

# A SURVEY OF THE WORK OF THE ROYAL BOTANIC GARDEN EDINBURGH IN 1985

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## GENERAL REVIEW

1985 has been a difficult and busy year for the Garden, but it has also had its very pleasant moments. We were particularly honoured by a visit from Her Majesty The Queen on 3 July following her visit to the Scottish Office Centenary Exhibition in Inverleith House. Her Majesty had time to walk through several sections of the Garden meeting some of the staff and then seeing exhibits in the library. Her Majesty authorized the naming of one of Mr P. J. Woods orchids, *Dendrobium vexillarius* 'Queen Elizabeth', by signing the type sheet.

We also welcomed the appointment of the Chairman of the Royal Botanic Garden Trustees, Sir Peter Hutchison, in early summer and the seven other members of the Board of Trustees in the late autumn. In preparation for their taking over responsibility under the National Heritage (Scotland) Act in 1986, they had a first meeting in November. The implementation of the Act, however, has meant a great deal of administrative work both in arranging the formalities for the handling of most of the administration of the Garden, and also in finding the staff and the accommodation and equipment for them to use. The recommendations for much of this development came from a report by Price Waterhouse, whose team spent three months in the Garden from January to April.

In spite of all these unusual activities there was satisfactory achievement in the scientific and horticulture programmes. In September the very successful international conference on the Plant Life of South West Asia was held in the Garden in collaboration with the University of Edinburgh and the Royal Society of Edinburgh. This conference reminded us of the central part which the staff and collections in Edinburgh play in research on the floras of these areas. It is also heartening to recognize the number of staff both botanical and horticultural, who now travel abroad studying and collecting plants in pursuit of research programmes. Of the living plants, most additions now come from known wild sources, either directly from our own staff or by exchange.

On 1 January Inverleith House was returned to the control of the Garden after its vacation by the Gallery of Modern Art. Some planning

for exhibitions there has taken place, but it may be some time before it is again open to the public.

Public attendance at the Gardens is well maintained and in Edinburgh rose dramatically by 13% in 1985 compared to 1984. Numbers were well maintained at Benmore, Logan and Dawyck, and the effect of steady rejuvenation of the collections is paying dividends in that each year steady progress is evident.

## TAXONOMIC RESEARCH

### SOUTH WEST ASIA FLORISTIC STUDIES

The close involvement with almost all major floristic work and Floras of the region has continued as in previous years. Most of these Floras are now well past the half-way stage, some are virtually finished and a few completed. 1985 was a memorable year for Edinburgh in that it saw the successful completion of the Flora of Turkey project. For some members of the Garden staff it meant the end of a close involvement going back almost 30 years. It also emphasized the need to ensure that the other on-going Floras came to as scientifically rewarding an end as the Turkey Flora—by no means a certainty; in some there is still a lot to do.

The acquisition and incorporation of collections from throughout the area are now of a more specialized, less general nature. In the south of the region, in the Arabian peninsula, this is also true, but good new collections from eastern areas (such as Bahrain, United Arab Emirates and Kuwait), the south (Oman) and the west (through the excellent collections of Mrs Collenette) ensure an excellent well of research and reference material for the future. South Yemen still remains a major lacuna in our botanical collections.

In September (16th–21st) the Second Plant Life of South West Asia Symposium took place in Edinburgh; it was a tripartite venture involving the Garden, the University Botany Department and the Royal Society of Edinburgh. Covering many different facets of botanical activity in the region, it was attended by over 130 visiting botanists from 22 countries including many from Turkey, Iran and Israel.

### FLORA OF ARABIA PROJECT

In 1985 work began on Volume I of the Flora. The accounts of the Pteridophyta were started by Mr A. G. Miller and those of the Caryophyllaceae by Miss R. King; others were undertaken at Kew on this joint project.

The Arabian collections of both living and dried material continued to expand with important collections from Mr I. McLeish and Mr M. Gallagher in Oman, Mrs I. S. Collenette in Saudi Arabia, and material from the Peoples Democratic Republic of Yemen donated by Professor Y. I. Barkoudah. Mr A. G. Miller, at the invitation of the Oman Government, visited Oman on three occasions collecting several new taxa and making some interesting new records for the region.

### LÉVEILLÉ CATALOGUE

Part XVII of the Catalogue, containing the Gymnospermae namely

Gnetaceae and Coniferae s.l., was published. The following family accounts—Hydrocharitaceae, Orchidaceae, Zingiberaceae, Amaryllidaceae, Taccaceae, Dioscoreaceae, Roxburghiaceae and Liliaceae—have been completed and should be published in 1986.

#### ERICALES

Work continued on tropical SE Asian Ericaceae with further field collecting in Sabah, E Malaysia by Dr Argent. The old classical collecting locality on Kinabalu at Marai Purai was visited together with the little known area near Long Pa Siu in the southwest of Sabah, where a new *Vireya* rhododendron was found.

Dr Argent and Dr Ratter participated in the Royal Society's project on the recovery of SE Asian rainforest after disturbance, at present centred on the Danum Valley in Sabah where collaborative research is in progress with the Sabah Foundation, Sabah Forestry Department and the University Kebangsaan (Sabah Campus). Particular collaboration is with Dr Newberry's (Stirling University) ecological project, which is being given taxonomic support by the Garden, together with assistance in the supervision of the associated liana research project of one of Dr Newberry's assistants, Miss E. Campbell.

Dr Chamberlain visited China for 6½ weeks in May and June to carry out herbarium studies in Guangzhou and Kunming in connection with his continuing studies on *Rhododendron* sect. *Tsutsusi*; the visit also included a three week field trip to Lijiang in NW Yunnan. He has continued to help co-ordinate the reorganization of the live collections of *Rhododendron* subgen. *Hymenanthes* in the Garden. He also spent two weeks in the United States and Canada lecturing, and participating in a symposium on rhododendrons.

#### BERBERIS

Dr Chamberlain continues his studies on the Old World species of *Berberis*, with a synopsis of *Berberis* sect. *Wallichianae*, prepared jointly with Mr C. M. Hu of the South China Botanical Institute, being published.

#### ORCHIDACEAE

Work by Mr P. Woods during 1985 included considerable routine identifications, general enquiries and liaison with the Scottish Orchid Society. Preliminary determination of a Polish collection from Papua New Guinea was made as was a compilation of flowering times of orchid species cultivated at Edinburgh for Dr R. M. Hamilton (Canada). Mrs Mary Mendum continued a series of orchid illustrations and has also done work for other members of staff.

A particularly good form of *Dendrobium vexillarius* was given the cultivar name 'Queen Elizabeth' to mark Her Majesty's visit to the Garden in July.

Collaborative work with Dr R. Warren (Edinburgh) on orchid propagation continues: towards the end of the year seed, now being tested for viability, was obtained from the rare *Paphiopedilum sanderianum*.

Suspicion of mass collection of this species in the wild was passed to the Conservation units at the Department of the Environment and at Kew and also to the Sarawak Forest Department.

The revision of *Dendrobium* sect. *Oxyglossum* in collaboration with Mr T. M. Reeve (Sydney) continued and awaits completion of some small parts by the senior author who has been delayed by ill health. A joint account of six New Guinea *Dendrobium* species with P. J. Cribb (Kew) and T. M. Reeve was published.

Lectures, mainly on orchids, were given to botanical art students from Edinburgh College of Art, the Scottish Orchid Society, the Irish Garden Plants Society, and in the Ulster Museum, Belfast as part of their winter series of public lectures. Two live radio interviews were given in conjunction with this last lecture.

Two one-day symposia were attended: Recent Advances in Orchid Science at Kew in connection with the Centenary Orchid Show which was also visited, and the increasingly important annual meeting of the Scottish Tropical Ecology Group in Edinburgh.

#### THE EUROPEAN GARDEN FLORA

During the year the typescript of Volume 1 of the Flora was prepared and submitted to press. Publication is expected in the spring of 1986. The volume contains the Pteridophyta (written by Dr C. N. Page and Mrs F. M. Bennell), the Gymnospermae (edited and partially written by Dr Page) and 16 families of Monocotyledons, including the largest family so far, the Liliaceae (1030 species). Authors from RBG include Dr Cullen, Miss Hamlet, Miss Matthews and Dr Page.

#### ZINGIBERACEAE

Miss R. M. Smith continued her review of the Zingiberaceae of Borneo; part II (Alpineae, concluded) went to press and part III (Hedychieae) is well under way. Two short papers on *Etlingera* (one work with B. L. Burtt) are also in press. An account of the family for the Flora of Southern Africa was completed. The usual flow of requests for identifications and advice continued.

#### BHUTAN FLORA PROJECT

Most of the text for Volume 1 Part 3 of the Flora was completed by A. J. C. Grierson and D. G. Long, including three of the major families, Leguminosae, Rosaceae and Euphorbiaceae. In addition, identification was completed of the Bhutan collections of Sinclair and Long made in 1984, and of additional collections of B. Bartholomew and S. Bowes Lyon.

Many Orchidaceae and other living collections from Bhutan flowered during the year, including the spectacular *Pleione maculata* (S. & L. 5780), and valuable observations, specimens and photographs were obtained from them.

#### CONIFERS AND PTERIDOPHYTES

Conifer research has continued around acquiring a fundamental know-

ledge of the genera of conifers, their biology, distribution and ecology. The study of such trees as living plants both in the field and as live specimens in cultivation seen through all stages of their life cycles, involves Dr Page not only in overseas fieldwork, but also closely with the development of our unique living collections. These include the expanding collection of rare, non-hardy genera under glass in Edinburgh, as well as the extensive collections of hardy species now developing at Benmore and Dawyck. Spare material is being used for the establishment of duplicate collections of documented wild-origin material in milder climates elsewhere in Britain, in collaboration with various universities and the National Trusts. The last year has been notable particularly for the successful establishment under glass of *Neocallitropsis* and *Austrotaxus* (both of which are new genera to cultivation), as well as previously uncultivated species of *Falcatifolium*, *Araucaria*, *Dacrydium* and *Decussocarpus*. All were collected in the wild in New Caledonia by Dr Page in November–December 1984.

The major research on pteridophytes has continued to be the study of the spread of bracken in Scotland and its biology. This has included the supervision of Dr Page's two PhD research students, Mr P. Hadfield and Miss K. Ader. It has also included active participation in the International Symposium on Bracken, held at Leeds in June. A national bracken advisory group was established as an outcome of this, of which Dr Page is one of seven members. Our developing work on the biology and polymorphism of bracken, in close association with Edinburgh University Botany Department, also links us closely with current applied studies being carried out by other major institutes in Scotland. Clones of different native strains so far identified are being maintained at the RBG for future work.

#### BRYOPHYTES

The major curatorial rearrangement of the British Moss and Liverwort herbaria was completed during the year by Sally Rae, involving updating of nomenclature to follow the new British check-list, and arrangement of the specimens geographically. Most of the back-log of British and foreign specimens was incorporated in the herbarium.

Further collections from Arabia were received from A. G. Miller, R. A. King and other collectors, and exchange of specimens with the British Museum, Jena, University of Alaska, Duke University (N Carolina) and University of Michigan continued. Collections were made in Botswana, Zimbabwe and Malawi by Mr D. G. Long, who also visited West Greenland on the second bryological workshop of the 'Illustrated Moss Flora of Arctic North America and Greenland', of which the first part (Polytrichaceae) was published in December.

#### BRAZILIAN AND OTHER TROPICAL STUDIES

Dr Ratter's research time was spent in writing-up phytosociological work, and in a four-week visit to Sabah and a seven-week visit to Brazil. The main objective of the Sabah visit was to assist Dr Argent in reconnaissance and collecting in the Danum Valley in preparation for the

Royal Society research programme, but a short time was also spent botanizing on Mt Kinabalu. The visit to Brazil was financed by a British Council/CNPq ABRAÇOS award and consisted of teaching a fieldcourse for postgraduate students and other research workers at Fazenda Água Limpa (University of Brasília reserve, Federal District), a survey of forest and cerrado vegetation at Sagarana (N Minas Gerais), a reconnaissance visit to the Ilha do Maracá (Roraima) in preparation for the forthcoming Royal Geographical Society expedition, and a survey of forest, cerrado and chaco vegetation near Corumbá (Mato Grosso do Sul). All these activities were carried out in collaboration with Brazilian scientists.

#### BRITISH HERBARIUM

Mr McKean continued to be involved in identifications for the Botany of the Lothians Project.

Field studies this year included a pilot study of the Letterewe Forest area (Loch Maree), with a view to a more extensive survey with cryptogamic specialists in 1986. A survey of a selection of lochs, mainly on the west coast of Lewis, was also completed and a report sent to the Nature Conservancy Council.

#### PLANT IDENTIFICATION

During the year Miss Matthews and colleagues continued their programme of re-identification of material grown in the Garden. Much effort was expended on the identification of species of conservation interest, so that an accurate assessment of the collection from this point of view could be obtained. Over 1200 specimens of higher plants were identified.

Material for identification from the public continued to arrive at the Garden; some of this consisted of queries about plant health, but the main bulk was of plants whose identification was required; just under 400 of these were dealt with during the year.

#### BASIDIOMYCETES

Studies on hymenomycetes, particularly agarics and boletes, continued with several accounts on Bolbitiaceae and Boletaceae including papers on the development of selected members of these families. However, expansion of this exciting research topic is slow because of lack of assistant help and time spent in dealing with general mycological work. SEM studies on a range of boletes, and thin-layer chromatographic finger-printing of certain Cortinariaceae are underway using voluntary help. *Armillaria* studies continue.

Dr Watling organized a course on larger fungi at Kindrogan Field Centre, Perthshire and attended the IX European Mycological Congress in Oslo, where he chaired a meeting and delivered a paper. Whilst in Norway he took the opportunity to attend the pre-Congress foray at Finse. A paper was also given at the British Mycological Society symposium on toxic fungi.

Mrs Gregory continues to work with Dr Watling for half her time, assisting in general mycology and more specifically in the British Fungus Flora: Strophariaceae and Coprinaceae p.p. and an account of Australian

boletes. She has also assisted P. D. Orton in the preparation of British Fungus Flora: Pluteaceae. With assistance from Miss Hollands, Dr Watling has curated several collections of xerophytic basidiomycetes, especially Australian, and staged a poster on a selection of them for the 2nd Plant Life of South West Asia Symposium.

This year saw the publication of the *Fungus Flora of Yorkshire* to which Dr Watling who as co-editor also contributed the chapter on Basidiomycetes, excluding Uredinales and Ustilaginales, and Appendices 1, 2 and 3 covering localities of finds, forays and record analyses; the chapter on Hyphomycetes was prepared jointly with Dr M. J. Richardson.

#### UREDINALES & USTILAGINALES

Mr Bennell has continued studies of the rust fungi on Ericaceae, which included an account of *Rhododendron* rust in Australia. With Miss R. Hollands a survey of British species of the smut genus *Anthracoidea* has been carried out, and an account presented at the British Mycological Society Smut Workshop in November.

#### ASCOMYCETES & LICHENS

Taxonomic studies continued in the Arthoniaceae and *Micarea*, as well as on other problems arising in the British lichen flora. In the company of Mr P. W. James (BM) and Dr F. Rose, Dr Coppins spent two weeks collecting in Toscana, Italy, concentrating on the epiphytic lichens of the semi-natural *Quercus*, *Castanea* and *Abies-Fagus* forests; the c.1500 collections include several additions to the Italian flora. Dr Coppins led a course on the lichens of stonework for Bristol University Extramural Department. Additional field-work included visits to Ben Lawers and woodlands in Argyll and Strathfarrer pine-forest, on which reports have been prepared for the Nature Conservancy Council.

Preparatory work was carried out for the British Lichen Flora Project, a collaborative venture also involving the Commonwealth Mycological Institute, Reading University and the British Museum (Natural History), and funded by NERC.

#### GENERAL MYCOLOGY & LABORATORY

Drs Watling and Coppins, and Mr Bennell continue to supply a fungus identification service, and through the laboratory all have been involved in both survey and advisory work for national institutes. Dr Watling made a third trip to Shetland (including Fair Is.) to carry out fieldwork in connection with his proposed Fungus Flora of Shetland and a preliminary list has been prepared containing many new records.

Dr Watling as President of the Botanical Society of Edinburgh (1984-86), Scotland's national botanical society now celebrating its 150th year, gave his Presidential address on the history of agaricology in Scotland at five Scottish centres. During the preparation of the text he re-located many long-forgotten documents and old herbaria.

The SEM facility has continued to be well used by staff and visitors, including Mr S. El-Naggar who worked on pollen of Egyptian Cruciferae. With Miss A. McRitchie, Mr Bennell presented a poster, based largely on

SEM studies, of the fruit indumentum in Umbelliferae at the 2nd Plant Life of South West Asia Symposium. Mr Bennell also undertook a preliminary study of pollen morphology in the Berberidaceae.

Mr P. Hadfield (a joint CASE student with Edinburgh University Botany Department) working in the laboratory under the direction of Dr C. Page has completed his study on *Pteridium*. Mr B. Moffat, of the Border Burghs Archaeological Project also concluded his studies, now continued by Miss L. Wilkinson.

#### RBG PHOTOGRAPHIC DEPARTMENT

During 1985 the work of the photography department was divided. Mr Eudall is now concerned with all exhibition and publicity material, and is based at Inverleith House, and Mr Grant has assumed responsibility for running the studio as a service to scientific and horticultural staff. Black and white printing has been simplified by the use of multigrade paper. This year's output was dominated by preparation of materials for the 2nd Plant Life of South West Asia Symposium in September. Mr Grant also accompanied the RBG/NCC Aquatic Macrophytes Survey team to the Outer Hebrides and has added a range of plants and habitat slides to the British Flora collection. A start has been made on cataloguing the accumulated black and white 35mm negative collection.

#### THE HERBARIUM

##### ACCESSIONS, LOANS AND SPECIMENS MOUNTED

Incoming exchange accessions in 1985 came from 21 sources and amounted to 3578 specimens, including 1166 Chinese (Hainan Island) specimens from Arnold Arboretum. Our 'distributions' were well up on last year with the dispatch of material to 35 institutes. Over 6000 duplicates, mostly SW Asiatic, European and N African, were sent to Rancho Santa Ana, California—largely arranged by Dr Kit Tan; a further c.1700 SW Asian duplicates were distributed to Ankara, Istanbul, Kuwait, Riyadh, Amman, Cairo and other relevant institutes.

Gifts, or collections by staff, numbered c.3800 with the largest proportion being specimens from the Arabian peninsula collected by A. G. Miller, Mrs I. S. Collenette, Mrs Cornes, R. Western, I. McCleish and M. Alder. As in previous years there were further major accessions from southern Africa as a result of the critical collecting activities of B. L. Burt and Professor O. M. Hilliard. Nearly 680 specimens of Restionaceae, collected by E. Esterhuysen, were received from the Bolus Herbarium.

A total of 725 specimens were purchased including 455 specimens collected by D. G. Long whilst in Botswana and Malawi.

	1984	1985
Accessions*	6983	6874
Loans: in	1264	9960
Loans: out	8467	8070
Specimens mounted	14188	13200

\*These figures do not include gifts and accessions to the fungi, lichen and bryophyte collections (c.2700 specimens).



## PHOTOGRAPHIC SLIDE COLLECTION

About 600 slides were added to the collection.

## STAFF CHANGES

Miss Carol Pratt joined the staff in May as a replacement in the mounting section for Miss Mary McLaren. Miss Allison McRitchie, ASO, left at the end of September prior to marriage and departure from Edinburgh. A board will be held in the New Year to find a replacement.

## VISITORS

Professor Boulos (Kuwait), Magdy El-Gohary (Assiut, Egypt) and Professor Olive Hilliard (Natal) were the year's longer term visitors.

Edinburgh-registered PhD students working in the herbarium and laboratory included Salah El-Naggar (Assiut, Egypt), Patrick Hadfield (Edinburgh), Alan Paton (Edinburgh) and Matiu Rahman (Dakka, Bangladesh); Christopher Watling and Stephan Helfer (both Edinburgh) have regularly used the SEM facilities; Professor Peter Davis and Drs Kit Tan and Robert Mill, the University members of the Flora of Turkey team, have continued to be based at the Garden, as have Messrs B. L. Burt, H. H. Davidian and L. A. Lauener, retired but still active. Dr A. Dyer, Dr R. Kemp and Dr P. Smith have been frequent visitors from the Botany Department, University of Edinburgh. Regular visitors to the British Herbarium have included Mr J. Brownlie (Edinburgh), Dr J. Dickson (Glasgow), Mr J. Grant Roger (Melrose), Dr A. J. Silverside (Paisley), Mrs O. M. Stewart (Edinburgh) and Miss M. McCallum Webster (Moray) whose death in November we regret to report.

Botany, biology and horticultural student groups have attended from Aberdeen, Dundee, Edinburgh, Glasgow, Indiana, St Andrews and Stirling Universities and from Napier College and Threave School of Gardening. Participants in the Symposium on the Plant Life of South West Asia representing 22 countries, many of whom made use of the herbarium, will be listed in its Proceedings but extended visits in conjunction with it were made by Dr P. Hartvig and Professor A. Strid (Copenhagen), Dr B. Snogerup and Professor S. Snogerup (Lund), and Professor and Mrs Rechinger (Vienna).

*Some other visitors:*

Mr L. Adams (Sydney), Miss K. Ader (Glasgow), Dr J. Akeroyd (Reading), Mrs M. Alder (Bahrein), Professor S. I. Ali (Karachi), Mr & Mrs J. Archibald (Sherborne, Dorset), Dr M. Aris (Oxford), Mr J. Aronson (Beersheva, Israel), Mr G. Ballantyne (Kirkcaldy), Dr H. Bhambe (Lucknow), Professor S. S. Bir (Patiala, India), Mr E. C. D. Blaxell (Sydney), Dr B. Briggs (Sydney), Mr P. Brayns (Oxford), Mr J. Burley (Aberdeen), Miss E. Campbell (Stirling & Sabah), Dr P. Cannon (CMI, London), Miss C. Charter (Banchory), Mr C. Chadwell (Slough), Professor W. Chaloner (London), Dr E. Christenson (Storrs, Connecticut), Dr J. Clarke (Oman), Mrs I. S. Collonette (Sway, Hants), Miss J. Cowley (Kew), Mr P. Cox (Glendoick), Dr T. Croat (Missouri Botanical Garden), Canon N. E. G. Cruttwell (Papua, New Guinea), Mr M. Dougall (Aberdeen), Professor J. Eckenwalder (Toronto), Dr J. Edmondson (Liverpool), Professor M. N. El-Hadidi (Cairo), Dr L. Farrell (Monks Wood), Dr R. E. C. Ferreira (Penzance), Mr C. Fraser-Jenkins (Oxford), Dr M. Frohlich (New York), Dr A. Gammernan (Edinburgh), Miss R. E. Gaskin (Rotorua), Dr H. Gjaerum (Norway), Mr P. Green (Kew), Mr S. Haw (Bournemouth), Mr A. C. Jermy (British Museum), Dr K. T. Jong (Aberdeen), Dr M. Jongbloed (Al Ain, UAE), Dr T. N.

Kaul (Srinagar), Miss S. Kelso (Fairbanks, Alaska), Professor A. Kirkwood (Strathclyde), Mr S. Kisseadoo (Aberdeen & Ghana), Miss S. Knees (Wisley), Dr J. Kress (Sarasota), Mr M. Kuduk (Aberdeen & Papua New Guinea), Dr R. Lines (Edinburgh), Dr Y. R. Ling (Guangzhou), Dr P. Lingwood (Barnsley), Mr A. G. Long (Berwick-upon-Tweed), Dr D. Mackie (Edinburgh), Mr N. Maxted (Southampton), Mr D. McCosh (London & Peebles), Mr J. McQuire (Farnham), Dr B. Moffatt (Selkirk), Mrs B. M. Murray (Fairbanks, Alaska), Mr R. M. A. Nesbitt (Ankara), Mr A. Parr (Aberdeen), Miss S. Parry (Durham), Mr J. Phipps (London, Ontario), Dr C. D. Preston (Monks Wood), Dr J. Proctor (Stirling), Dr J. Robertson (Heriot Watt), Mr K. R. Robertson (Hillier Arboretum), Miss A. Rutherford (Glasgow), Dr E. Sérusiaux (Liège), Miss H. Sinclair (Sunderland), Dr A. Sleep (Leeds), Mrs A. Soemarson (Bogor, Indonesia), Dr & Mrs M. Stanley-Price (Oman), D. Stead (England), Mr D. Steven (Glasgow), Mr A. McG. Stirling (Glasgow), Dr M. Tamura (Kobe), Professor J. Tivey (Glasgow), Dr & Mrs P. Vlasto (Dorset), Dr D. Walker (Sydney), Dr H. Walther (Dresden), Miss S. Webster (Peterborough), Dr G. Weimark (Göteborg), Dr D. Welch (Banchory), Mr R. Western (Das Island, Abu Dhabi), Dr G. Whittingham (St Andrews), Professor C. Withner (Bellingham, Washington), Dr P. Yeo (Cambridge), Dr J. A. Zabkiewicz (Rotorua) and Dr L. Zelther (Neuchatel).

### THE LIBRARY

Despite the disruption of work caused by the endless change of staff—four Assistant Librarians and six Clerical Assistants in one year!—the Queen's visit in July, the 2nd Plant Life of South West Asia Symposium in September and the renovation work on the air conditioning system in December, the Library had a successful year in 1985. Inevitably some Library activities, particularly house-keeping jobs were affected, but services to users were not restricted at any time. More binding and repair work was done than in earlier years, especially the repair and lamination of some 600 maps.

Among the greater number of books purchased were some important ones such as Gerard's *Herbal* (1597), Bertolini's *Illustrazione di piante Mozambicesi*... (1850–1855), Hedwig's *Species muscorum* (1801), Linnaeus and Luut's *Flora Akerensis* (1769) and Fries and Laurell's *Genera Hymenomycetum* (1836).

The whole collection of some 2000 letters and other papers of John Hope, Regius Keeper of the Garden from 1761–1786, borrowed from the Scottish Record Office was copied and added to the archival collection in the Library. All papers relating to botany and the Garden were being examined and indexed for a Hope Bibliography, to be included in the Hope memoir planned for 1986 to mark the bicentenary of Hope's death.

The Library Advisory Group met three times and discussed and reported to the Management Group on Library staffing, estimates for 1986/87, accommodation, security and copyright.

Accommodation for stock had become a serious problem. The new folio cases helped to house the folio stock much better. However, the relocation of sections of stock did not make much impression on the overall lack of space in the Library.

In October the Librarian was awarded the degree of Master of Arts by Strathclyde University for his thesis on the History of the RBG Library, an edited version of which is being prepared for publication.

The general library statistics for 1985 (with figures for 1984 in parentheses) are:

books added 1318 (1149); current titles 1735 (1685); items catalogued

3258 (3522); exchange of publications (copies) 1476 (1171); loans: 490 (650); binding/repair 2601 (1503); enquiries requiring literature search and/or written reply 205 (153); visitors 957 (782).

### PUBLIC EDUCATION & EXHIBITIONS

The year was dominated by two events: the visit of Her Majesty the Queen to the garden in July, and the takeover of Inverleith House as an exhibition space.

The Exhibition Hall was completely refurbished for the Royal visit, many photographs and text panels were replaced and some of the major graphics panels were completely re-done. 1985 was also marked by a significant increase in the quantity and quality of living plants displayed in the Exhibition Hall. Unfortunately, staff shortages in the Glass Department resulted in a temporary set-back in late summer but goodwill allowed us to get through this period without any deficiencies becoming obvious to visitors.

Inverleith House was the venue for 'The Thistle and the Crown', an exhibition to celebrate the centenary of the Scottish Office, prepared and organized by a Scottish Office consortium. The Royal Botanic Garden contributed to the exhibit.

During the summer, work began on exhibits which will be completed for the opening of Inverleith House as an exhibition space in 1986. The exhibitions being prepared include an account of the life and work of John Hope, and the first showing of the Garden's extensive collection of paintings of Himalayan and Tibetan plants by Margaret Stones. Room in the buildings will be available for exhibition use by other organizations concerned with biology, horticulture or the use of the countryside.

Exhibition staff (including Mr R. Eudall of the photography section) moved into office accommodation in Inverleith House in October. Two new staff at HSO and SO level were appointed to help organize exhibitions for Inverleith House and will be joining us in 1986.

A total of 1126 pupils from 33 schools took part in the 1985 Interlink programme. The subjects were 'World of Colour', 'India' and 'Design for Living'. The Interlink for secondary schools, 'Evolution', continued in 1985 with two schools taking part. We were also involved in a successful adult Interlink in November called 'A Matter of Taste', which included an Indian cookery demonstration and lunch at Lancers' Restaurant.

In addition to Interlink, Education staff gave guided lecture-tours on specific topics for 754 primary and 46 secondary school pupils. Tours of the herbarium and living collections were given to 136 university students and another 170 adults, including a large party from the International Association of Botanic Gardens. New educational labels were placed in the Demonstration Garden in May and it was encouraging to see the general public and school groups making more use of this learning area. Two WEA evening classes were taught by members of staff: 'Behind the Scenes' in the summer and 'Plant and Planet' in the autumn.

The Victoria waterlilies in the Tropical Aquatic House, featured in a Channel Four television series 'A Love Affair with Nature'. Garden staff

also contributed to three BBC programmes for schools: 'Coping with the Weather' and two programmes in the 'Let's See' series.

#### PUBLICATIONS

Three parts of *Notes RBG Edinb.* were published during 1985: vol. 42(2):171-354; 42(3):355-600; 43(1):1-187. Volume 42(2 & 3) contained a total of 15 papers and five book reviews. Volume 43(1) was devoted solely to the Second International Rhododendron Conference which was held at the Garden in May 1982. Volume 43(2) was sent to press and will be published early in 1986. *The Fungal Flora of Mull—Additions* by Dr R. Watling was published as a Departmental publication. The *British Fungus Flora*, Part 4, Pluteaceae by P. D. Orton, an honorary associate of the Garden, went to press in October and will be published as a Departmental publication by the Spring of 1986.

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#### THE GARDEN, EDINBURGH

Admissions to the Edinburgh Garden were 820385, an increase of 13.5% on the previous year and a total not surpassed since 1937.

## ABORETUM DEPARTMENT (Mr G. Broadley)

During the early part of the year work in the Copse was in its final stages, with the planting of *Rhododendron* subsect. *Neriiflora* nearing completion. By the end of April, apart from a few minor changes, all available species, subspecies and varieties comprising subsections *Pontica*, *Glischra*, *Fortunea* and *Neriiflora* were established in the area. When this work was complete, grass areas were sown and bark paths laid out. In July, when the new grass was firm enough, the edges were trimmed and shaped. This second stage of the main *Rhododendron* project should be finished in 1986 when groundcover plants, oaks and magnolias will be sited when available. At the beginning of October the third stage of this project was started in the Conifer Walk and adjacent Wild Garden areas (MO7, WO2, WO3 and WO8). These areas, which have been selected to accommodate subsections *Thomsonia* and *Taliensia*, were cleared of all unwanted plants. This was followed by a resiting of rhododendrons designated for other areas—a task that involved the moving of many very large plants. It is hoped that completion will be achieved by early April 1986.

In winter and spring thirteen new beds were prepared on the Azalea Lawn. These were planted with wild origin azalea species which were held in the Nursery. This extension of the new Azalea Scheme was complete by the end of April. In May the Clematis and Chinese Borders which had been cleared of unwanted plants in 1984 were sown down, simplifying and greatly improving the appearance of these rather neglected areas.

From April onwards many of the staff were kept busy with the preparatory work necessary for the Queen's visit on 3 July and for the Scottish Office centenary celebrations. This involved an exhibition in Inverleith House lasting from 3 July until 7 September and garden parties on 5 and 6 July held on the lawn to the south of Inverleith House, where a large marquee was erected. Assistance was also given to Scottish Office with the erection of flags and banners which marked the route to Inverleith House.

Throughout the year, other work, apart from normal maintenance, included the removal of: a large unsightly group of bamboos and shrubs immediately below the Tea Room area on F24, two large holly clumps on the Oak Lawn, a large holly and rhododendron group on KO1, and several large trees throughout the Garden.

Assistance was given to Scottish Office surveyors who carried out a complete survey of the Garden during the year. Property Services Agency installed a new water supply to the Lepidote *Rhododendron* Area at the Old Herbarium which was linked to the mains supply at the north side of the pond. It is hoped this can eventually be used to supply an automatic watering system planned for the area.

There were no 'very damaging' gales throughout the year but the exceptionally wet weather caused problems, particularly with weed and grass control.

## GLASS DEPARTMENT (Mr L. Buchan)

The display glasshouse area has been undergoing major repairs to improve the environmental controls. Scaffolding has been erected in

houses 1 to 6 to allow the renewal of all the rack and pinion mechanisms and the electric motors which operate the ventilation system. The heating system is being overhauled at the same time by descaling and flushing out, and by replacement of the valves where necessary. The final phase will be the installation of a central computer system with an outstation control unit in each house. This contract will continue well into 1986. Maintenance continues but it is proving most difficult to sustain a high standard owing to contractors working in most houses.

The aquarium area in the main glasshouse display range has been refurbished and is now open to the public.

The supervisor post, vacant from June to November, has been filled by the appointment of Mr D. Mitchell.

This year the Glass Department provided floral decorations for special functions including the Royal Scottish Academy, the Royal Highland Show (DAFS building), Her Majesty The Queen's visit and the Scottish Office Centenary exhibition held in Inverleith House.

Visits were made to the Glass Department by Her Majesty The Queen and members of the Scottish Office. Other important visitors were The Director, Mr J. N. Eloff, and Assistant Director, Mr Grobler, from the National Botanic Gardens, Kirstenbosch, Cape Town, South Africa.

#### HERBACEOUS AND ALPINE DEPARTMENT (Mr R. McBeath)

In May, Mr Evans, the officer in charge of the Herbaceous and Alpine Department, retired after 39½ years work in the Garden. He was succeeded by Mr McBeath. Mr Kirkpatrick was transferred from the Propagation Department to fill Mr McBeath's former post of Garden Supervisor in the Alpine Section.

*Alpine Section.* The winter and spring construction programme saw the completion of the first phase in the rebuilding of the south side of the Rock Garden. New mounds were built for American alpine, and more space allowed for grass access paths. In the Autumn a start was made to reconstruct the east end of the Peat Garden (WO3); in an attempt to rid the site of the creeping *Cymbalaria hepaticifolia* and *Maianthemum*, all plants were removed and the soil replaced.

*Herbaceous Section.* The major task centred on the east half of the Herbaceous Border (DO2) where all plants were removed and the border deeply dug. Large amounts of compost were incorporated to improve impoverished soil. In the Woodland Garden considerable space was created by the loss of many bamboos, which died after flowering, thus providing an ideal opportunity to review and extend our collection of *Primula* and *Meconopsis* with large new plantings of wild origin material.

Plants were displayed at a number of flower shows and a Farrer Medal was won by a plant of *Draba mollissima* at the Alpine Garden Society show at Newcastle upon Tyne.

#### PROPAGATION DEPARTMENT (Mr J. A. R. Kerby)

*Temperate Section.* Work continued on plant propagation mainly with wild source material. The propagation of rhododendrons from existing



stocks by cuttings, grafting and layering formed the basis of the winter programme, along with introductions from the wild raised from seed. A number of Kingdon Ward introductions acquired from Clyne Garden, Swansea have been successfully established. In November staff collected wild source material from the gardens at Sandling Park, Kent and Blackhills, Morayshire.

Scions from our single plant of *Abies nebrodensis* growing at Benmore were successfully grafted on to *Abies nordmanniana* stocks. This rare and endangered plant is restricted to the Polizzo Region of Sicily.

Following the 1984 expedition to Bhutan by Mr I. W. J. Sinclair and Mr D. G. Long a large collection of wild source material has been raised for the garden collections and for distribution. Seed of *Pinus bhutanica*, a new species described for the first time in 1980, were successfully germinated.

*Nursery.* Work was hampered by a particularly wet season when many plants in response to a new regime, were re-sited. During this period a build up of 'Vine Weevil' (*Otiorrhynchus sulcatus*) was noticed and countered with Gamma HCH.

*Tropical & Study Section.* Uppermost has been the support work towards the Flora of Arabia project. *Eulophia petersii*, *E. guineensis* and *Sanseveria seylanica* are recent arrivals from the Sultanate of Oman.

Not all plants from this area fare well despite various ploys, but a soil conditioner 'Arcillite' has helped and among our considerable successes can be numbered the curious *Dorstenia barnimiana*. The substantial collection of Malesian rhododendrons (*Vireya*) despite occasional troubles continues to flourish. Compost trials continue.

*Notable Plants.* Cutting material collected by Dr C. N. Page on his visit to New Caledonia in 1984 have been successfully propagated including of particular interest *Neocallitropsis pacheri*. Other conifers of interest include *Acrobyle pancheri*, *Falcatifolium taxoides*, *Dacrydium guillauminii*, *D. balansae* and *D. araucaroides*. Following successful rooting in the quarantine section, the plants were given supplementary lighting.

*Brighamia citrina* var. *napaliensis*, a relative of *Lobelia*, raised from seed received in 1979, flowered. Only two stands of this rare and endangered species exist in the wild on the cliffs of the Na Pali coast of Kauai, Hawaii.

A plant of the endangered 'Jellyfish Tree', *Medusagyne oppositifolia* from the Seychelles received from the University of Bern last year, flowered just before Christmas.

A plant of *Pachira aquatica* raised from seed collected on the Roriamia Trail, Guyana by Mr R. Kerby in 1982 flowered. Unfortunately the flowers of this member of the *Bombacaceae* last for only a few days.

A considerable effort has been made to improve the cultivation of *Welwitschia bainesii* over the last few years. The plants form a tap root and require to be grown in drainage pipes which were plunged in peat with a surface grit covering. This, together with a closed case environment, under-soil heating and overhead misting, has increased growth considerably.



*Accessions.* Accessions of living plant material in the form of seeds, cuttings and plants were as follows:

Wild Origin	1970
Non Wild Origin	223
Total	2193

In February, seed was received from Kew collected by Mr B. Halliwell in Tasmania. High altitude collections of *Acacia melanoxylon*, *Eucalyptus coccifera* and *Telopea truncata* should prove particularly useful for Logan.

Dr G. Argent and Dr J. Ratter returned from a visit to Danum Valley Conservation Area in Sabah in May with collections of *Zingiberaceae* and *Gesneriaceae*, and from another visit in November Dr Argent brought back live plant material of *Rhododendron durionifolium* subsp. *lamarkuensis* and *R. rugosum* var. *laevis* on Mt Kinabalu.

In October Mr R. McBeath visited the Himachal Pradesh area of North West India. Of particular note were wild collections of *Cedrus deodara*, *Buxus wallichianum*, *Viburnum grandiflorum*, *Betula jacquemontii* and *Sarcococca saligna*.

Professor P. H. Davis and Mr S. Macpherson collected some live plant material from Madeira in May. Dr C. N. Page visited North America in September returning with cutting material of different forms of *Chamaecyparis thyoides* and other conifers.

*Dispatches.* Live plant material within Britain and overseas:

Plants	2079
Seeds	954
Cuttings	520
Scions	107
Total	3660

*Staff Changes.* Following Mr McBeath's promotion to Assistant Curator in the herbaceous department, Mr Kirkpatrick transferred from the temperate section to Garden Supervisor in the herbaceous department. Mr Sinclair moved from the tropical and study section to the temperate section. This coincided with Mr Sandham's transfer from the glass department to the tropical and study section. These moves took place in July and despite an apparent upheaval at a busy time of year, there was minimal disruption. A number of industrial staff in key areas left to take up posts elsewhere and one post remains to be filled.

#### RECORDS OFFICE AND LABEL ENGRAVING (Mr R. McBeath)

Despite a shortage of staff in the Plant Records Office, a great deal of work was accomplished in transferring information from the record cards to the computer file. The programme of verification of plants of conservation interest has also added to the workload. A new *Catalogue of Plants* in cultivation at the Edinburgh Garden and its three outstations will be produced in 1986 and work on its production is well advanced.

A new computerized label engraving machine was acquired and should expedite the production of plant labels.

#### PLANT HEALTH (Dr R. Watling)

Arising from increased staff awareness of 'plant hygiene' during expeditions abroad there was a marked decrease in the number of pests intercepted on plant introductions to the Garden. Only with unsolicited and general collections is there still a disturbing number of interceptions, particularly on material from the Arabian Peninsula. Thus, scale insects (*Asterolecanium pustulans*, *Chrysomphalus aonidum*, *Ferrisia virgata*, *Hemiburlesia lataniae*, and *Icerya aegyptiaca*) have been intercepted on Asclepiadaceae, Euphorbiaceae and Moraceae. The occurrence of a new species of *Cybericoccus* on *Dierama* (Iridaceae) from S Africa is of great interest. All problems have been successfully treated.

Apart from a few leaf-spots on moribund tissue, *Coleosporium* on *Campanula* (Campanulaceae) and an immature diaporthaceous fungus on *Sansevieria* (Liliaceae), fungal interceptions have been few. A paper on the appearance of mildew of Ericaceae (especially *Rhododendron*) in Scotland and particularly Edinburgh is at press. Since its preparation the 'Oidium' stage of what has been termed *Erysiphe cruciferarum* has now been located on the outdoor collections of *Rhododendron* in Edinburgh; it had previously been known from Benmore. Dutch elm disease (*Ceratocystis ulmi*) occurred in the Garden during the year and the attacked trees were felled and destroyed.

The annual meeting between Dr Watling and Kew counterparts, Dr A. Bailey and Mr J. Keesing, continues to be a useful exercise. With imminent hiving-off a new plant importation licence is being negotiated.

#### YOUNGER BOTANIC GARDEN

(Mr A. Hall)

Detailed drawings for Phase II of the proposed restoration of the Courtyard buildings were prepared by Property Services Agency, Argyle House, discussed, amended as necessary and approved. Work is now scheduled to start in April 1986.

Garden staff constructed a footpath through the *Thomsonia* and *Falconera* subsections of the *Rhododendron* Collection to improve access to this area for the general public and to facilitate maintenance. There were a number of windblown trees overhanging the old fernery which were posing a threat to the remaining structure of the ruins. A major clearance of dense thickets of *Rhododendron ponticum* was necessary to give access and to provide safer working conditions for removal of the trees. This work was almost complete at the end of the year and will also provide room for further additions to the rhododendron and conifer collections. *Rhododendron ponticum* was also cleared from the area to the east of Benmore House lawn and will be replaced with ornamental trees and shrubs. Approximately 450 specimens were planted out into the collections during the year. The final task for the staff in 1985 was to remove the fish and plants from the pond and to create an enclosure for them in the stream. The pond was then emptied of water and mud, and

made ready for the contractors to repair the base and fit a butyl lining to cure the chronic leaks.

A woodburning stove and central heating system was installed in each of the five staff houses. Repairs to the cold greenhouse and sheds, damaged in the gales of January 1984, were finally completed in December. The boiler unit, which provides heating for the hothouse and sheds, was replaced with a more efficient model and corroded pipework was renewed at the same time. Internal decoration of the tearoom was completed in the spring.

Three members of staff resigned during the year. One replacement was recruited and two (who were to become redundant) were transferred from the Forestry Commission Research Station at Kilmun.

Rainfall for the year was 2301.7mm (90.6in); highest maximum temperature was 24°C; lowest minimum -10.2°C; lowest grass minimum -14.4°C.

The number of visitors recorded from April to October was 37660, an increase of 4.4% on 1984, in spite of a poor summer.

#### LOGAN BOTANIC GARDEN

(Mr J. M. Colledge)

*Woodlands.* Most of the trees in Deer Hill Plantation are making good growth, except the sycamores which are still slow to 'get away'. In January a section was treated with the herbicide ILERB and by autumn a slight increase in growth was noticed in comparison with the untreated area. The policy of removing old trees continues; the remainder of the Douglas Fir and two Corsican Pines on the west boundary have been cleared. A new road has been constructed into Deer Hill and the final surface will be applied in 1986. The filling in of the woodland ponds has proved worthwhile, and there is now a constant flow of water through the Walled Garden. The area adjacent to the storage pond has been grassed down and is available for future development.

*Walled Garden.* For a number of years the Peat Garden has been infested with *Cymbalaria hepaticifolia*, and all attempts to eradicate it by hand weeding and painting it with herbicides failed. In consultation with senior management a decision was taken to re-locate the Peat Garden. All valuable plants have been propagated and the remainder discarded: the site was then cleared and sterilized using Basamid. When treatment is complete a small memorial Peat Garden will be made on this the original site of Peat Gardening.

*Plant Collection.* The following plants collected in Tenerife during 1984 by Mr Unwin (Garden Supervisor) flowered in the open this year: *Cherianthus scoparius*, *Sideritis candicans*, *Hypericum grandifolium*, *Cedronella canariensis*, *Argyranthemum gracile* and *A. frutescens*.

*Glasshouse.* The Charlton cable heating system supplemented by an electric fan heater was used in the winter. This combination maintained the temperature at a satisfactory level. As there has not been a severe winter since installation it is still too early to assess the efficiency and economics of the system.

Visitors numbering 32234 showed a sharp decrease of over 6000 in comparison with 1984. Rainfall was average at 1082.7mm (40.6in) but was exceptionally heavy during July, August and September.

One member of staff was transferred to Dawyck Botanic Garden and a trainee, sponsored by the National Trust for Scotland under the YTS scheme, was taken on. Throughout the year staff maintained a good standard of work.

#### DAWYCK ARBORETUM (Mr G. Broadley)

The frosty period during a large part of January was used to reduce the large piles of logs which had accumulated in various parts of the Garden. Wet periods were used to upgrade the facilities in the tractor sheds and workshop; new storage bays and tool racks were purchased and installed by staff. In February a digger was hired, and used to bury larger roots on Shaw Brae (V15) and Sawmill Brae (V48). Levelling and contouring work was also carried out in Sawmill Brae area.

During February, March and early April, approximately 250 new trees and shrubs were introduced. Several *Spiraea* species of wild origin were planted on the bank above the stream (V44) and *Betula* and *Sorbus* collections were also increased.

On 1 April the two new cottages were occupied by staff—a happy event that solved some of the more serious housing problems. During May the final clearance of the car park area took place and a border, planted with trees and shrubs, was prepared in front of the service building. Temporary wood edging, to define the area, was put in place and the whole covered with new gravel. Other paths throughout the Garden were 'freshened' with new gravel at this time. Sargent's Garden (VO9) was cleared of unwanted trees and scrub in preparation for new planting in 1986. The area round the old pump house was also cleared, and planted with a collection of *Rhododendron* subsect. *Neriiflora*. The summer months were occupied, mainly, with general maintenance work.

Mr A. Dunn (Gardener Special) left at the end of August, and was replaced by Mr H. Geddes who was transferred from Logan Botanic Garden.

In September very heavy rain, which was a feature of most of the year, washed debris down the stream, blocking the culvert which carries the water under the lawn near Dawyck House. The resulting build-up in pressure burst the culvert, diverting the stream down the main driveway. This caused a few problems for people trying to enter the Garden. Two large elms infected with Dutch Elm Disease, which is rife in the area, were removed in November.

The purity of the water supply continued to give problems. Final clearance was given by PSA in December. Despite the poor summer, no doubt due to increased advertising, attendance figures were up: 1463 as against 1287 in 1984.

## HORTICULTURAL TRAINING SECTION

The section continued under the full-time management of Mr G. Anderson and Mr D. A. H. Rae.

The annual presentation of awards to students was made by Mr J. H. McCall NDH, SDH, SHM on 4 July. Twelve students were awarded Diplomas (9 with Credit and 2 with Honours). Most of the students gained employment in the amenity sector of British horticulture. The number gaining teaching/training posts (3) was down from 1984 (5). Students appeared to have greater difficulty in obtaining posts than in previous years but most were in employment by December 1985. In order to overcome such difficulties and in line with the needs of future employers, the proportion of course time devoted to Management and Public Administration, Landscape Design, and Countryside Interpretation has increased.

Two second year students passed the M. Hort. (RHS) Stage I Written and Practical Examinations in 1985. Mr Rae was recommended for the award of MSc from the University of Bath for his thesis 'The Use of Exotic Plants in British Landscape Design'. The section's participation in Degree and Post Graduate Landscape teaching continued as did Mr Anderson's involvement with SCOTEC and SCOTVEC.

The number of enquiries seeking advice on horticultural careers and courses remained at a high level and there was an increase in the number of enquiries for entry to the 1985-88 Diploma course.

## ANNUAL RAINFALL

Edinburgh	860.1mm (34.4in)
Benmore	2301.7mm (90.6in)
Logan	1082.7mm (40.6in)

## STAFF LIST

(December 1985)

DA, Dawyck Arboretum; LBG, Logan Botanic Garden; YBG, Younger Botanic Garden

<i>Regius Keeper</i>	Professor D. M. Henderson	
<i>Personal Secretary</i>	Mrs C. M. Marr	
<i>Assistant Keeper</i>	Dr J. Cullen	
<i>Principal Scientific Officers</i>	Mr G. Anderson Dr G. C. G. Argent Dr R. B. Burbidge Dr D. F. Chamberlain Dr B. J. Coppins Mr A. J. C. Grierson	Mr I. C. Hedge Mr D. G. Long Dr C. N. Page Dr J. A. Ratter Dr R. Watling
<i>Senior Scientific Officers</i>	Mr A. P. Bennell Miss V. A. Matthews Mr A. G. Miller	Miss R. M. Smith Mr P. J. B. Woods
<i>Higher Scientific Officers</i>	Dr I. D. Edwards Mr R. Eudall Mrs N. M. Gregory Miss R. King	Mr D. R. McKean Mr D. A. H. Rae Mrs J. M. Woods
<i>Scientific Officers</i>	Mr K. N. Grant Miss E. H. Hamlet Mrs H. Hoy	Miss M. A. H. Paul Mrs D. M. Radcliffe Mrs S. J. Rae
<i>Assistant Scientific Officers</i>	Mrs J. Biagi Ms D. Brunton	Miss R. C. Hollands
<i>Laboratory Attendants</i>	Miss R. M. Calder Mrs E. A. McAllan	Miss C. Pratt
<i>Curator</i>	Mr R. L. Shaw	
<i>Assistant Curators</i>	Mr G. Broadley Mr L. Buchan Mr J. M. Colledge (LBG)	Mr A. Hall (YBG) Mr R. Kerby Mr R. J. D. McBeath
<i>Garden Supervisors</i>	Mr D. Binns (DA) Mr R. U. Cranston Mr G. Kirkpatrick Mr G. Knott Mr D. Mitchell Mr D. S. Paterson	Mr J. Sandham Mr I. W. J. Sinclair Mr W. A. Tait Mr B. Unwin (LBG) Mr M. Welsh (YBG)
<i>Librarian</i>	Mr M. Mathew	
<i>Assistant Librarian</i>	Mrs D. A. Morrison	
<i>Senior Executive Officer</i>	Mr R. Crawford	
<i>Higher Executive Officers</i>	Mr E. Campbell	Mr J. Sinclair

<i>Executive Officer</i>	Miss J. R. S. Renwick	
<i>Clerical Officers</i>	Mrs R. Bell Miss E. Fidler	Mr J. Welsh
<i>Clerical Assistants</i>	Mr S. Mitchell Mrs R. Munro	Mrs M. O'Brien Mr P. G. Stanley
<i>Senior Paperkeeper</i>	Mr W. Nicholson	
<i>Sergeant Park-Keeper</i>	Mr J. Y. Thomson	
<i>Corporal Park-Keeper</i>	Mr A. W. Brown	
<i>Park Constables</i>	Mr W. S. Connachar Mr M. E. Fitz Mr P. N. Fletcher Mr D. C. Hogg	Mr W. Murray Mr T. A. Nisbet Mr W. B. Scott Mr A. J. Smith
<i>Gardeners Special</i>	Mr R. Allan Mr G. Godbert (YBG) Mr R. Good (YBG) Mr G. W. Lawson Mr J. McCluskey (YBG) Miss E. A. Mackintosh	Mr W. M. Milne (DA) Mr G. Murdoch Mr A. J. Paxton Mr I. M. Potts (YBG) Mr J. Stewart Mr E. F. Young
<i>Gardeners I</i>	Miss G. Anderson Mr P. Bennett Mr S. M. Boyd (LBG) Miss D. Cunningham Mr M. A. Dickson Mrs J. A. Howe Miss J. M. Knott Mr K. Little Mr K. McCallum (YBG)	Mr N. S. McCheyne Mr N. McIntyre (YBG) Mr J. M. Mitchell Mr F. Mobeck Mr H. W. Paxton Mr R. M. Robertson Mr C. Thompson (YBG) Mr G. Watson
<i>Gardeners II</i>	Mr D. S. Beavis Mr E. Duff Mr H. Geddes (DA)	Mr J. Smith Mr E. D. Traynor (YBG) Mr W. D. Walsh (YBG)
<i>Assistant Gardeners</i>	Mr S. J. D. Ainslie Mr J. A. Davies Mr P. Hughes Mr G. J. McGillivray	Mr J. Millar Mr K. Parrish Mr R. Russell
<i>Junior Gardener</i>	Mr G. D. Campbell	
<i>Engraver</i>	Miss G. Laing	
<i>Storeman</i>	Mr J. F. Mayes	
<i>Driver</i>	Mrs M. Lovell	
<i>Female Lavatory Attendants</i>	Mrs C. Binns (DA) Mrs W. Connacher	Mrs A. Rogers
<i>Male Lavatory Attendants</i>	Mr L. J. Kelly	Mr G. Clegg
<i>Cleaner/Handyman</i>	Mr P. McCormick	

*Night Patrolmen*

Mr J. Brady  
Mr J. Duffy

Mr E. McCarthy  
Mr J. McKenzie

*Students*

## Third Year

Mr D. I. Chavasse  
Mr B. Corr  
Mr S. M. Davies  
Mr M. D. Ferriday  
Mr G. Jones  
Mr D. Learmond

Miss J. G. Queen  
Mr N. J. Robertson  
Mr T. J. H. Sharp  
Mr C. A. Totty  
Mr S. Young

## Second Year

Mr K. N. Alders  
Miss J. M. Corden  
Mr D. J. D. Curran  
Mr R. W. Grant  
Mr D. J. Moore  
Mr P. A. Prendergast

Miss M. T. Prendiville  
Mr S. Rattray  
Mr G. L. Redfern  
Mr I. H. Rooksby  
Mr D. W. Sheppard

## First Year

Mr C. S. Bell  
Mr G. Bonner  
Miss P. Crowe  
Mr J. R. Gordon  
Mr S. P. Hardman  
Mr F. M. Hawkins

Mr E. Mole  
Mr S. Thomson  
Mr K. L. Vernon  
Mr W. Wallace  
Mr I. J. Wedderburn  
Mr G. R. Williams

*Honorary Associates*

Mr W. H. Brown  
Mr B. L. Burt  
Professor P. H. Davis

Mr A. Evans  
Mr P. D. Orton