoundly fortunate in securing the services, as head gardener, of James Vair (c. 1825–87).^{7,8} He was born in the Scottish border country, at Falconside near Melrose, and had been employed by Sir Walter Scott as a gardener at Abbotsford. He had a genius for

coaxing difficult plants into growth, and particularly excelled in the cultivation of orchids. Most of the published descriptions of Dangstein commend the excellent order which he maintained, both inside and outside the glasshouses.

Lady Dorothy was always an enthusiastic hostess, and in later life this became her principal preoccupation. Her ambition was to attract to Dangstein people eminent in either politics, literature or science; and the collection of exotic plants (there were also exotic animals and birds) was an important part of the bait. To begin with, before 1860, this was not always easy, since the nearest railway station was twenty-two miles away, at Godalming, where the traveller had to transfer to the 'Rocket' coach which brought him to an inn on the Portsmouth road, to be met by a local conveyance. This did not deter Sir William Hooker, who was an early visitor, and soon initiated an exchange of plants and visits between Kew and Dangstein, which was continued by Sir Joseph Hooker. It was a measure of Sir William's respect for Lady Dorothy's knowledge of plants that he dedicated volume LXXXII of *Curtis' Botanical Magazine* to her. After 1860, when the Portsmouth Direct railway line came to Petersfield (with a connection to Rogate), the journey became easier and quicker, and visits by distinguished guests were correspondingly more frequent.

The present garden at Dangstein consists of about twenty-three acres, much as it did in Lady Dorothy's time. Her house (since demolished) was an imposing but draughty mansion built in the classical style in 1836–37 (Figures 2 and 3). To the south of the



Figure 2. The house from the north-west, shortly before demolition, from a photograph used by the estate agents when Dangstein was put up for sale in the 1920s (in the possession of the present owner)



Figure 3. The house from the south-west, from an engraving in the *Journal of Horticulture* for 1872 (ref. 14)

house a large lawn opened up the superb view across the valley of the Western Rother to the South Downs. On the western side there was a parterre and a splendid pinetum, from which some fine trees still survive;* on the east, a path, still known as 'Lady Dorothy's Walk', led in a circuit through a wood. North of the house, the previous owner had constructed the walled garden, in which fruit and vegetables were grown. The small valley east of the walled garden was partially filled to make a level area for growing more vegetables, and outside the walled garden was a long herbaceous border, which, Lady Dorothy claimed,³ was one of the earliest of its kind. These features made for what must have been (and still is) a most attractive and interesting garden; but Dangstein would never have been famous if it had not been for its glasshouses and their contents. These were situated within and to the north of the walled garden, and were the subject of no less than twelve articles in the horticultural press between 1856 and 1879.⁹⁻²⁰ As early as 1856, when Lady Dorothy had only been there for five years, Dangstein was said 'to vie with most of our finest gardens in the richness of its collections of fine exotic plants'.⁹ H. H. D'Ombraïn wrote that Lady Dorothy had 'made Dangstein a household word among the lovers of flowers';¹² while William Robinson, sent by the Royal Botanic

* Until laid low by the October 1987 storm.

Society in 1865 to search out unusual plants, found Dangstein 'one of those places that are perennially interesting — full of variety and life'.¹³ All the horticultural correspondents were agreed about the richness of the plant collections, and the excellent state in which they were maintained by Mr Vair and the thirty-three gardeners under him.

THE GLASSHOUSES

All but three (I, II and VI) of Lady Dorothy's glasshouses have since been demolished, but the foundations of most of these are still discernible, though some would require excavation to determine their precise limits. Fortunately, the Sale Catalogue of 1879²¹ gives measurements of all the houses, and five of the published accounts also describe them in some detail, as well as their contents.^{9-11, 14, 16} The description which follows has been compiled from these sources, supplemented by inspection of those houses which are still standing, and the foundations of the remainder (Figure 4).

The five accounts mentioned above describe the houses in an orderly fashion, proceeding either from south to north (as in the present article; see the Plan), or vice versa. For descriptive purposes, I have given each building a Roman numeral, even though some of them are composite. In her *Reminiscences* (p. 77),¹ Lady Dorothy writes of 'seventeen hot-houses'; she probably arrived at this figure by excluding the forcing pits (I, VIII, IX), and counting VI as three separate houses, and III and V as four each. This was entirely reasonable, as these houses were divided into compartments, each of which could be treated as an individual house.

Proceeding northwards through the walled garden, we come first to (Figure 4):

I. In the 1879 sale catalogue, this was described as 'A Range of Forcing Pits, 84 by 12 feet, with 21 lights' (Figure 5).²¹ The first mention of these pits (which are still in use) in the journals was in 1872,¹⁴ when they were described as 'a range of lean-to pits, 84 feet long by 12 feet wide, partly used for plant-growing and partly for vegetable-forcing'. The contents of the individual compartments were greatly assorted: in one, cucumbers; next, ferns from Ceylon, and 'a number of plants from seed sent from the same island'; then, asparagus, dwarf kidney beans and strawberries; another compartment contained 'several plants of the Variegated Pine Apple which are very useful for decorative purposes'; another, '*Arachis hypogaea*, the Earth Nut ... so largely consumed by children'.

The pits, in their present form, are in three compartments, the floor being about three feet below ground level. Plants are grown in pots, on two parallel raised platforms. There is no heating.

II. The 'Walled Peach House, 28 by 13 feet, with two rain-water tanks' (Figure 6),²¹ is mentioned in the 1861 and subsequent accounts, but not in that of 1856; it is still in use. The peach trees were trained 'on the back wall, and on an arched trellis in front';¹⁰ and there was also a nectarine.¹⁴ On an adjacent wall, outside the Peach House there was a 'Peach Case', formed of 'sashes placed in front of the wall, so as to leave a width of 4½ feet at the base, and meeting the wall at an acute angle at the back'.¹⁴ Two accounts mention a similar 'Fig Case' on the east wall of the walled garden.^{10, 11}

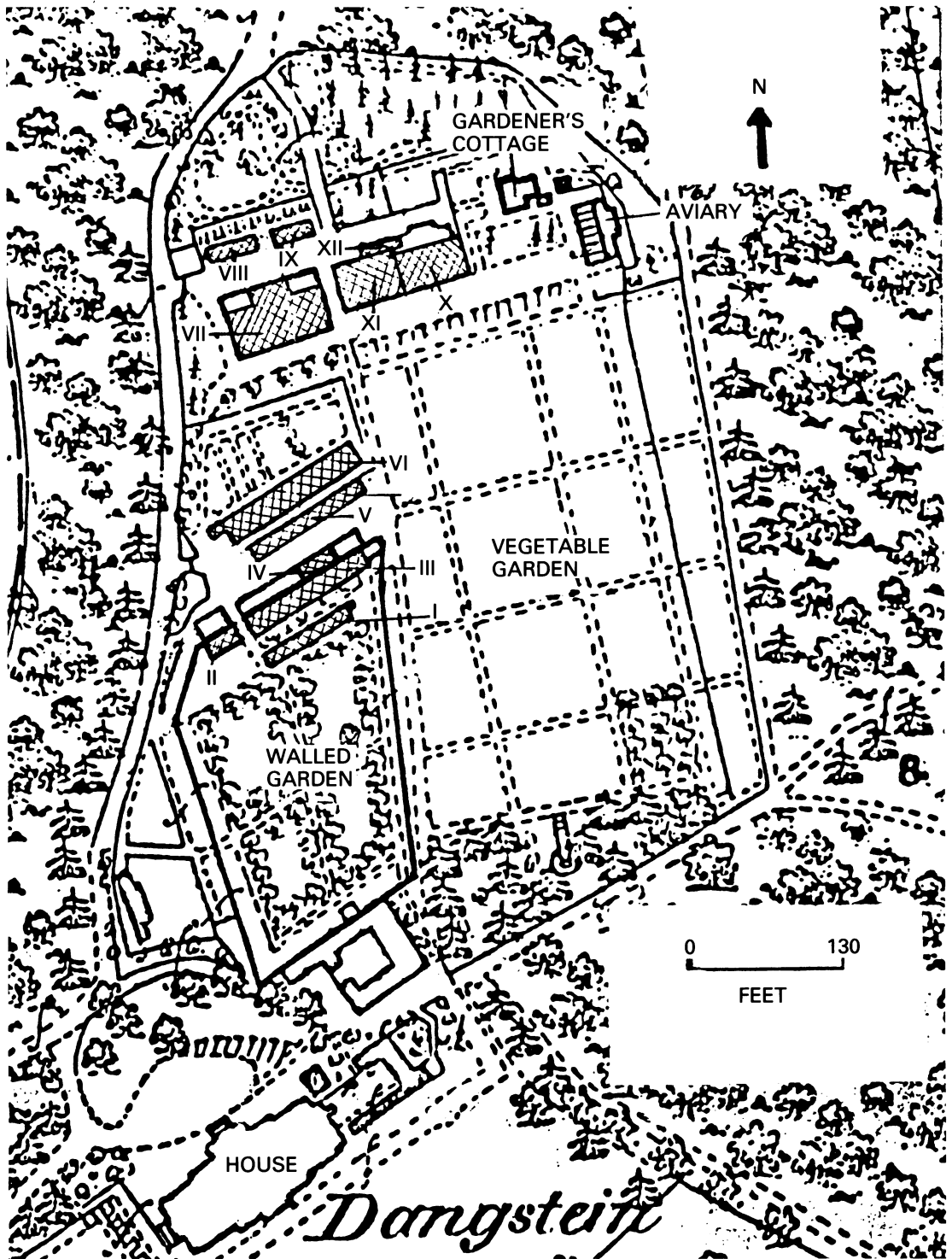


Figure 4. Plan showing the position of the glasshouses, adapted and enlarged from OS 25 inch/mile, sheet Sussex XXI.5, 1873

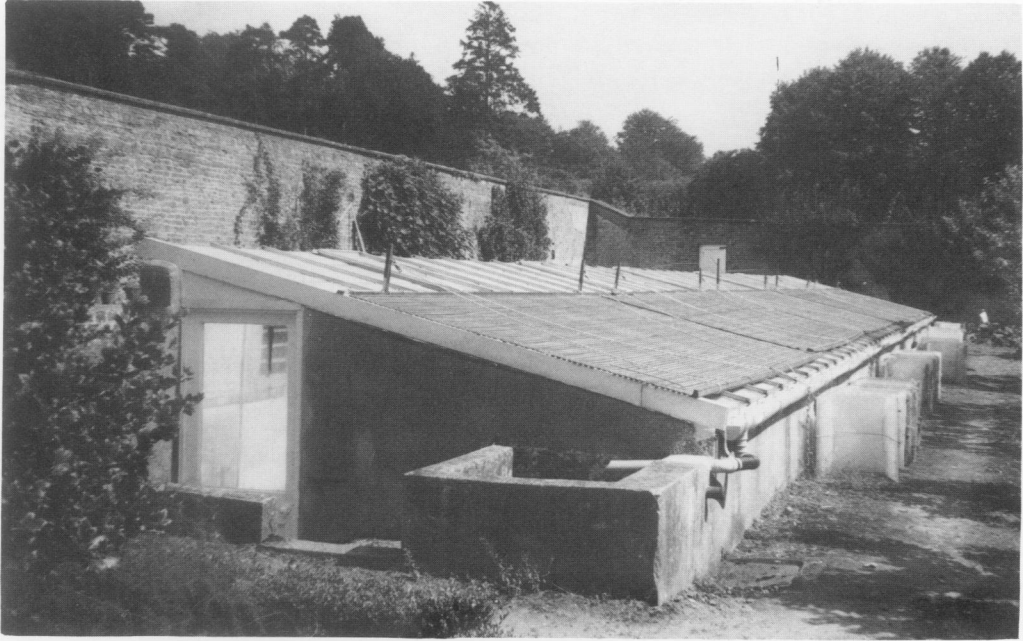


Figure 5. The Pits (House I), as they are today. The wall on the left of the photograph is the north wall of the walled garden. The foundations of House III lie between this wall and the Pits

The Peach House is probably little changed. A peach tree is flourishing on the south-facing back wall in a bed at ground level. The house does not appear to have been heated. The Peach Case no longer exists.

III. The foundations of this house can be seen, against the south side of the north wall of the walled garden. The remains of four compartments can be made out, and this agrees with the published accounts; the most detailed is that of 1861: 'a range of glass structures in four divisions, 114 feet long and 13 feet wide'.¹⁰ The first division was an orchid house (though it also contained some ferns), and on the back wall there was a vanilla plant (*V. lutescens*, according to another account)¹¹ with shoots more than thirty feet long. The second division was a vinery, which also contained some figs, french beans, strawberries and roses. The third and fourth divisions were also vineries, which, like most of the houses at Dangstein, also contained their quota of strawberries. This house was in existence in 1856, when it was described⁹ simply as 'a range of Vineries'. It may even have been there before Lady Dorothy's time, since an estate map²² of 1851 shows a building in the same situation.

IV. The northern side of the north wall of the walled garden is now occupied by a row of storage and potting sheds. The more westerly of these were present in Lady Dorothy's time, but towards the eastern end of this range, as indicated on the plan, there was a glasshouse, subsequently replaced by a shed. This house is not mentioned in either

of the detailed 1861 reports, and was probably a relatively late construction.^{10, 11} It seems to correspond with what was called 'the cool Orchid house' in 1872;¹⁴ but as no dimensions or structural details are given it is difficult to be sure of the identification. One of the 1879 accounts describes it more clearly as 'a lean-to house with a northern aspect',¹⁶ in which were grown insectivorous plants and cool-house orchids. The sale catalogue calls it an 'orchid house', and describes an adjacent boilerhouse and a rainwater tank holding 5,000 gallons.²¹

v. North of the above range of sheds, there is now an open space, known as 'The Garden Yard'. Running east and west across this area, traces of the foundations of House v can be seen. This was probably the 'span-roof forcing-house, 100 feet long', which was 'in course of erection' in 1856.⁹ In 1861, it was described as 'a stove 102 feet long and 15 feet 6 inches wide, span-roofed and in four divisions, having a walk the entire length of the centre and beds on either side'.¹⁰ The 1879 sale catalogue²¹ called it 'a range of Pits', implying that it was partly below ground level. It was heated by hot water.

This house was divided into four compartments. The second compartment from the western end was the 'tank house', in which aquatic plants were grown. A hot-water tank ran along the length of the southern side. In a separate tank, there were plants of the Madagascan lattice-plant (*Ouvirandra fenestralis*), which was one of Dangstein's prime exhibits.^{10-16, 19}

The compartment at the western end of House v was used at first for an assorted mixture of plants. From 1872, it accommodated those *Gymnogrammes*, *Trichomanes* and *Hymenophyllums* which required a higher temperature than could be provided in the newly-constructed filmy fern house (xii). The compartment immediately east of the tank compartment seems to have housed a variety of plants at different times; the one next to it, at the eastern end of the house, was mainly devoted to the more delicate varieties of fern.

vi. The first building to be erected on this site was already in use in 1856 as an orchard house.⁹ It was a lean-to building, ninety feet long by twelve feet wide, constructed 'on Rivers' original plan'¹⁰ (i.e. a boarded shed, with a sloping glass roof — 'a cucumber-frame on a large scale'²³). Plums, peaches, nectarines, and cherries were grown here.

At some time between 1856 and 1861, a span-roofed glasshouse, forty feet long by fourteen feet wide, was erected immediately to the east of the lean-to building.¹⁰ This was the tropical orchard house or orangery.

By 1872, the lean-to orchard house had been demolished.¹⁴ In its place, the orangery had been greatly extended to the west, thus forming the present span-roofed house (Figure 7); the junction with the original building is clearly visible in the brickwork of the north wall, and there is also an obvious change at this point in the brickwork of the two east-west walkways which run the whole length of the house. The wooden span roof, supported on low brick walls at the sides, and by a series of central iron pillars, is continuous throughout the length of the 136-ft building; the width throughout is twenty-four feet, except at the western end, where there is a small separate compartment twelve feet square. In Lady Dorothy's time, the main part of the house was divided into three compartments. The most easterly (and oldest) compartment, thirty-six feet long, was still the tropical fruit house or orangery. The middle compartment, or orchard house,

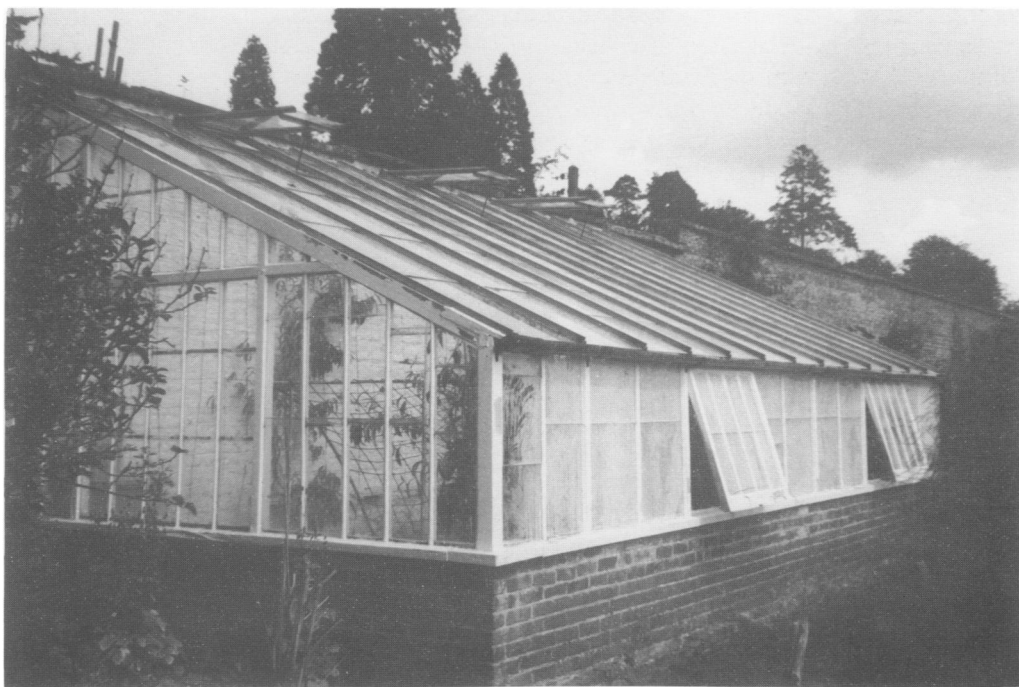


Figure 6. The Peach-House (House II), as it is today, seen from the south-west. The whitewashed wall at the back of the house is the north wall of the walled garden

forty-six feet long, contained vines and temperate fruit trees; vines are still grown there. To the west of this was the principal orchid house, forty feet long, and subsequently divided into two. The small twelve by twelve-foot compartment at the western end contained bromeliads. This range of houses was heated by hot water, and there were two rainwater tanks.²¹

VII. The palm house, illustrated in the 1872 article,¹⁴ was the most imposing of the Dangstein glasshouses (Figure 8). It was probably the first of Lady Dorothy's constructions, having been erected in 1854, only three years after she moved in.⁹ The sale catalogue described it as 'A magnificent Palm House with domed roof, 80 by 50 feet';²¹ the illustration shows that the central portion of the roof was indeed elevated (the height of the raised portion is given as thirty feet),^{9, 10} but could not accurately be described as 'domed'. In the 1856 account it is called 'the tropical fruit house',⁹ but in all subsequent accounts it is 'the palm house'. The central portion, with the raised roof, came to be occupied by palms and other tropical trees and climbers; round the lower outer parts there were a great variety of plants requiring a high temperature, including a large part of the orchid and fern collections. The palm house was heated 'on Hayden's principle of hot water and air combined';¹¹ 'Mr Vair was loud in the praises of the economy of the system, or rather the combination of hot-water and hot-air heating.'¹⁴



Figure 7. House VI, as it is today, seen from the south-west. The row of brick-walled bins containing compost etc., seen in the foreground, is on the site of the demolished House V

As the plan shows, the two northern corners of the palm house were occupied by two small masonry structures, which still survive, although the glazed portion of the house has long ago disappeared. These were a bothy and a potting shed.²¹ Beneath the house was a rainwater tank capable of holding 11,000 gallons.²¹ Fumes from the boiler which heated this house were led underground to a tall chimney in the wood to the north.

VIII and IX. These were 'Two cool Brick Pits, one with 10, the other with 11 double lights'.²¹ They were each thirty-six feet long by twelve feet six inches wide;¹⁰ in them were grown heaths and azaleas.^{10, 11, 14}

X, XI and XII. Although they appear in the 1872 illustration¹⁴ to be an unitary span-roofed building, were in fact constructed separately, at three different periods.

X. The earliest part of this composite building was a glasshouse, fifty-two feet long by twenty-six feet wide, constructed in 1855 as a fernery.⁹ This impressed one correspondent as a 'fairy land'.¹¹ The ferns were planted in raised beds with walls of rugged sandstone, with a narrow serpentine path winding between them. The central supporting columns were also faced with the same rough sandstone, and these and the back wall were clothed with Lycopods, giving the building 'the appearance of a natural cavern'.^{9-11, 16} As well as the ferns, in 1856 this house contained a plant of the Tenerife dragon tree, *Dracaena draco*;⁹ it was subsequently moved to the palm house.¹⁰ On the north side of the fernery, entered by a pair of folding glass doors, was Lady Dorothy's museum. It was said to be fourteen feet square¹⁰ (these dimensions are difficult to reconcile with the OS map, which shows it as anything but square), and was built at the

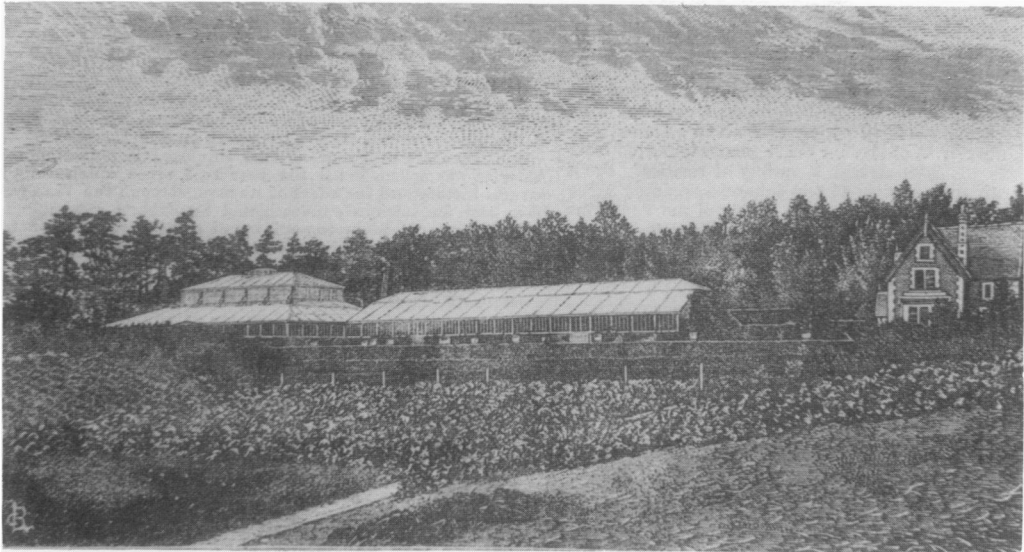


Figure 8. The Palm House (v11), Conservatory (x1) and Fernery (x), from the south-west, from an engraving in the *Journal of Horticulture* for 1872 (ref.14). The small building on the right of the illustration is the Gardener's Cottage, which is still in use as a dwelling

same time as the fernery. The type of construction is not mentioned; it may have been masonry or wood. It contained a small library, as well as 'objects of curiosity and interest in the vegetable creation';¹¹ there was also a book for visitors' names, and another, entitled 'Plants in my Garden at Dangstein, 1854', beautifully written in illuminated characters by Lady Dorothy; neither book, alas, has survived.

XI. At some time between 1856 and 1861, the span-roofed fernery was extended westward to form the composite building portrayed in 1872. The overall length of the building was given as 103 feet, and its height as sixteen feet;¹¹ the old and new sections were not, however, the same width (twenty-six and thirty feet respectively).¹⁴ The new portion is described as a 'greenhouse' in 1861,^{10,11} and as a 'conservatory' in 1872 and 1879.^{14,16,21} The back wall was of solid construction, supporting a raised bank of earth faced with sandstone.¹⁰ It contained a mixed collection of ornamental plants.

The fernery and conservatory were heated by a combination of hot air and hot water, provided by the same boiler, the remains of which are still visible; its flue also ran underground to the tall chimney in the wood to the north. There was a 4,000 gallon rainwater tank beneath.²¹

XII. The last glasshouse to be erected at Dangstein was the filmy fern house, built in 1872¹⁴ for growing *Hymenophyllum*, *Todea* and *Trichomanes* spp. under cool, moist conditions. This was 'a small lean-to house 36 feet by 10 feet, with a north-westerly aspect'.¹⁶ The floor was evidently below that of the fernery, for it was entered from the latter by descending 'a few steps';¹⁶ it could also be entered from the museum.¹⁴ It acquired some gentle heat from 'air passing over hot-water pipes in the adjoining house,

and from thence conducted through drain-pipes into the atmosphere of this'.¹⁴ The walls were encrusted with shells from the East Indies; the back wall bore the letters 'L.D.N.1872' in white coral on red.¹⁴ One side was occupied by a sloping bank of Killarney ferns;¹⁶ elsewhere, filmy ferns were growing on 'rustic pyramids of stone and cement'.¹⁴

There is regrettably little information about the temperatures maintained in the various houses, although there can be no doubt that Mr Vair saw to it that these were carefully controlled. William Robinson,¹³ however, took note of the conditions in House IV, where the *Darlingtonia californica* was growing. They were in 'a house with a north aspect — temperature from a winter average of 50° to 65° and 70° in summer; moisture abundant'. The conditions under which *Ouvirandra fenestralis* was grown were specified in a separate article;¹⁹ the water in the tank was maintained between 66° and 70°F. Robinson commented that Vair had at one time had a little stream of water running through the tank, but abandoned this as he found it did no good.

THE COLLECTIONS

Orchids

The orchids were one of Dangstein's most noted features; Darwin himself expressed his gratitude to Lady Dorothy for placing her 'magnificent collection of orchids at my disposal'.²⁵ By 1856 a substantial group had already been established in one wing of the palm house (VII).⁹ By 1861 orchids were also being grown in the 'East Indian Orchid House' which formed one compartment of the house within the walled garden (III);^{10, 11} the back wall of this house was already covered by a fine plant of *Vanilla lutescens*. In the palm house, the collection of Anoctochilus — a greatly admired feature — had been started in a glazed case thirteen feet long and two feet wide. By 1872 the cool orchid house (IV) was also in operation; insectivorous plants were grown there as well. The main orchid collection was now housed in one compartment of the range which still stands (VI). The anoctochiles remained in their case in the palm house, though by 1879 their numbers had somewhat declined.¹⁶ The main collection, in the principal orchid house, was still going strong, as were the scattered groups in houses III, IV and V.

The orchid species mentioned in any of the accounts as particularly noteworthy are enumerated below; this is, of course, far from being a complete tally of the Dangstein collection:

- | | |
|--|---|
| <i>Acineta barkeri</i> , <i>A. humboldtii</i> | <i>A. dawsonianus</i> (<i>Haemaria discolor dawsoniana</i>), <i>A. intermedius</i> , <i>A. lobii</i> |
| <i>Ade aurantiaca</i> | (<i>A. argyroneurum</i>), <i>A. lowii</i> (<i>Dossinia marmorata</i>), <i>A. lowii virescens</i> |
| <i>Aerides affine</i> , <i>A. brookii</i> (<i>A. crispum</i>), | (<i>D. m. virescens</i>), <i>A. petola</i> (<i>A. veitchii</i> , |
| <i>A. fieldingii</i> , <i>A. larpentae</i> (<i>A. falcatum</i>), | <i>Macodes petola</i>), <i>A. querceticola</i> (<i>Physurus querceticola</i>), <i>A. roxburghii</i> , <i>A. setaceus</i> |
| <i>A. odoratum</i> , <i>A. praemorsum</i> (<i>Saccolabium blumei</i>), <i>A. retusum</i> (<i>S. guttatum</i>), | (<i>A. regale</i>), <i>A. setaceus aurea</i> , <i>A. striatus</i> |
| <i>A. suavissimum</i> | (<i>Monochilus regium</i>), <i>A. xanthophyllus</i> |
| <i>Angraecum caudatum</i> , <i>A. eburneum</i> , | (<i>A. friderici-augusti</i>), <i>A. xanthophyllus</i> . |
| <i>A. sesquipedale</i> , <i>A. virescens</i> | |
| <i>Anoctochilus argenteus</i> (<i>Pilumna argenteus</i>), | |
| <i>A. argenteus pictus</i> (<i>P. pictus</i>), <i>A. bulleni</i> , | <i>Brassia</i> spp. |

- Brassavola* spp.
Calanthe veitchii, *C. vestita*
Cattleya aclandii, *C. crispa*, *C. dowiana*,
C. gigas, *C. labiata*, *C. lobata*,
C. mossiae, *C. trianae*
Coelogyne cristata, *C. pandurata*
Cymbidium eburneum, *C. giganteum*,
C. mastersii, *C. sinense*
Cypripedium caudatum roseum, *C. dayanum*,
C. harrisianum, *C. hirsutissimum*,
C. insigne, *C. longifolium*, *C. lowei*,
C. pearcei (*C. caricinum*), *C. schlimii*,
C. stonei, *C. veitchii* (*C. superbiens*)
Dendrobium bensoniae, *D. chrysotoxum*,
D. dalhousii, *D. falconeri*, *D. farmeri*,
D. fimbriatum, *D. griffithii*,
D. macarthisiae, *D. moschatum*, *D. nobile*,
D. oculatum, *D. paxtoni*
(*D. chrysanthum*), *D. speciosum*,
D. triadenium, *D. wallichianum*,
D. wardianum
Dendrochilum (*Platyclinis*) *filiforme*
Disa grandiflora, *D. herschellii*
Epidendrum vitellinum, *E. vitellinum majus*
Gongora cymbiformis
Goodyera spp.
Houlletia brockelhursatiana
Laelia purpurata, *L. superbiens*
Lycaste skinneri
- Masdevallia chimaera*, *M. davisii*,
M. estradae, *M. harryana*, *M. ignea*,
M. lindeni, *M. tovarensis*, *M. veitchiana*
Maxillaria spp.
Miltonia clowsii, *M. spectabilis*
Odontoglossum alexandrae (*O. crispum*),
O. cariniferum, *O. cirrhosum*,
O. gloriosum, *O. grande*, *O. hallii*,
O. hystrix (*O. luteo-purpureum*),
O. lindleyanum, *O. pulchellum*,
O. pulchellum majus
Oncidium spp.
Peristeria elata
Phalaenopsis grandiflora
Pleone maculata, *P. wallichii* (*P. praecox*
wallichiana)
Pleurothallis spp.
Renanthera coccinea
Saccolabium blumei, *S. guttatum*,
S. praemorsum, *S. retusum*
Sarcopodium lobbii (*Bulbophyllum lobbii*)
Sobralia macrantha
Stanhopea spp.
Uropedium lindeni
Vanda coerulea, *V. coerulea batemanni*,
V. gigantea, *V. roxburghii*, *V. suavis*,
V. tricolor, *V. tricolor insignis*
Vanilla lutescens, *V. planifolia*.

The genus which attracted most attention, and favourable comment, was the anoctochiles, grown for their beautiful foliage. Although only started after 1856, by 1861 the collection of this genus amounted to no less than 320 plants,¹⁰ and included nearly all the species listed in contemporary textbooks. These orchids were considered to be among the most difficult to keep in good condition for any length of time, so it is greatly to Mr Vair's credit that they were still going strong in 1879, though there were somewhat fewer of them.

Ferns

Lady Dorothy shared the Victorian passion for ferns, and she soon assembled a large collection at Dangstein. As early as 1856 she wrote to William Hooker that she had 'about 300 different kinds'.²⁶ The bulk of the hothouse ferns were kept in the main fernery (X), built in 1855; those requiring cooler conditions in the filmy fern house (XII), built in 1872. There were also a small scatter of ferns in some of the other houses (V, VI, VII, XI). Hardy ferns were planted in the wood north of these two houses.^{10, 11}

Those species which were considered to be noteworthy by one or more of the horticultural correspondents are listed below:

- Adiantum cristatum* (*kunzeanum*)
Alsophila australis, *A. ferox* (*aculeata*),
A. mequeli
Angiopteris evecta
Aspidium fragrans
Asplenium nidus (*australasicum*)
Blechnum spp.
Cheilanthes spp.
Cyathea aculeata, *C. arborea* (*grevilleana*),
C. dealbata, *C. elegans*, *C. insignis*
(*princeps*), *C. medullaris*, *C. serra*,
C. petiolata (*integra*)
Davallia aculeata, *D. divaricata* (*polyantha*),
D. parvula
Dicksonia (*Cibotium*) *antarctica*, *D. barometz*,
D. culcita, *D. princeps*, *D. scheidei*,
D. squarrosa, *D. youngiae*
Didymochlaena truncatula
Drynaria (*Polypodium*) *coronans*, *D. morbilata*
Gleichenia dicarpa, *G. dicotoma* (*ferruginea*),
G. flabellata, *G. hecistophylla* (*dicarpa*
alpina), *G. microphylla* (*circinata*),
Goniophlebium (*Polypodium*)
subauriculatum, *G. verrucosum*
Gymnogramma tartarea
Hemitelia horrida
Hymenodium (*Acrostichum*) *crintum*
Hymenophyllum abruptum, *H. asplenoides*,
H. ciliatum (*boryanum*), *H. demissum*,
H. dilatatum, *H. flexuosum* (*javanicum*),
H. hirsutum, *H. hirtellum*, *H. polyanthum*
(*protrusum*), *H. pyxidiferum*,
H. tunbridgense, *H. wilsoni*
- Lastrea* (*Nephrodium*) *kunzei*
Lindsaea cultrata, *L. lowi*
Litobrochia vesperilionis
Lycopodium laterale, *L. phlegmaria*
Lygodium spp.
Marattia cicutaeifolia, *M. elegans*, *M. laxa*,
M. purpurescens
Nephrolepis davallioides
Nothoclaena spp.
Odontosoria (*Davallia*) *tenuifolia*
Olfersia (*Acrostichum*) *cervina*
Platynerium alicorne, *P. grande*, *P. stemmaria*
(*aethiopicum*)
Polypodium inequale, *P. latipes*, *P. nigricans*
Pteris argyria (*quadriaurita*), *P. aspericaulis*,
P. tricolor
Reinwardti (*subauriculatum*)
Ripidopteris peltata
Selaginella atro-viridis, *S. caulescens*, *S. lobbii*
(*cognata*), *S. lyalli* (*laevigata*),
S. rubricaulis, *S. wallichii*
Stemaria spp.
Todea fraseri (*Leptopteris fraseri*),
T. hymenophylloides (*pellucida*),
T. superba, *T. wilkeana*
Tricomanes alatum (*attenuatum*), *T. bancroftii*,
T. crispum, *T. maximum* (*anceps*),
T. muscoides (*erosum*), *T. pyxidiferum*,
T. radicans (*brevisetum*), *T. reniforme*,
T. rigidum (*obscurum*), *T. spicatum* (*Feea*
polypodina), *T. trichoideum*
Woodwardia radicans

Among the tree ferns, there were fine specimens of *Cyathea insignis* and *Dicksonia schiedeii*, both about five feet tall. In the palm house, a specimen of *Cyathea serra* had attained thirteen feet.¹⁶

Insectivorous Plants

Though not numerically large, the collection of insectivorous plants must have included most of those then available, and it certainly attracted a good deal of attention. It was mentioned in the 1856 account,⁹ when it was kept in a wing of the palm house, together with the orchids. Some of the insectivorous plants were later moved to the tank house (v),

but by the time of William Robinson's¹³ visit in 1865 most of them were in the cool orchid house (IV) ('a house with a north aspect'). Robinson had come to Dangstein to see the *Darlingtonia californica*, which, he believed (in fact, not quite correctly); was 'not elsewhere in cultivation in the British Isles'. This remarkable plant, looking like an exaggerated *Sarracenia*, had only been introduced to this country in 1861, and was proving difficult to grow. At the time of Robinson's visit there were only seedlings to be seen, little more than an inch high, quite healthy, and looking like 'the heads of young unfledged birds'. In 1872 they were still only seedlings ('some three hundred plants on a top shelf'),¹⁴ but by 1879 there were large numbers some with 'pitchers nearly 2 feet in length, and well coloured'.^{16, 17}

In his book on insectivorous plants, Charles Darwin thanked Lady Dorothy for giving him a fine plant of *Utricularia montana*.²⁷ This species, unlike the aquatic British bladderwort, is epiphytic, and its minute bladders are associated with the roots rather than the leaves. For some time Darwin failed to notice these insignificant little bladders, but when he did discover and dissect them he found, to his delight, that they contained minute decayed animals, showing that they were truly analogous to the larger floating bladders of the aquatic species. After making this discovery, he wrote to Lady Dorothy (18 September 1874): 'I have hardly ever enjoyed a day more in my life than this day's work; and this I owe to your ladyship's great kindness'.³

Rather surprisingly, for it is a handsome as well as an interesting plant, *Utricularia montana* is only mentioned by one of the horticultural correspondents.¹⁶ Another plant which Lady Dorothy supplied to Darwin for his studies was the Australian sundew, *Drosera dichotoma* (*binata*), which he had not seen previously.³

The following species of insectivorous plant are mentioned in one or more of the articles in the journals:

<i>Cephalotus follicularis</i>	<i>N. phyllamphora</i> , <i>N. rafflesiana</i> ,
<i>Darlingtonia californica</i>	<i>N. sedeni</i>
<i>Dionaea muscipula</i>	<i>Sarracenia drummondii</i> (<i>undulata</i>),
<i>Drosera dichotoma</i> (<i>binata</i>)	<i>S. flava</i> , <i>S. purpurea</i> ,
<i>Drosophyllum lusitanicum</i>	<i>S. rubra</i> , <i>S. variolis</i> (<i>minor</i> , <i>adunca</i>)
<i>Nepenthes distillatoria</i> , <i>N. hookeri</i> , <i>N. hybrida</i> ,	<i>Utricularia montana</i>
<i>N. dominiana</i> , <i>N. laevis</i> , <i>N. maculata</i> ,	

Aquatic Plants

By 1856, a tank had been installed in the palm house (VII), containing water-lilies, and the Madagascan lattice plant (*Ouvirandra fenestralis*), which soon became one of Dangstein's show pieces.⁹ By 1861, the aquatic plants had been moved to the tank house in Building v.¹⁰ The progress of the *Ouvirandra* can be followed in the various reports. In 1856, it was simply described as 'a rare and remarkable plant'.⁹ In 1861, there were 'five fine plants'.¹⁰ By 1864, one plant 'had two hundred of its beautiful and curious leaves on it, while a number of its progeny were flourishing in small pots round it. Another plant seemed to be equally vigorous'.¹² William Robinson, in 1865, was unlucky; 'fine plants that sent leaves to the edges of lined tubs, 4 feet in diameter, all chose to lose the greater

portion of their large leaves a few weeks ago, but now they are starting afresh, no doubt to make fine plants by next year'.¹³ The Ouvirandra had indeed reached its peak earlier that same year, when it was reported to have had '230 sound leaves', some of which were as much as 24 inches long.¹⁹ But by 1872 it was 'not the fine specimen that was one of the sights of Dangstein some years back'.¹⁴ In January, 1879, there were only 'about a dozen small plants';¹⁶ and in June of that year (just before the sale) for the first time the Ouvirandra is not mentioned at all.¹⁷

The conditions which best suited the Ouvirandra were described by 'J' (evidently one of the gardeners at Dangstein);¹⁹ the water should not be too hot (66° to 70°F. was the preferred temperature range). But Mr Vair also confided to Rev. D'Ombrain that the best plan was to let it 'gang its ain gait', and not try too many 'artful dodges'.¹²

Apart from the Ouvirandra, the only other aquatic plants mentioned by the correspondents were: *Limnocharis plumeri*, *Nelumbium* spp., *Nymphaea dentata* and many other species of *Nymphaea*, and *Pontederia* spp.

Tropical Trees

There was an extensive collection of trees from the tropics and sub-tropics, including fruit-bearing, economic and ornamental species. At first these were all housed in the palm house (VII), then known as the 'tropical fruit house'.⁹ Later, most of the fruit-bearing trees were moved to the 'tropical orchard house' or 'orangery' in Building VI.

The following trees were mentioned by one or more correspondents:

<i>Aberia caffra</i> (Kei or Kan apple tree)	<i>Cocos naia</i> , <i>C. weddeliana</i>
<i>Alhagi</i> (manna tree)	<i>Cookia punctata</i> (wampee tree)
<i>Ananassa sativa variegata</i> (pineapple)	<i>Copernicia cerifera</i> (wax palm)
<i>Antiaris toxicaria</i> (upas tree)	<i>Corypha</i> (<i>Livistonia</i>) <i>australis</i> (fan palm)
<i>Aralia</i> (<i>Fatsia</i>) <i>papyrifera</i> (Chinese paper plant)	<i>Cupania sapida</i> (akee tree)
<i>A. leptophylla</i>	<i>Cycas revoluta</i> (sago palm)
<i>Argania sideroxylon</i> (argan oil plant)	<i>Dioon edule</i>
<i>Araucaria excelsa</i> , <i>A. cunninghami</i>	<i>Dracaena draco</i> (dragon tree) ²⁸
<i>Calamus rotang</i>	<i>Elais guineensis</i> (oil palm)
<i>Camellia theifera</i> (tea)	<i>Eugenia jambos</i> (rose apple)
<i>Carapa guianensis</i>	<i>Ficus elastica</i> (indiarubber plant)
<i>Carludovica palmata</i>	<i>Ficus indica</i> (banyan tree)
<i>Caryota urens</i> (East India wine palm)	<i>Garcinia mangostana</i> (mangosteen)
<i>Ceroxylon andicola</i> (wax palm)	<i>Geonoma macrostachys</i>
<i>Chamaedorea ernesti-augusti</i>	<i>Gossypium arboreum</i> (cotton tree)
<i>Chrysophyllum</i> (star apple)	<i>Guettarda speciosa</i> (zebra wood)
<i>Cinnamomum camphora</i> (camphor tree)	<i>Illicium</i> (aniseed tree)
<i>Citrus nobilis</i> (mandarin orange)	<i>Ilex paraguarensis</i> (Paraguay tea tree)
<i>Cocos nucifera</i> (cocoa nut palm)	<i>Jatropha</i> (Barbados nut)
	<i>Livistonia bourbonica</i> (wax palm)

<i>Lucuma deliciosum</i> , <i>L. obovatum</i>	<i>Pimenta vulgaris</i> (allspice)
<i>Mangifera alphonso</i> , <i>M. indica</i> (mango tree)	<i>Psidium cattleyanum</i> (red guava)
<i>Maranta zebrina</i>	<i>Psidium pyriferum</i> (yellow guava)
<i>Maximiliana regia</i>	<i>Raphia taedigera</i>
<i>Musa sapienta</i> , <i>M. cavendishi</i> , <i>M. castiglioni</i> (banana)	<i>Rhopala (Roupala)</i> spp.
<i>Myristica moschata</i> , <i>M. sebifera</i> (nutmeg tree)	<i>Sabal blackburniana</i> (fan palm)
<i>Pandanus utilis</i> (screw pine)	<i>Saccharum officinarum</i> (sugar-cane)
<i>Papyrus antiquorum</i> (paper reed)	<i>Seaforthia elegans (Ptychosperma cunninghamiana)</i>
<i>Phoenix dactylifera</i> (date palm)	<i>Stangeria paradoxa</i> (Hottentot's head)
<i>Photinia japonica</i> (loquat)	<i>Thrinax argentea</i> (broom palm)
<i>Phytelephas macrocarpa</i> (vegetable ivory)	<i>Zingiber officinale</i> (ginger)

There were many different varieties of citrus fruits.

In addition to those detailed in the collections, many other species were noted in the journals, which I have not attempted to mention.

THE SALE

Reginald Nevill died, after a long and painful illness, on 17 September 1878. Under his will, his estate was to be administered by trustees, with Lady Dorothy having the right to continue to live at Dangstein for as long as she wished. The trustees were to provide her with an income of £2,000 a year (not £800, as stated by Guy Nevill);⁵ this was in addition to an annuity (of unknown amount) from her marriage settlement. Lady Dorothy soon concluded that this would not be sufficient to maintain Dangstein as it then was, and so a sale was decided upon.

The house and estate were put up for sale in London on 20 June, 1879, and realised the satisfactory sum of £53,000.³⁰ The disposal of the plant collections was a much more difficult problem. Lady Dorothy would have liked the bulk of them to go to Kew, but this would have necessitated obtaining a grant from the Treasury. She exercised her powers of persuasion on Sir Stafford Northcote (the then Chancellor of the Exchequer), and at first seemed to be succeeding. Unfortunately for her plans, the Zulu war broke out in January, 1879, and this apparently diverted any funds the Treasury might have been able to spare for the purchase of her plants.²⁹ So a sale by auction of the plants at Dangstein was arranged, originally for April 1879, but postponed because of bad weather to 24 June and the four following days. The sale was announced in a local paper, more than a month before the event.³¹ The plants to be sold included

1000 orchids, more than 1000 stove ferns, and about 200 carnivorous plants, amongst which are some fine specimens of the rare *Darlingtonia californica*. There are also masses of the most rare and beautiful filmy ferns, a large number of terrestrial orchids, camellias of the choicest; in short, as fine a collection as taste, knowledge and wealth could bring together.

An advertisement giving further details was placed by the auctioneer, J. C. Stevens, in the *Gardeners' Chronicle* for 21 June, and in the *Petersfield Express* and the *West Sussex*

Journal for 17 and 24 June. Conveyances were to meet the principal trains at Rogate Station to bring prospective buyers to Dangstein.

I have not found any accounts of the sale itself, but it seems that by no means all of the plants can have been sold, for an advertisement, in the *Gardeners' Chronicle* for 12 July announced that Mr Stevens had been instructed by Lady Dorothy to sell — at his 'Great Rooms' in London — 'a most beautiful collection of Filmy and other Ferns, Sarracenias, Darlingtonias, Foliage Plants, Nepenthes, Anthuriums; also a nice lot of specimen Orchids, consisting of Stanhopeas, Dendrobiums, Miltonias, Cypripediums etc'. This second sale took place on 17 July, and was briefly reported in *The Garden*, in the following terms:¹⁸

The Dangstein Sale. The last portion of this fine collection was disposed of at Stevens' the other day. Some of the rarer kinds of orchids realised good prices. Among these *Dendrochilum filiforme* £15; the true *Cattleya labiata* £10–30; *Masdevallia tovarense* £13; *Sobralia macrantha* £11–13; *Masdevallia Estradae* £8. 10s–£9. 10s; *M. Veitchiana* £8. 10s; *Cattleya gigas* £8; *Dendrobium Griffithiana* £6–16; *Angraecum caudatum* £15; *A. sesquipedale* £8; *Masdevallia chimaera* £5; *M. Harryana* £4–6.

The large tropical and sub-tropical trees were not included in the sale. Lady Dorothy retained some of the orange trees for the conservatory in her new house. The rest of the trees were sold privately, to the King of the Belgians 'to fill his large conservatory', and to the Prince of Monaco, whose agent (a Mr Linden) chartered a steamer at Southampton to transport them.³²

Lady Dorothy seems to have been readily reconciled to leaving Dangstein, and her great collection of plants. 'I don't regret giving up Dangstein nor the expensive garden' she wrote to Joseph Hooker.³³ She leased a house called Stillyans, near Heathfield in East Sussex, from her old friend Robert Hogg, the pomologist, and moved there in the summer of 1879, still attended by the faithful Vair, who brought with him three van loads of plants from Dangstein.³⁴ With the change of gardens came a radical change in her gardening philosophy; 'I hope to make my new place very nice with hardy plants which after all are more effective than hot-house ones' she told Hooker.³³ Although she still had a conservatory for her orange trees, she was soon writing to George Maw about her 'charming garden for Alpines and herbaceous plants', and asking if he could spare her some of 'his gorgeous crocuses' to 'watch and gloat over'.³⁵ In the correspondence from Stillyans, there is no more mention of hot-house exotics.

ACKNOWLEDGEMENTS

I should like to thank Miss S. M. D. FitzGerald, Chief Librarian at Kew, for permission to use quotations from unpublished letters from Lady Dorothy to the Hookers; and Dr Brent Elliott, Librarian to the Lindley Library, for much help, and access to Lady Dorothy's letters to George Maw. I am deeply indebted to Miss J. M. Quennell, the present owner of Dangstein, for constant encouragement over a long period, and a great deal of sage advice.

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