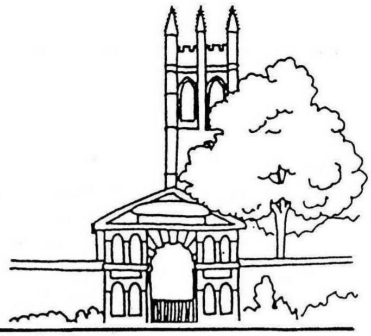
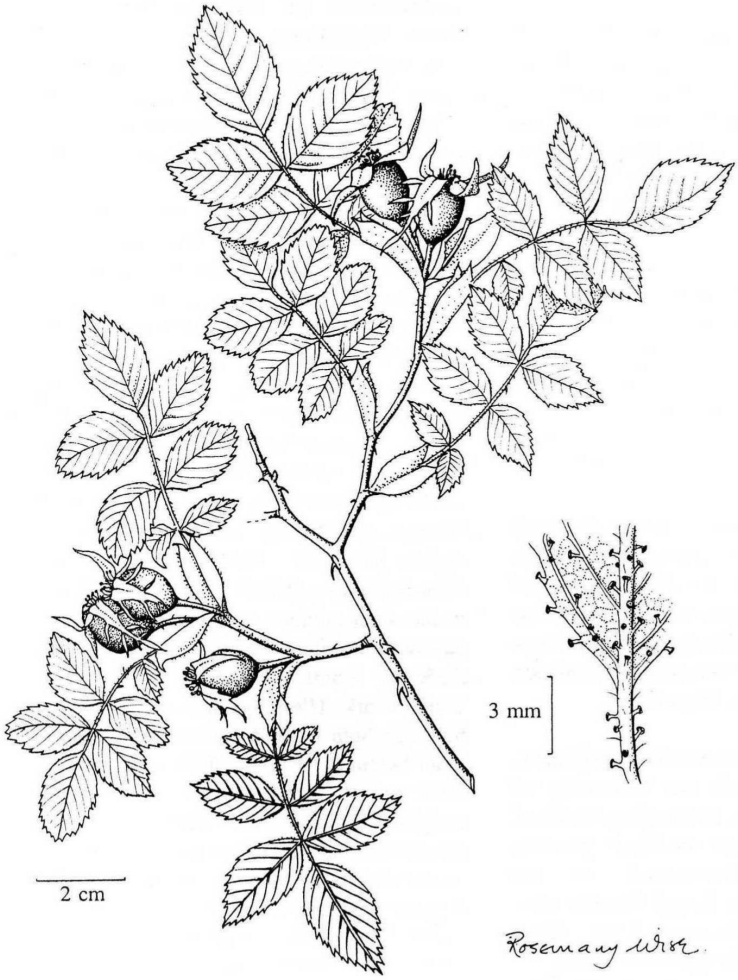
Oxford Plant Systematics



With news from Oxford University Herbaria (OXF & FHO), Department of Plant Sciences, Oxford

OPS 3 November 1995



George Claridge Druce named this plant *Rosa rothschildii* (as a species) in honour of the Hon. N. Charles Rothschild with whom he had been botanizing when he collected a specimen of the plant at Ashton Wold, Northamptonshire in August 1910. The drawing was made from the lectotype, from this locality, which is held in OXF. Following its lectotypification, recent work on the plant has confirmed that it is of hybrid origin, being *R. canina* L. x *R. sherardii* Davies for which the earliest and correct name is *R. x rothschildii* Druce. The stipitate glands on the foliage and petioles (see inset) are characteristic of the plant and help to distinguish it from other roses.

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Editorial

OPS 3 finds plant taxonomy at Oxford, despite recent deaths and resignations, still very much alive if not exactly kicking. The year has seen consolidation after some years of upheaval and this issue includes accounts of it, particularly important for those visiting Oxford being that on library resources, which, for the first time since the Department moved to its present site in 1950, are coming into some form approaching the ideal for taxonomic research.

A major landmark is the full registration of Oxford University Herbaria (OXF, FHO) with the Museums and Galleries Commission, an initiative begun some years ago. This should ensure the proper management and conservation of these priceless University, nay international, assets at a time when the future of university collections generally is a matter for national concern. In the climate of each space of a scientific department having to earn its keep in the philistinic times universities are presently having to weather, it might, in the absence of registration, have been advisable to move the collections to the University Museum, where curatorial issues are more readily understood. Such, however, would have removed valuable research tools from both graduates and undergraduates at a time when young people's interests in these things is having a resurgence. It is to be hoped, then, that the collections' future will now be free from the type of whim, ignorance and neglect of short-sighted heads of department that sealed the fate of the Oxford Botanical Museum earlier this century and is the subject of a feature in this issue.

Other good news includes the publication of Flora Malesiana Meliaceae, a family which elsewhere had been a longterm interest of our recently deceased colleagues, Frank White and Brian Styles, as well as the completion of Flora Neotropica Pinaceae, which monograph was Brian's last work. Both are substantial volumes and long-awaited. The microfiches made by IDC of some of the classic herbaria of OXF are now available. Again an initiative started some years ago, it is to be hoped that this can be extended to Sherard's herbarium, a treasure-house still to be fully evaluated. Another plan has also come to fruition: the rearrangement of the Druce Herbarium on modern lines. All these and other developments are more fully reported on below.

The teaching of Biology at Oxford is being completely reorganized with effect from 1996. One of the new features will be a course in Tropical Botany, in which subject the University has a distinguished tradition. We hope to be enabled to live up to it.

David Mabberley

This issue of OPS has been set out by Serena Marner, to whom we are all grateful for her time and skill.

DJM

News items

Staff changes

In December 1994 Quentin Cronk (Departmental Lecturer and Acting Curator of the Herbaria from 1 April 1994) resigned to take up the post of Lecturer in Vascular Plant Systematics at the Royal Botanic Garden, Edinburgh and the Institute of Cell and Molecular Biology, University of Edinburgh.

Dr. Robert Scotland has been appointed University Lecturer in Plant Systematics and Biodiversity in the Department of Plant Sciences Oxford from 1 October 1995. At first he will continue to hold this post in conjunction with his Royal Society Research Fellowship.

Dr. Stephen Harris who had been Research Officer in the Oxford Forestry Institute was appointed Druce Curator (whose responsibilities now encompass all the University herbaria) from 1 February 1995. He continues to run the molecular systematics laboratory within the Department.

Aljos Farjon, who came to the Department, two years ago from the University of Utrecht, Netherlands, to complete the Flora Neotropica monograph on *Pinus*, has now been appointed taxonomist for the gymnosperms at the Royal Botanic Gardens, Kew from 1 February 1996. There has not been a conifer specialist at Kew for more than twenty years. Among his tasks will be to aim to monograph all the c. 600 species of conifers.

Other staff news

David Mabberley gave his Inaugural Oration as Professor Extraordinary, University of Leiden on 28 September. It was entitled 'Plants and Prejudice'.

Rosemary Wise was awarded the Linnean Society's Jill Smythies award for Botanical illustration at the Society's Anniversary meeting in London in May. This award was established by B.E. Smythies in memory of his wife whose career as a botanical artist was curtailed by an injury to her right hand. A silver medal is awarded annually to an artist for published illustrations of high quality, aiding plant identification, with emphasis on botanical accuracy and the portrayal of diagnostic characters. It is apparently the only award, at least in the United Kingdom, to recognise the importance to botany of skilled illustrators.

Completion of the Meliaceae for Flora Malesiana

The publication of the family Meliaceae in Flora Malesiana (Mabberley, Pannell & Sing, 1995) represents completion of work on the family for much of tropical South-east Asia.

The Meliaceae comprise one of several economically important tropical woody families which have been the subject of long term systematic research in Oxford. Besides publication of a generic monograph of the family by Pennington and Styles in 1975, a number of regional accounts and genus monographs were prepared: for *Vavaea* (Pennington, 1969), *Chisocheton* (Mabberley, 1979), Flore de la Nouvelle Calédonie (Mabberley, 1988), Tree Flora of Malaya (Mabberley & Pannell, 1989), *Aglaia* (Pannell, 1992), *Walsura* and *Pseudoclausena* (Clark 1994). In addition to the main authors, contributions of other genera to the Flora Malesiana account were made by Jennifer Edmonds (*Toona*) and Terry Clark (*Pseudoclausena, Walsura*), both of whom worked in the Department of Plant Sciences. P. Baas, R.W.J.M. van der Ham and R. Hegnauer, all from Leiden, contributed sections on vegetative anatomy, palynology and phytochemistry respectively. Associated research has been carried out by Caroline Pannell on dispersal by vertebrates and by Michael Kozioł on the biochemistry of the arils which they eat (Pannell & Kozioł, 1987) and by Martin Cheek on the anatomy of the seeds (Cheek, 1989).

Most of the South-east Asian genera of Meliaceae include complex species and the successful resolution or description of many of the taxonomic problems encountered was made possible by taxonomic and, in some cases ecological, field work of months or years carried out by the majority of the authors. Their collections not only produced dried specimens for the Daubeny

Herbarium, but included the collection of flowers and fruits in spirit. This made possible full and accurate description of flowers and fruits of many species for which information had been lacking. Because, in most of the vertebrate dispersed species, the pericarp is dry or fibrous, general collections are usually dried for a carpological collection, the fleshy, edible layer, which surrounds the seeds in these species, is either completely lost or much reduced by drying and important characters are thereby lost.

Flora Malesiana is published by the Flora Malesiana Foundation, Rijksherbarium, Leiden and most of the authors have worked in the Rijksherbarium on the extensive collections housed there. As there are modern monographs only for those genera mentioned above, this volume provides the only available guide for the remaining genera in Asian, Australasian and Pacific areas. Non-Malesian synonyms and references have therefore been included.

Cheek, M.R. (1989). The systematic seed anatomy of the Meliaceae. D.Phil. thesis, University of Oxford.

Clark, T.P. (1994). The species of *Walsura* and *Pseudoclausena* genus novum (Meliaceae). Blumea **38**: 247-302.

Mabberley, D.J. (1979). The species of *Chisocheton* (Meliaceae). Bulletin of the British Museum (Natural History). Botany series **6**: 301-386.

Mabberley, D.J. (1988). Meliaceae. Flore de la Nouvelle-Calédonie et Dépendances. **15**: 17-89.

Mabberley, D.J., Pannell, C.M. & Sing, A.M. (1995). Meliaceae. Flora Malesiana. Series I (Seed Plants) **12** (1): 1-407.

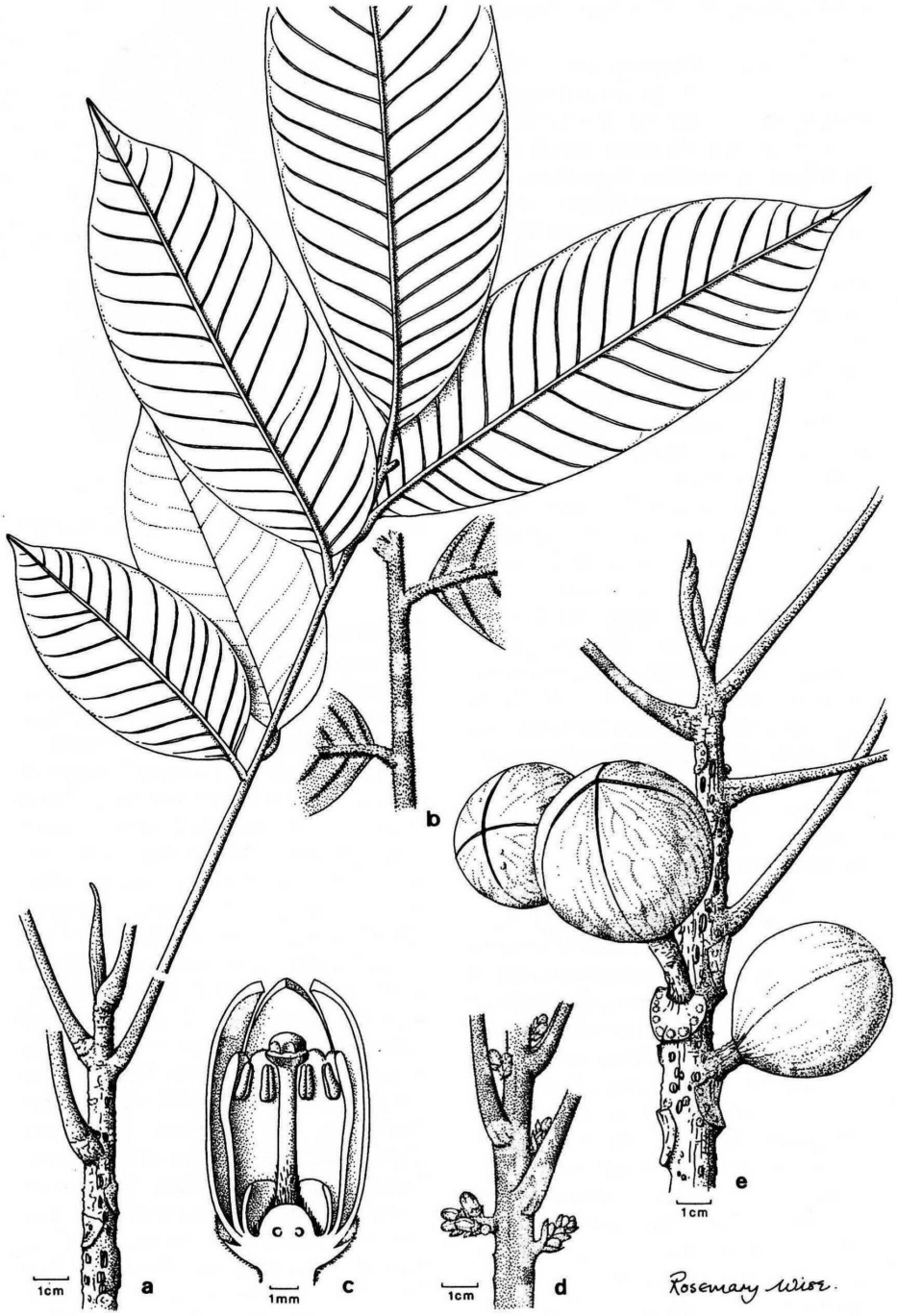
Pannell, C.M. (1992). Taxonomic monograph of the genus *Aglaia* Lour. (Meliaceae). Kew Bulletin Additional Series **16**: 1-379.

Pannell, C.M. & Kozioł, M.J. (1987). Ecological and phytochemical diversity of arillate seeds in *Aglaia* (Meliaceae): a study of vertebrate dispersal in tropical trees. Philosophical Transactions of the Royal Society. B. **316**: 303-333.

Pennington, T.D. (1969). Materials for a monograph of the Meliaceae I. A revision of the genus *Vavaea*. Blumea **17**: 351-366.

Pennington, T.D. & Styles, B.T. (1975). A generic monograph of the Meliaceae Blumea **22**: 419-540.

Caroline Pannell



Dysoxylum pachyrache Merrill (Borneo): Illustration used for *Flora Malesiana* Meliaceae

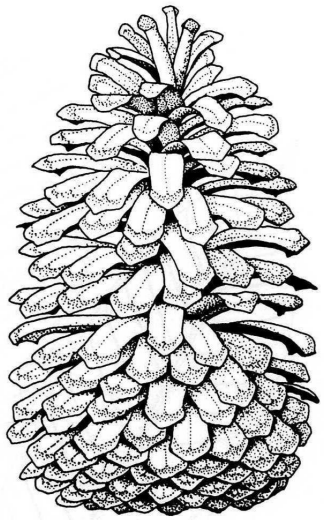
Completion of the Flora Neotropica monograph of *Pinus*

At the end of July 1995, Aljos Farjon completed the monograph of *Pinus* in Mexico, Central America and the Caribbean. In twenty months, the 414-page manuscript was compiled, using both the late Brian Styles's and new data. Aljos and Brian are co-authors of the work, which is to be published in the series of *Flora Neotropica* monographs at the New York Botanical Garden.

The revision of the genus has resulted in the recognition of 47 species and a number of subspecies and varieties. Mexico has the greatest diversity of pines, which range throughout the Northern Hemisphere. The evolution of the genus in Mexico is much more complicated than has been hitherto assumed, with both very old elements now present as relict species, recent speciation and radiation, as well as migration responsible for its diversity. The monograph gives a detailed account of the history of collecting and description of the pines of Latin America, of morphology and anatomy, phylogeny and evolution, of distribution and ecology, uses and conservation. This is followed by the systematic section, providing identification keys and full descriptions of all species, often with discussion of previous taxonomic work. Professor Sir Ghillean Prance has written a preface. A portrait of Brian, who wished so much to see this work completed, is the frontispiece. Rosemary Wise has drawn 56 plates for the monograph, which is further illustrated with photographs of special features of pines (for example transverse sections of wood showing resin ducts, bark patterns, cuticles), distribution maps and diagrams. Several specialist contributions are included. These are accounts of wood anatomy by Ian D. Gourlay and monoterpenes by Jacqueline S. Birks from staff at the Oxford Forestry Institute, and an account of pollen morphology by Marie H. Kurmann from the Royal Botanic Gardens Kew. The book has a full bibliography, several indexes (including a numerical list of taxa, a list of exsiccatae and indexes of scientific names of plants and animals) and ends with a photograph and a brief biography of each author.

Comprehensive, highly technical accounts like Flora Neotropica monographs are unlikely to be used by students, foresters, ecologists and other people in Mexico and Central America however. They need a user-friendly, Spanish language field-guide providing multiple-access keys with illustrations, and can be carried around easily. To meet this need, Aljos will be "translating" (but not in Spanish) the information in the monograph into such a field-guide format. However, for more advanced students of pines, the monograph will remain indispensable and so reference to it will be made throughout the field-guide.

Aljos Farjon



Pinus hartwegii
Illustration used for Flora Neotropica monograph

Re-organisation of the Plant Sciences Library completed

The earliest of the botanical library collections at Oxford University dates from 1621, so it is perhaps not surprising that they have been re-arranged and rehoused numerous times over the centuries; the latest attempt is now (almost) complete. Originally housed at the University Botanic Garden, the botany sections of what is now the Plant Sciences and Oxford Forestry Institute Library, University of Oxford, were divided in the late nineteenth century to supply the newly-created School of Rural Economy, later the Department of Agriculture and subsequently Department of Agricultural Science. The School of Forestry was founded in Oxford in 1905 with a library donated by its first head, Sir William Schlich. With the creation of the Imperial Forestry Institute in 1924, the Forestry Library took on an international role which led to the introduction of an abstracting service, based on its stock, from 1939. Now in its 56th year, Forestry Abstracts is published by CAB International; CABI and the library co-operate in the provision of inquiry and document delivery services under the title "CABI-OFI Forestry Information Service".

The then Department of Forestry and School of Botany moved to new premises in 1950, in adjacent but almost non-communicating wings of the same building; each had a purpose built library. As it happens, the librarians were sisters (the redoubtable Misses Guiney) so contact between the collections was always close. The Department of Forestry's herbarium was, sensibly if confusingly, housed above the botany (Fielding-Druce) herbarium in the School of Botany building, with later a joint curator. Both herbaria contained books belonging to their respective libraries, which over the years became disconcertingly intermingled, a problem only now being sorted out. In the 1960s, Forestry and Botany joined with the Department of Agriculture in creating a union catalogue of books for the three libraries, recognising long before the university authorities the overlap between their respective subjects. Then in 1980, the University decided to merge Forestry and Agriculture in a new Department of Agricultural and Forest Science. The libraries came under common management in 1983, but the arrangement was short-lived, as under pressure from the Government to reduce the number of places for agricultural degrees, the University decided to abandon that plan, bring Botany into the merger, create a new Department of Plant Sciences and introduce a new degree in Pure and Applied Biology. That was in 1985, and the degree course, now just Biology, has already been restructured twice. This is partly due to the increasing importance of molecular biology, an entirely new (and expensive) area for the combined library to cover.

The three libraries were merged, so far as staffing and funding were concerned, in 1985, operating as three branches. A physical link between the Forestry and Botany libraries was created in 1987 and those two libraries merged; the Agriculture library moved from its separate building to join the rest in 1990. No additional space was available to house it, however, so much stock editing was necessary to make it fit; duplicates were sold and older stock transferred to the Radcliffe Science Library, the University's central science library. The remaining stock was housed together but books could not be interfiled since no fewer than seven different classification systems were in use!

CABI's abstracting staff moved from the library building to a new headquarters at Wallingford, ten miles away, in 1987, necessitating the introduction of a new computer system to control the complex routing of new acquisitions to and from the

abstractors. The University's own on-line catalogue came into operation in 1988; it was of course a different and incompatible system. Then funding cuts began to bite and the library's staff dropped from a zenith of 11 to four at its worst point, with predictable effects of backlogs, cuts in services and general depression.

Various experts were drafted in to comment on what might be done, including Maurice Line, ex-Director General of the British Library Lending Division. After several years of committee work a plan for restructuring, largely based on outside funding, was put in place and has now been completed.

A staff of eight (full-time equivalent), 3.5 professional and 3.5 non-professional plus a pre-professional trainee, is now in post; five of these posts are externally funded. A contract with CIFOR, the newly created Centre for International Forestry Research in Indonesia, is providing most of the funding, in return for information services to 20 forestry research centres around the globe. The physical layout of the library has been re-drawn to allow for a single entrance (instead of the former eight!!) and the area has been refurbished throughout, providing new staff and enquiry offices. These bright and spacious areas provide much improved working conditions for readers and staff. Virtually every one of the Library's 250,000 items has been moved at least once, and in some cases several times, during this exercise. We are much relieved now it is over!

Conceptually, the library has been divided (again!) into three units: (i) a general plant sciences collection of current material for teaching and research (ii) a taxonomic collection including complete runs of periodicals and many rare early works, and (iii) a forestry collection aimed largely at external users, including copies of almost everything covered in Forestry Abstracts, which is now itself in CD-ROM format as TREECD. These sections are separately funded, although the collections are fully integrated and the staff have responsibilities across all of them. The bookstock has been completely revised, older material transferred to closed access and some 12000 items recatalogued on the University union catalogue (OLIS) and reclassified (using UDC) allowing them to be shelved in a single sequence for the first time.

Much material has been withdrawn but only if a copy already exists elsewhere in Oxford. Unique material has either been retained or transferred to the Radcliffe Science Library. So you should find that material you have used here before is still around somewhere, and we should be able to find it for you.

The new offices are fully networked and five public workstations are available with self-service access to the university catalogue OLIS, local and networked CD-ROMs, the World Wide Web, the database systems BIDS and FirstSearch, and many other electronic services. A new microfilm reading room has been created with open access to the library's collection of approaching 4000 reels of microfilm. The two main reading rooms house open-access collections of books and journals respectively, and additional reading areas are provided for bulletins and rare books. The main journal sequence is 'steady-state' with fixed-length back runs, the older ones being transferred to the Radcliffe Science Library as displaced by new issues; for taxonomy, however, where full runs are usually required on site, a separate area has been set aside with room for the files to grow. Taxonomic books housed in the Fielding-Druce herbarium have been catalogued on OLIS and re-classified in the same way as the main library, making it easy to transfer material from one to the other as required. Meanwhile preservation work continues on our rare books and for them catalogue records which will appear in the 'new' OLIS, using new software which will be introduced in Autumn 1996, are being created as part of a university-wide project.

The Library will be contributing increasingly to the Department's World Wide Web pages (URL: http://ifs.plants.ox.ac.uk) and is a founder member of the new European Botanical and Horticultural Libraries Group; we also hope to play a major role in a proposed Forestry Information Network for Europe. As always we are happy to answer enquiries received in any form - post, telephone, fax, e-mail etc - and to welcome visitors in person; the Library is open to the public from 0900-1730 Mon-Fri throughout the year except in August when we close at 1700, and at Christmas and Easter when we close for 10 days in line with the University offices. It is helpful if those wishing to consult rare books or conduct extensive searches telephone beforehand to make an appointment. Tours of the library for groups can be arranged on request, and exhibitions mounted. We look forward to welcoming you!

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The molecular systematics laboratory

The work of the molecular systematics/forest population genetics laboratory in the Department has gone from strength to strength this year, especially in the use of molecular markers to evaluate phylogenies, population structure and mating systems.

Stephen Harris continues to study the genetic diversity of East African *Faidherbia albida* (Del.) A. Chev. (Leguminosae) and the use of taxon-specific randomly amplified polymorphic DNA (RAPD) markers to investigate the origin of *Leucaena* Benth. polyploids and naturally occurring *Leucaena* hybrids (Leguminosae). Sarah Rendell is using nuclear RAPD markers and mitochondrial DNA markers to investigate migration patterns in *Faidherbia albida*. Joanne Chamberlain continues to characterise isozyme variation in the genus *Calliandra* Benth. subgroup Racemosae (Leguminosae). David Boshier and Martin Billingham are investigating the effect of forest fragmentation on isozyme variation and mating system in Central America, particularly in *Bombacopsis quinata* (Jacq.) Dugand (Bombacaceae) and *Swietenia humilis* Zucc. (Meliaceae). Furthermore, in collaboration with the Scottish Crops Research Institute, Dundee microsatellite markers are being developed in *S. humilis*.

The facilities of the molecular laboratory are being used in a variety of D.Phil. theses. Rogier de Kok and Karen Sidwell are investigating chloroplast DNA-based phylogenies of the genera *Oxera* Lab. /*Faradaya* F. Muell. (Labiatae) and *Brillantasia* P. Beauv. (Acanthaceae) respectively. Dharmapala Pushpakumar is using RAPD markers to investigate the reproductive biology and genetic diversity in *Artocarpus heterophyllus* Lam. (Moraceae). Sopit Vetayasuporn has recently started to investigate the genetic variation in the mitochondrial, chloroplast and nuclear genomes of two south-east Asian pines, *Pinus kesiya* Royle ex Gordon and *P. merkusii* Jungh. & de Vriese. Barrie Juniper has two undergraduates investigating the origin of domesticated apples.

CIFOR-ODA funding has been awarded for a training programme in molecular techniques for plant systematics and population

genetics for developing country scientists. So far four scientists from Brazil, India, Malaysia and Mexico have worked on a range of problems including: population structure in *Swietenia macrophylla* King; hybrid identification in Australian *Acacia* Miller (Leguminosae) species; population structure in *Aquilaria malaccensis* Lam. (Thymelaeaceae) and the molecular phylogeny of neotropical pines. In addition, British Council funding allowed Dr Milton Kanoshiro (CPATU, Bélem, Brazil) to visit the laboratory to investigate population structure in Brazil nut (*Bertholletia excelsa* Bonpl. Lecythidaceae).

Stephen Harris

Workshop on botanical illustration for the Tree Flora of Sabah and Sarawak

Viewed by the uninformed as a leisurely Victorian pastime, botanical illustration has taken a renewed significance in modern plant taxonomy. The advent of computer-aided graphics provides the potential for circumscribing precise statistical limits on highly variable phenological data which can then be superimposed upon accurate graphical depictions. This presents the taxonomist with the means to make objective comparisons for complex data sets and to represent these visually. Oxford is fortunate in having one of the country's finest botanical illustrators and her talents were put to good use during a workshop on botanical illustration held during two weeks in January as part of the ODA-funded Tree Flora of Sabah and Sarawak project. The workshop, which was conducted in Sabah, came about from the recognised dearth of good quality illustrators in South East Asia and is causing a bottleneck in the production of the Flora. The workshop provided an opportunity for ten participants to benefit from hands-on training with species in their native range.

The class was of mixed abilities ranging from beginners to experienced illustrators. A comparison was made of work presented at the beginning of the workshop with material produced at the end and there was a noticeable difference in quality. Emphasis was placed on the use of standard conventions, the production of plates of uniform appearance and details of composition. Techniques were demonstrated in both drawing from fresh material and from herbarium sheets. Each participant completed one finished illustration to the standard required, of a species still needed for Volume 1 of the Flora. Following the workshop, Rosemary Wise spent two weeks at the Forestry Research Institute of Malaysia (the headquarters of the Tree Flora project) preparing further illustrations for the Flora and completed a total of 25 species, several of which are newly described. The TFSS staff have requested that another workshop should be held later in 1995 and funds have been allocated for this.

Philip Bacon

Brahms

System development has continued at high tempo this year with an expanding range of projects stimulating progress on all fronts. Training courses were held in Oxford, Namibia (Windhoek), Brazil (Belém) and Malaysia (Kepong) and the system was introduced to botanists from the FSU during the Darwin Initiative herbarium management course held at the Komarov Botanical Institute in St Petersburg.

In Brazil, a number of pilot projects were started at the IAN herbarium, Belém - one of these is collating specimen data for their Meliaceae and Lecythidaceae holdings, another studying the use of common names (e.g. *Angelim*, *Breu* and *Fava)*. Also in Brazil, a collaborative link has been forged with the Plantas do Nordeste (PNE) project in Bahia. Specimen data are being collected into BRAHMS-RDE files at various project sites. The files will then be imported into a central BRAHMS database, processed and exported as species level summary data into ALICE, the main database used by the project.

In Malaysia, one of the activities of the Tree Flora of Sabah and Sarawak project (coordinated from Kepong) is the construction of a BRAHMS database of species and specimen data. Over 35,000 specimens have been entered in RDE format to date. Tree Flora accounts and maps can now be generated directly from the database, in the required format: accepted name, a note on the name derivation, protologue and further selected publications, selected synonyms, type, common names and species notes under headings that include plant description, distribution, taxonomy, ecology and uses.

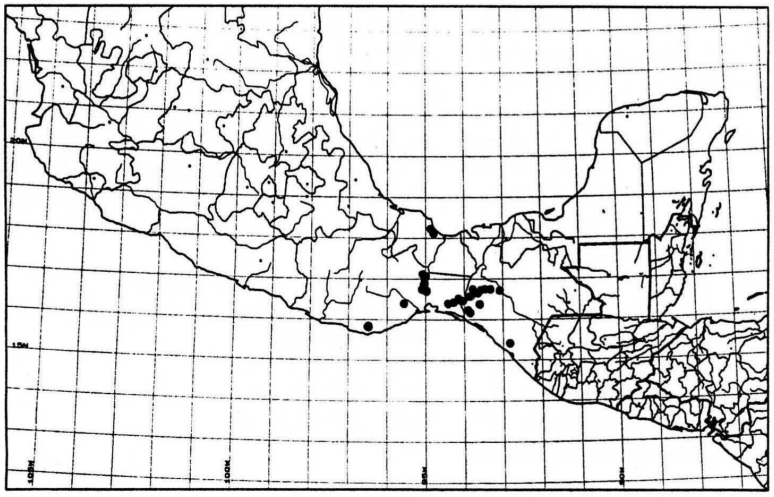
A fully working version of the mapping software (being developed by William Hawthorne) is approaching completion and is being used increasingly to produce maps from BRAHMS. Aljos Farjon's Flora Neotropica account of *Pinus* contains over 50 distribution maps. The illustration shows one of Duncan McQueen's *Calliandra* maps (*C. juzepczukii*) on a de L'Isle (conical, equidistant projection), to appear in a forthcoming edition of *Kew Bulletin.*

Version 4.0 is due to be released in February 1996. This is a substantial upgrade from 3.4 with new mouse-driven pull-down menus. The system structure has been revised and primary organisation is now by topic (specimens, taxa, etc.) rather than by action (update, reports, etc.). Thus, while in previous versions, options linked to specimens could be found scattered across and deep into all main menu branches (add, edit, retrieve, configure, import, etc.), these are now logically grouped under the new specimen menu pad. Hot keys provide immediate access to commonly used functions such as RDE and the help index.

Special thanks to Tom Wendt (Lousiana State University) for his persistent stream of useful suggestions on e-mail and also to Aljos Farjon, leaving Oxford for a position at Kew, for his invaluable input, especially on nomenclatural matters.

The BRAHMS project is funded by the ODA Forestry Research Programme.

Denis Filer



Oxford Botanic Garden wins a second gold medal

Congratulations to the staff of the Botanic Garden for being awarded a gold medal by the Royal Horticultural Society at the Chelsea Flower Show for the second year running. This year's exhibit, in the Scientific and Education section, was entitled "Living Colour - The Gardeners Palette". The display was funded by the Hulme University Fund, the Royal Society for Chemistry and COPUS (the Committee for the Public Understanding of Science).

Styles Memorial Prize

The University has established a prize funded by Mrs Cynthia Styles in memory of her late husband for outstanding D. Phil. theses in the University of Oxford submitted in the subject area of tropical or subtropical plant taxonomy. The prize, awarded from time to time, will be known as the **Brian Thomas Styles Memorial Prize**. Brian Styles, who was an experienced tropical botanist, died in 1993; he had worked in the Department for 33 years. His work focused principally on the taxonomy of Meliaceae in Africa and the neotropics, the pines of Mexico and Central America and tree legumes. He also took an active part in the International Commission for the Nomenclature of Cultivated Plants and organized the Systematics Association Symposium on Infraspecific Classification of Wild and Cultivated Plants held in Oxford in 1986.

The new look *ACANTHUS*

An International newsletter to encourage interest in the Acanthaceae

The *ACANTHUS* newsletter was started by Tom Daniel from the California Academy of Sciences and ran from October 1987 to December 1989. After issue number 5, articles for the newsletter were no longer forthcoming resulting in an end to the only forum for International discussion on Acanthaceae. In recent years research on the family has increased and there is once again the need and enthusiasm for a newsletter to be produced. The new *ACANTHUS* provides space for a wide range of articles relating to any aspect of the Acanthaceae to be published. It is seen as a forum for informal discussion which is both informative and lighthearted. A broad (*sensu latissimo*) editorial policy is adopted in the hope that readers will submit articles, however brief, which they think will be of interest to others working on the family. It is hoped that *ACANTHUS* will both increase awareness of current research on the family and promote international collaboration.

ACANTHUS 6, published in October 1995 includes articles on subjects such as hapaxanthy, nomenclatural problems and the possibility of an international Acanthaceae conference. If any reader of OPS is interested in receiving *ACANTHUS* 6 or would like to submit an article for the next issue, please contact the editor.

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'Empires of Nature'

The tenth International Conference of the Society of the History of Natural History will be held in Oxford 11 & 12 April 1996. David Mabberley is President 1993-6 and the Conference, held at his College, Wadham, will be his swansong. The Fielding-Druce Herbarium will be open to delegates on 12 April. An exhibition, 'Women in Natural History: artists, collectors, patrons and scientists' is being mounted in association with the Conference. It will be in the Exhibition Room of the Bodleian Library from February until May. Other events include receptions at the Botanic Garden, Museum of the History of Science and the University Museum. Details from Jane Pickering, The University Museum, Parks Road, Oxford, U.K. OX1 3PW Tel: 01865 272950 Fax: 01865 272970 E-mail: jane.pickering@oum.ox.ac.uk.

Student progress

Mark Carine (D. Phil. first year). Systematics of *Stenosiphonium* Nees (Acanthaceae). Supervised by R.W. Scotland and D.J. Mabberley. BBSRC studentship. *Stenosiphonium* is a genus of shrubs from southern India and Sri Lanka. Whilst six species are currently recognised, the taxonomy of the group is far from clear. Molecular and morphological techniques will be used to determine the delimitation of species within *Stenosiphonium*, and investigate the higher level relationships of the genus.

Augustine Chikuni (D.Phil. first year). A taxonomic study of *Brachystegia* Benth. (Leguminosae). Supervised by S. A. Harris and B. Schrire (K). This complex genus which has been a long-time interest of the Department is restricted to Africa. Species delimitation within the genus has been the source of much confusion, especially due to the occurrence of putative hybrids. Morphological and molecular methods will be used to try to resolve some of these problems.

Julie Hawkins (D.Phil.). Systematics of *Parkinsonia* and *Cercidium* (Leguminosae). Supervised by C.E. Hughes, R. W. Scotland and S. A. Harris. ODA studentship. *Parkinsonia* and *Cercidium* together comprise ten species of tropical and sub-tropical arid zone trees. There has been a century of confusion regarding the delimition of the genera; furthermore, it has been suggested that hybridization is common within the group, but the extent to which there is hybridization is not known. Julie is writing up her D. Phil., which has addressed these two systematic problems. The generic delimitation and subdivision of *Parkinsonia* and *Cercidium* has been re-evaluated using cladistic methodology. In addition, the status of a putative intergeneric hybrid has been clarified using morphometric and molecular marker data.

Colin Hughes (D.Phil. third year). Systematics of *Leucaena* Benth. (Leguminosae: Mimosoideae). Supervised by D.J. Mabberley and R.M. Polhill (K). The study is investigating species delimitation and relationships, as well as generic boundaries, of the small but economically important New World genus *Leucaena*. Morphological cladistic analysis of generic and species-level relationships has been carried out and this will be combined with extant cpDNA data. A new taxonomic account of the genus is nearing completion.

Rogier de Kok (D. Phil. second year). A taxonomic study of the genera *Oxera* and *Faradaya* (Labiatae). Supervised by D.J. Mabberley. These genera are endemic to South East Asia and the Pacific region. During the year, the pollination biology of *Oxera* was studied in New Caledonia for two months and work progressed on the revision of this genus. A poster was presented at the *Flora Malesiana* conference at Kew in August.

Rebecca Rowe (D. Phil. third year). The population biology of *Trochetiopsis*: a genus endemic to the island of St Helena. Supervised by Q.C.B. Cronk, J. Burley and S.J. Owens (K). The reproductive biology of *T. erythroxylon*, the St Helena Redwood, *T. ebenus*, the St Helena Ebony and their hybrid, *T. x benjamini* have been studied. The techniques of isozymes and RAPDs have been used to assess the genetic diversity within the species. RAPD analysis in conjunction with morphometric data has been used to assess the provenance of seed produced where the pure species are planted alongside their hybrid. Implications for the conservation of the species are made based on the results.

Karen Sidwell (D. Phil. third year). A revision of the genus *Brillantasia*. Supervised by R.W. Scotland and K. Volleson (K). Morphological characters suggest the genus *Brillantasia* P. Beauv has thirteen species. The widespread and variable *Brillantasia owariensis* P. Beauv needs to be investigated in greater detail. Anatomical studies of pollen, seed and leaf surface morphology may reveal useful taxonomic characters. Fieldwork in tropical Africa will enable full species descriptions to be written and collection of samples for molecular studies to investigate the relationships between these species.

Dorothy Steane submitted her thesis entitled 'Molecular Systematics of *Clerodendrum* L. *s.l.* (Lamiaceae)' during Hilary Term 1995 and satisfied the examiners for the degree of D. Phil. Dot is now working on the molecular systematics of *Eucalyptus* in the Department of Plant Science, University of Tasmania, Hobart, Tasmania, Australia.

Recent publications

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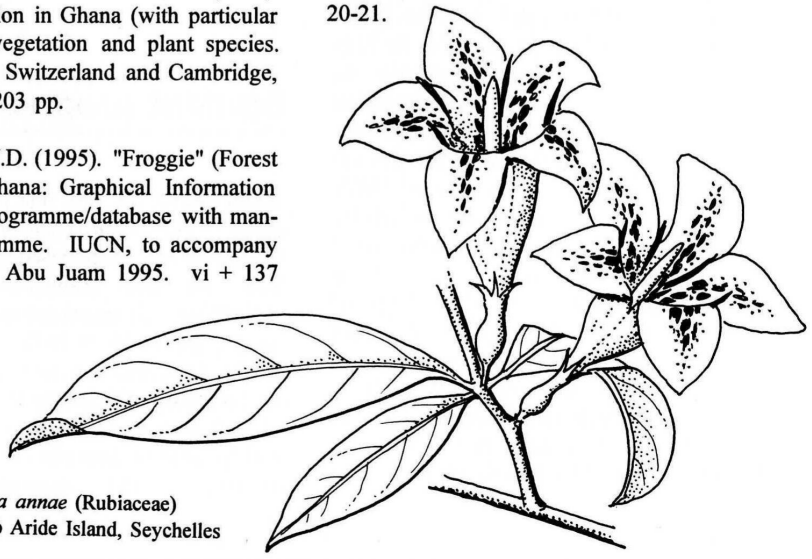
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Rothmannia annae (Rubiaceae)
Endemic to Aride Island, Seychelles

Expeditions and visits

David Mabberley spent a (truncated) sabbatical term in New South Wales but had to return to Europe to run the Green Plants Field Course in Algarve, Portugal in place of Quentin Cronk. He will be returning to NSW shortly to complete the therefore unfinished work on aspects of the history of plant introduction and hybridization in colonial Australia.

Robert Scotland spent 6 weeks in Southern India studying *Strobilanthes*. The trip was a great success in that he collected material of 14 species, of which two are thought to be new.

Denis Filer visited the East African Herbarium (Nairobi), the National Botanical Research Institute (Windhoek), the Forest Research Institute (Kepong) and the Centre for Agroforestry Research in Eastern Amazonia - CPATU (Belem), running Brahms training courses or providing botanical database support. In October, he spent one week with the Darwin Initiative funded Herbarium Management course in St. Petersburg jointly organized by RBG-Kew and the Komarov Institute, where he provided input on computing and databases.

Chris Fagg continued his studies on *Acacia* visiting Paris (P) in March, Coimbatore (FRC) in July and Harare (SRGH) in November.

Rosemary Wise visited the Forest Research Centre at Sandakan, Sabah, from 17-23 January 1995 and ran a workshop on the Techniques of Botanical Illustration for all the artists in Malaysia presently working on the Tree Flora of Sabah and Sarawak (see above). She also spent a further three weeks (there and at F.R.I.M) preparing illustrations for the Flora.

Karen Sidwell is in Cameroon from 15 October - 20 November 1995 as part of an EARTHWATCH expedition. There will be botanists from Ethiopia, Ghana and the United States alongside the Cameroonians and those from Oxford and Kew. The main aims of the expedition are to study the flora of Mount Kupe and to facilitate communication and collaboration between African botanists from different countries. Karen will also be able to study and collect species of *Brillantaisia* (Acanthaceae) for her D.Phil.

Herbaria

The University Herbaria have achieved Full Registration with the Museums and Galleries Commission in a scheme designed to promote the uptake of the best possible methods for the conservation, documentation, care and access to the collections. One of the consequences of this is that acid-free materials are to be used consistently; moreover a programme to accelerate removal of backlogs in documentation and accession is to be instigated.

Stephen Harris

Visitors

175 people visited the herbaria between the beginning of October 1994 and the end of September 1995. These included 12 students participating in the Kew International Diploma Course in Herbarium Techniques, who visited the herbaria and the Oxford Botanic Garden on 18 July 1995 as part of their training. Other group visits took place on 16 and 22 November 1994, when members of the Friends of the Oxford Botanic Garden were given guided tours of the herbaria.

Fielding-Druce (OXF)

During the past year many different activities have been taking place in the herbarium designed to improve accessibility and ease of use of the collections. To this end work has progressed on the consolidation of our taxonomic library, with well over 2000 books in the Fielding-Druce Herbarium having been re-catalogued on the University's central library database system OLIS and re-arranged accordingly. Provision for the incorporation of the floras and monographs formerly housed in the Daubeny Herbarium and the old Botany, Agriculture and Forestry Libraries is being made to bring the collections together and work continues on re-cataloguing (see News items).

The historic herbaria of OXF

Earlier this year an agreement was finalized between IDC (Inter Documentation Company) of the Netherlands and the University to microfiche three of the historical collections in OXF. The filming of these collections by Johan Vogel (from IDC) took place during May and June. The collections of Morison, Dillenius and Sibthorp were selected for microfilming on this occasion as all three have published guides and illustrate published historical works of considerable significance (see *IDC and Oxford University Herbaria* below for further information). Approximately 10,370 specimens were filmed in total. It is hoped that other important historical collections within OXF will be microfilmed in the future, once they have been catalogued.

Professor H.W. Lack, Director of the Botanical Garden and Botanical Museum of the Free University Berlin, worked in the library and herbarium from 30 January to 25 March on the Sibthorp and Bauer collections. He gave a special lecture during his stay on the *Flora Graeca* Project on which he is collaborating with David Mabberley.

The display area in the herbarium was used a number of times for group visits during the year. Besides the groups already mentioned above under 'visitors', 25 members of the Gloucestershire Society for Botanical Illustration combined a visit to the Fielding-Druce Herbarium with a visit to the library. This gave the group the opportunity to view not only many of the treasured books and paintings from the Special Collections in the library, but some of the plants used in the preparation of the drawings and paintings preserved in the herbarium, many of these early combined collections being unique to Oxford.

The Druce Herbarium

Specimens in the collection continued to be consulted in connection with the compilation of the new Flora of Oxfordshire and several visits to the herbarium were made by John Killick. Fifty five specimens were accessed to the Druce Herbarium, including 51 miscellaneous species presented by Richard Palmer. A number of Druce specimens were exhibited by Richard Palmer at the 1994 B.S.B.I. Annual Exhibition Meeting in London.

Loans

Loans sent out from OXF (the Fielding and Druce collections) during the year 1 October 1994 to 30 September 1995 included material from the following genera: *Annona*, *Guatteria*, *Porcelia*, Annonaceae; *Hypnum*, Brachytheciaceae; *Centaurea*, Compositae; *Daboecia*, Ericaceae; *Discocarpus*, Euphorbiaceae; *Rhynchotheca*, Geraniaceae; *Stachys*, Labiatae; *Drimia*, Liliaceae; *Caiophora*, *Loasa*, Loasaceae; x *Festulolium*, *Zoysia*, Gramineae; *Lantana*, *Premna*, Verbenaceae. A large number of requests for information were also received. 563 specimens were returned from loan and, of those, 4% are types.

Serena K. Marner

Druce Herbarium Rearranged

The Druce Herbarium is the part of OXF containing all tracheophytes collected in the British Isles after 1796. There are (very roughly) 130 000 sheets. Almost every native species and many aliens are here, usually from a wide and representative range of localities.

The herbarium is named after G.C. Druce (1850-1932) a prolific collector and namer of plants from Britain and abroad. Dispersed among other collections is his own herbarium of the British Isles, of about 60 000 sheets, one third of which bear material collected by him. Higher estimates, such as Clokie's (1964) 200 000 for Druce's own herbarium and Marner's (1994) minimum of 200 000 for the whole herbarium, usually refer to collections rather than sheets, since Druce often mounted several different collections together. Druce's original herbarium contains many of the most important collections ever made in the area, including the first records of alien species, and the types of several hundred of Druce's taxa (S.K. Marner & Q.C.B. Cronk, pers. comm.). More recent major contributions have been made by R.C. Palmer, H.J.M. Bowen and E.F. Warburg, curator of the Druce Herbarium from 1948 until his death in 1966.

Until 1994 the herbarium was arranged according to Dandy (1958). But over the last two summers, with the help of the herbarium manager, Serena Marner, I have rearranged the herbarium to conform to Kent's (1992) *List of Vascular Plants of the British Isles*. Only *Rubus, Rosa, Taraxacum, Hieracium* and *Pilosella* have escaped rearrangement. Kent's *List* differs greatly from Dandy's in sequence, nomenclature and taxonomy. Particularly valuable is its almost total agreement with Stace's (1991) *New flora of the British Isles*, our current standard flora. Kent's *List* demonstrates the skill of two of Oxford's greatest taxonomists concerned with the flora of the British Isles, with 35 of Druce's and 11 of Warburg's names accepted, compared to just 26 and 7 respectively given as synonyms.

Where Stace fully treats aliens not given by Kent, I have generally followed Stace, with the help of Ellis (1993), and emended the herbarium's copies of Kent's *List* accordingly. Aliens mentioned only briefly or not at all by Stace are arranged alphabetically at the end of their genus or family. Clement & Foster (1994) has been particularly useful for updating the names of such plants.

Not since Druce's (1928) *British plant list*, 2nd ed. (which includes far more aliens than does Dandy, 1958) has such standardisation of the taxonomy of all plants collected in the British Isles been possible. Rearranging the herbarium named after Druce has been extremely enjoyable, and is, I am sure, something of which he would have approved.

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Daniel Barker

IDC and Oxford University Herbaria

The following three historic collections within the Fielding-Druce Herbarium (OXF) were photographed on microfiche earlier this year to help overcome the problem of accessibility to the wider taxonomic community. The microfiche will shortly be available from IDC (Inter Documentation Company) Publishers of the Netherlands. Two of the collections have been described in considerable detail. 'The Dillenian Herbaria' 'an account of the Dillenian Collections in the Herbarium of the University of Oxford' was written by G. Claridge Druce, edited by S.H. Vines and published in 1907. Similarly, an account of the Morisonian Herbarium was published by S.H. Vines and G. Claridge Druce in 1914. The third collection, the Sibthorpian Herbarium, is indexed by reference to the *Flora Graeca Prodromus* by J. Sibthorp and J.E. Smith published in two volumes 1806-1813. A corresponding guide will accompany each microfiche collection. Although specimens from these historic herbaria are not available on loan, they are available for consultation within the Fielding-Druce Herbarium by prior arrangement.

The Morisonian Herbarium Robert Morison (1620-1683)

Robert Morison, a Scotsman born in Aberdeen, was the first Professor of Botany at the University of Oxford. Morison was appointed Physician to King Charles II in 1660, also receiving the title Professor of Botany. He was offered the Oxford chair in 1669. Many years earlier, in 1650, while living in France to escape the dangers of the Civil War in Britain, he had been appointed as one of the supervisors of the Duke of Orleans's garden at Blois. During his stay at Blois he read all the works of the great botanists of the time and their predecessors, including those of the Bauhins and Cesalpino, and evolved a system of classification for plants known as his *Sciagraphia*. He principally used differences in the fruit to group plants into the 'genera' of pre-Linnaean botany. Back in Oxford, he demonstrated this method in his publication of 1672, entitled *Plantarum Umbelliferum Distributio Nova*. This work is the first instance in western botanical literature of a systematic monograph of a group of plants. Morison planned a great work, the *Plantarum Historiae Universalis Oxoniensis*, using his system of classification and this was to be in three parts. The Morisonian Herbarium is a collection of plants which was made to illustrate his planned work and contains approximately 5200 specimens. Only one part, 'Pars secunda', was published in 1680 by Morison himself as he was killed a few years later in an accident in London. However his unfinished work was continued by skilled hands. A further part of *Plantarum*

Historiae Universalis Oxoniensis, 'Pars tertia', was completed and published in 1699 by Jacob Bobart (the younger), Keeper of the Botanic Garden at Oxford. This also contained descriptions of herbaceous plants. The remianing part, 'Pars prima', was to have covered trees and shrubs. All are represented in the herbarium which was organized by Bobart. The woody plants were arranged in accordance with a manuscript catalogue of Bobart's. The specimens come from many parts of the world, including Europe, Syria, India, South Africa, North America, the West Indies and from many contributors. Linnaeus examined many of the specimens in the herbarium during his stay in Oxford in 1736.

The Dillenian Herbaria

John Jacob Dillenius (1684-1747)

John Jacob Dillenius, born at Darmstadt in Germany, became the first Sherardian Professor of Botany at Oxford in 1734 after the death of William Sherard who endowed the professorship. Dillenius was a contemporary of both Ray (1627-1705) and Linnaeus (1707-1778) and his links with both of them and their works make his collections of considerable importance. Linnaeus visited Dillenius at Oxford in 1736 which led to a great friendship between the two botanists who kept up correspondence until the death of Dillenius.

There are three separate and distinct herbarium collections attributed to Dillenius.

The first of these are the specimens in the Herbarium of 'The Synopsis'. This collection contains mostly British plants gathered after the publication of the third edition of John Ray's *Synopsis Methodica Stirpium Britannicarum*, 1724. Dillenius edited this work although he was not acknowledged on the title page of the publication. Each specimen can be referred (by page number and paragraph) to corresponding entries in the third edition of Ray's *Synopsis*. Dillenius added many new species of cryptogams to the work. Numerous specimens were collected in 1726 as Dillenius journeyed around Wales and the west of England together with Littleton Brown and Samuel Brewer. It is thought that Dillenius made the collection with a view to the preparation of a fourth edition of the *Synopsis* which was never published. However the third edition was very well received and remained the textbook of British botany until the publication of Hudson's *Flora Anglica* in 1762. The work is constantly referred to by Linnaeus in his *Species Plantarum*.

The second of the collections of Dillenius are the specimens he used to illustrate his work, the *Hortus Elthamensis*, published in two volumes in 1732. The plants described and illustrated in this work and preserved in the collection had been grown at James Sherard's garden at Eltham in Kent, said to be 'superior in many respects to the King's garden at Paris'. James Sherard was the brother of William, friend and patron of Dillenius. The collection contains most succulent plants cultivated at that time, including an almost complete representation of the genus *Mesembryanthemum* as understood then, as well as a great variety of other exotic species. Several new genera were established by Dillenius in this work and many of these were later adopted by Linnaeus.

The third collection, and considered to be the most important, is that comprising the specimens of the '*Historia Muscorum*' which illustrate his book of that name published in 1741. This was the greatest achievement of Dillenius. In his day, the knowledge of lower cryptogams was rather rudimentary and Dillenius assisted in clearing up the confusion in classification presented by these plants. The collection includes all mosses known at the time. Linnaeus cited specimens from it frequently. The herbarium contains much type material, being fundamental to our knowledge of these lower plants.

The Sibthorpian Herbarium

John Sibthorp (1758-1796)

John Sibthorp was born in Oxford on 28 October 1758. Although he studied medicine at Edinburgh, he took his medical degree at Oxford. He developed a keen interest in botany and never practised as a physician. In 1783 he became the third Sherardian Professor of Botany in the University. In the following year, Sibthorp visited Göttingen where he started planning a tour of Greece. He then proceeded to Vienna to study the manuscript of Dioscorides which further inspired his interest in Greek plants. It was in Vienna that Professor Jacquin introduced Sibthorp to Ferdinand Bauer, a talented young artist whom he promptly employed to accompany him on his planned tour to draw the plants he would be collecting and describing for a Flora of Greece. Sibthorp was indeed fortunate to have met Ferdinand Bauer as the latter is now considered to be one of the greatest botanical artists of all time. The two tours made by John Sibthorp in 1786-1787 and in 1794-1795 opened the gateway to the botanical exploration of Greece and the rest of the eastern Mediterranean region. Almost 2500 herbarium specimens were collected and these now comprise the Sibthorpian Herbarium, including approximately 600 type specimens subsequently described in the *Flora Graeca* of J. Sibthorp and J.E. Smith (1806-1840). Unfortunately Sibthorp died soon after returning from his second expedition when he was only 38 years old. However he had made a bequest to the University in his Will and the resulting funds were sufficient to enable the Flora to be published. Its completion took almost fifty years, finally being published in ten folio volumes under the editorship firstly of Sir James Edward Smith, then Robert Brown and finally John Lindley. It has been described as the most magnificent and the most costly Flora ever produced. The collection is the first in which the richness and diversity of the flora of Greece is recorded and preserved forming an important basis for modern taxonomic study.

Serena K. Marner

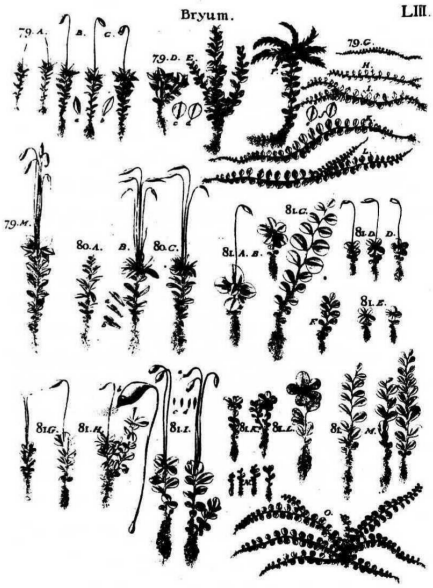


Plate LIII from J.J. Dillenius *Historia Muscorum* 1741 (from the Sherard Collection) showing drawings of the lectotype of *Mnium punctatum* Hedw. No. 81 from OXF. Photograph courtesy of the Library, Department of Plant Sciences.

Oxford University Herbaria on microfiche

Morisonian Herbarium:
Number of fiches: 226 Price: 4,950 Dutch guilders

Dillenian Herbarium:
Number of fiches: 118 Price: 2,596 Dutch guilders

Sibthorpian Herbarium:
Number of fiches: 108 Price: 2,376 Dutch guilders

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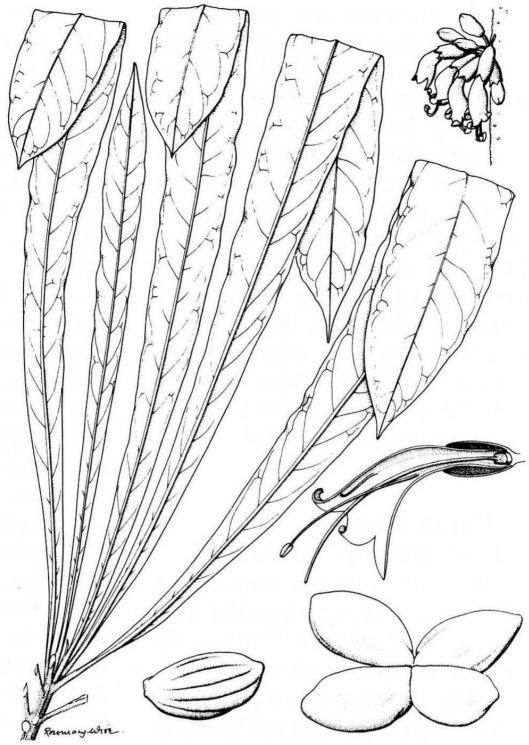


Illustration: *Oxera vanuatuensis* is a new species from Vanuata, and was collected for the first time in 1992. So far it is only known in cultivation. The local people use the leaf of this species to overcome illness caused by black magic (P. Curry pers. com.).

Daubeny (FHO)

Accessions and policy
Approximately 600 specimens were added to the FHO collections during the year October 1994 to September 1995. They included Duncan Macqueen's collection of *Calliandra* (Leguminosae: Mimosoideae) and other legumes from Central America, as well as a variety of smaller additions to Meliaceae. The FHO collection continues to outgrow the available cupboard space due to the addition of new material and incorporation of the backlog built up over many years. Until refurbishment occurs, both the carpological and spirit collections will continue to be housed inadequately, having outgrown their original storage space. Although we very much appreciate the offer of gift material, we are having to exert a selective policy for incoming accessions. For the time being we are not able to accept general collections or large quantities of material. Gifts for determination of taxa on which there is active research at Oxford will continue to be welcome however.

Loans
Approximately 600 specimens were borrowed during the year, mainly additional material for ongoing research including Acanthaceae for Karen Sidwell, *Pinus* for Aljos Farjon and Verbenaceae for Rogier de Kok and David Mabberley. Over the same period approximately 7700 specimens were returned or transferred to other herbaria and 111 specimens sent on loan.

Distribution of gifts
Over 1500 specimens were sent to other herbaria as gifts, mainly Central American Pines and the White and Dowsett-Lemaire Malawian collections (see below).

Items of interest
Malawi collections
Ecological voucher collections made by the late Dr. Frank White and Dr. Françoise Dowsett-Lemaire in Malawi during the 1980s are being transferred to the herbarium at the Jardin Botanique National de Belgique (BR) due to difficulties in accommodating such collections in FHO. To date, all Dr. Dowsett-Lemaire's collections and Dr. White's 1984 collection have been sent. His 1981 & 1987 collections will follow after a further visit of Dr. Dowsett-Lemaire to Oxford this winter.

Central American Pines
The study of the Central American pines by Mr. Aljos Farjon is drawing to a close. The vast amount of pine material accumulated for this work has been reduced to a core collection which is now housed in FHO and represents the full range of species described in the forthcoming publication. This is in addition to material from Central America already accommodated in the OXF collections. We have had sufficient material to compile eight other partial sets of specimens, enabling us to distribute four larger sets to K, NY, IBUG and EAP and four smaller ones to U, B, L and W. These are not duplicate sets but each covers the major species found in the area, as available material allowed.

Ebenaceae
Since the death of Dr. Frank White in September 1994 all his loan material, mainly Meliaceae and Ebenaceae, has been returned to the respective herbaria except for a very small residue which will be despatched in the near future. As there is nobody at Oxford now studying the Ebenaceae, we are unable to accept any further loans or gifts for determination. The Ebenaceae collection in FHO is gradually being curated in order to be a resource for future studies.

Alison Strugnell

Systematics of *Oxera* and *Faradaya* (*Labiatae*)

Oxera and *Faradaya* are two closely related genera of Malesian and south-west Pacific *Labiatae*. The ± 25 species of the genus *Oxera* (endemic to New Caledonia and Vanuatu), exhibit a great variety in floral morphology. *Oxera* was established in 1824 by de la Billardière based on one species, *Oxera pulchella*. In 1863, Vieillard wrote the first revision of the genus. He recognised eleven species, and divided the genus into three sections. The second revision was by Dubard (1906). He added 13 new taxa in a total of 20 taxa he accepted. At the infrageneric level, he recognised only two of Vieillard's three sections. Both revisions were based on a very limited number of collections, and are therefore now completely outdated. In the present treatment five informal divisions are accepted within the genus. These divisions are based on several characters, mainly of the calyx, corolla and fruit.

Certain flower types can be distinguished within *Oxera*. One group of species has long, narrowly tubular, sometimes scented white flowers, while other species have reddish fleshy scentless flowers, or white to yellow not fleshy open to tubular scentless flowers. This range of flower types suggests that different groups within *Oxera* have different pollinators. During fieldwork in New Caledonia in the autumn of 1994 it was observed that species with narrowly tubular flowers were visited by Lepidoptera, while species with more open flowers where visited by birds (*Meliphagidae*). Bees have also been reported as possible pollinators for *Oxera* (Veillon pers. com. & Suprin pers. com.).

The genus *Faradaya* comprises about six species, and can be divided in to two morphologically rather homogeneous groups. *Faradaya* has a widespread distribution from Tonga via New Guinea to Queensland and North Borneo. The genus was described by F. von Mueller in 1865, and named in honour of Michael Faraday (1791-1867), the world-famous English chemist and physicist. The description was based on one species, *Faradaya splendida* from Queensland. No complete revision of *Faradaya* has ever been made. Lam (1919), in his treatment of the *Verbenaceae* of the Malayan Archipelago, recognises ten species. The Australian species were revised by Munir (1987) and he accepts only two species for that country. Smith & Darwin (1991) recognised five species in their treatment for the Fiji Islands, of which two were newly described. In the course of my work several new facts have come to light and these shed new light on some of their conclusions.

Both genera were placed in the *Bignoniaceae* on discovery. Reichenbach (in 1828) was the first to place the genus *Oxera* in the *Verbenaceae*. Seemann added the genus *Faradaya* to the family in 1865, the year it was discovered. Bentham (1870 & 1876) divided the *Verbenaceae* into three different tribes. *Faradaya* and *Oxera* were placed in the tribe *Viticeae* subtribe *Oxerineae*. After a cladistic analysis of floral, fruit and pollen characters of the *Verbenaceae* and *Labiatae*, both genera were transferred from the *Verbenaceae* to the *Labiatae* (Cantino 1992 a & 1992 b). Recent research at Oxford on *Clerodendrum* s.l., and a cladistic analysis of the group based on chloroplast DNA restriction site data and nuclear ribosomal DNA sequence data, showed that the genera *Oxera* and *Faradaya* comprise a monophyletic group within *Clerodendrum* s.l. (Steane 1995).

The first aim of this research is to produce a monographic treatment of *Oxera* and *Faradaya*. It is hoped that both revisions will be ready in April 1996. The second aim is to do a cladistic analysis of *Oxera* and *Faradaya*, using macromorphological and molecular characters. I hope to get some insight into the following questions: Do *Oxera* and *Faradaya* form a monophyletic group? Is the genus *Oxera* monophyletic? Is the genus *Faradaya* monophyletic? Are the new divisions in *Oxera* and *Faradaya*, monophyletic groups? Are different clades within *Oxera* and *Faradaya* visited by different kind of pollinators and, if so, are there any derived characters within these clades, which could have evolved in response to these different pollinators?

This research is set in the EC Human Capital and Mobility Cooperative Network in the Botanical Diversity of the Indo-Pacific Region. The cooperation between people of different nodes of this network has been of great value. A number of small projects arising from my work have been set up with people working at Kew and Paris.

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Rogier de Kok

The Oxford Forestry Institute's Wood Collection (Xylarium)

The Index Xylariorum (1988) lists over 130 wood collections worldwide, there being seven in the U.K. Many specialize in holding only species native to their country whilst others with colonial pasts have concentrated on tropical colonies' timber trees. Others collect almost any woody sample which holds a valid herbarium voucher. Some are maintained only as part of a greater museum collection while others may be part of a botanical or forestry-centred institution. Holdings can be purely wood samples and the related references, or can encompass identification data bases, slide collections and end-use information. The total number of specimens held by individual collections ranges from 150 (Alcobaca, Portugal) to 98000 (Madison, U.S.A.).

The Oxford collection was officially founded in 1924 but many samples go back much earlier than this. It began with the collection and examination of wood samples of commercial interest, mostly from tropical countries in the British Commonwealth. Only the Building Research Establishment (formerly the Princes Risborough Laboratory) and The Royal Botanic Gardens at Kew hold larger collections in total number of specimens and vouchered herbarium references in the U.K.

One of its past Curators was Dr. L Chalk, Reader in wood anatomy, who together with C.R. Metcalfe produced *Anatomy of the Dicotyledons* (1950) which is still considered the classic treatise.

At present the Oxford collection consists of:

a) The collection of wood samples which numbers approximately 24860 specimens. This represents around 8700 species, 2350 genera and 200 families. It covers stem xylem from both dicotyledons and Coniferae, together with representatives of some monocotyledons and a small number of root specimens.

Important collections include Breteler (Cameroun); Cooper (Panamá, Liberia); Cuatrecasas (Colombia); Desch (Malaysia); Dorr (Madagascar); Fanshawe (Guyana); Forest Department (Burma); Gamble (India); Hughes & Lewis (Mexico); Krukoff (Brazil, Sumatra); Molfino (Argentina); Walker (Solomon Islands); Vigne (Ghana); Wood (Sabah).

Following recent gales we have received several well documented specimens from wind-blown trees in Kew Gardens.

b) Card references detailing the specimen's collector, origins, local names (if known) and other collection and herbarium cross references. Over 48% of the specimens have herbarium vouchers held by the Daubeny Herbarium, Oxford or other herbaria in the world.

c) A card key collection consisting of punch-edged cards recording over 80 features (the majority being microscopic anatomical features). This is subdivided into geographic and dominant anatomical feature groups to simplify identification searches. Most genera in the collection are covered by this system. Six hundred of the world's major commercial timbers are now on a computer data base, adapted and developed from the Oxford/Risborough key and the CSIRO key.

d) A slide collection representing approximately 6000 species in the wood collection. Each slide consists of three sections (transverse, radial & tangential) stained in safranin.

These systems are largely used for:

a) Taxonomic research by staff, research students and visiting scientists.

b) Identification of unknown samples submitted by individuals, private companies, trading standards offices and archaeologists.

c) Investigations of damage by roots to buildings and engineering structures.

Frequently groups of visitors and individuals are shown around the collection which can result in future exchanges of material. The majority of new acquisitions, however, is usually through exchanges requested by other similar institutions. New specimens now tend generally to be more of a shrubby nature, and could perhaps be loosely termed as multi-purpose or of agro-forestry interest. Such shrubs and small trees were not of great interest to the earlier forester collecting material of largely commercial interest and were consequently poorly represented in this collection. Even monocotyledons such as bamboo can produce large amounts of strong multi-purpose woody material which is of great importance to developing countries and a world "environmentally aware" of major tree losses.

Wood anatomical research projects currently underway include:

* Continued research into the age and growth rate of some African *Acacia* species, in order to develop a better understanding of their yield estimates and management. See: Gourlay, 1995; Gourlay & Barnes, 1994; Gourlay & Kanowski, 1991 and Gourlay *et al*, in press (ODA supported).
* Wood evaluation of *Leucaena* species from a trial of 39 species/provenances in Comayagua, Honduras (ODA supported).
* Examination of wood production in Cork Oak (*Quercus suber*) from Portugal after the extraction of cork (EU supported).

The principal future financial requirement of the collection is the updating of both the reference card and the identification systems on to computer data bases. This is desirable to increase the efficiency and availability of the collection. It could also be linked to an existing PROSPECT secondary species end-use data base already compiled in the department.

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Ian D. Gourlay (Acting Curator, Wood Collection)

The Oxford Botanical Museum and its fate



The Department of Botany in 1888

In 1887 Selmar Schöenland resigned as Curator of the Fielding Herbarium and the following year he published an account of the 'Botanical Laboratory at Oxford' (Bot. Gaz. Sept. 1888: 221-4). At that time, it was still at the Botanic Garden, the central part of the building on the right of the Danby Gate as you enter the Garden, containing the lecture room, the Botanical Museum and a chemical laboratory (the Daubeny Laboratory, which belonged to Magdalen College). The Fielding Herbarium was separate from the University's other herbarium collections housed in the Museum and its acquisition had been achieved through the influence and advice of Charles Giles Bridle Daubeny, professor of Botany since 1834.

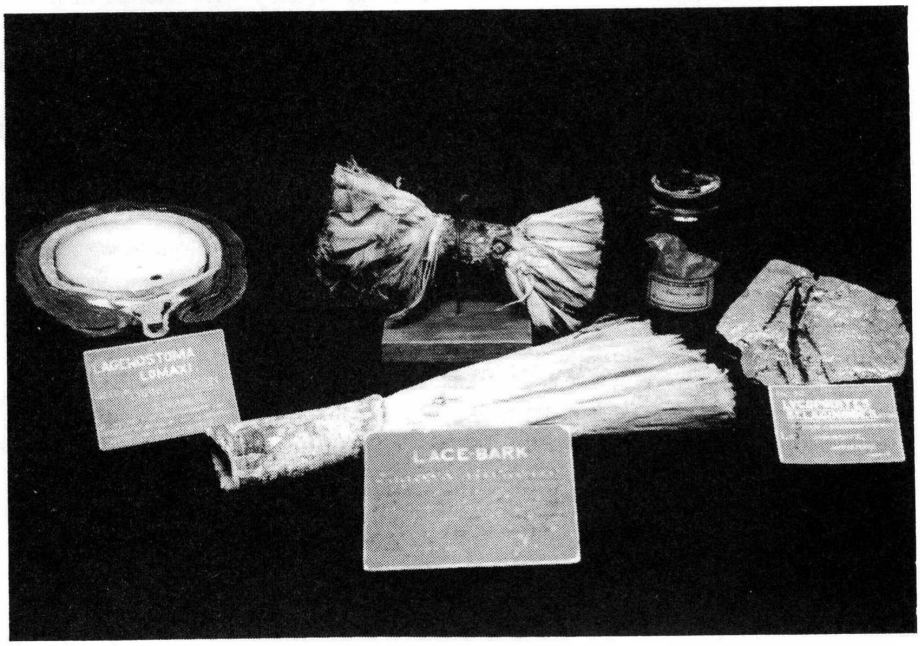
Indeed the Museum too had been planned by Daubeny and was on the first floor containing 'a large collection of models and specimens (both in spirit and dry)...chiefly to serve as a place where the materials necessary for showing in lectures are kept, not as a place for the instruction of the public'. Daubeny had moved his empire from the old Ashmolean Museum (now the Museum of the History of Science) in Broad Street in 1848, paying for the new buildings himself. The Museum was known as the Sherard Room and was approached by a ladder; the centre of the room was filled with table-cases full of museum articles.

According to Daubeny's catalogue (see Sherard MSS 23) there were fruits, seeds, stems and roots, dried and in spirit or brine, of a fabulously broad range of plant material as well as wax models, particularly of tropical fruits such as soursops, bananas, cocoa, and mango. There were plant products such as opium and morphine, gamboge, quinine, madder, manna, strychnine, angostura, orris, saffron, vanilla, dragon's blood, gums, tabashir and balsams as well as oddities such as 'Specimen of the disease called Finger and Toes in Parsneps'; and sections of oak including a six-hundred year-old one, the Founder's Oak (right up to which William of Waynflete directed his College (Magdalen) to be built) and a snuff-box made from the oak in York Minster etc. There was Bishop Lipscomb(e)'s lichen herbarium (all but a 'book' herbarium now lost) and named collections of bryophytes and algae, models of German fungi made by Buchner and wax ones of Italian species made in Firenze. There was even John Sibthorp's shell collection, besides fossils, woods including Sibthorp's own collection....In 1860 a collection of medicinal barks bought from M.C. Cooke of Trinity School, Lambeth, was added; in 1863 came woods from 'the Salem and Hurroor Jungles, East Indies' and Australian ones from the International Exhibition of 1862. Later were added the German models of plant structure used in demonstrations, some of them (e.g. Bryophyta) in wax.

Some of these, complete with their original dark labels inscribed with white ink, are still in the Department and include lacebark (*Lagetta lagetto*, Thymelaeaceae, used as a textile in West Indies) and a number of fossils, among them a cycad, possibly 'Zamia from the Isle of Portland'. But these are pathetic fragments of the collection which was intended, in a smaller way, to be like the Museum at Kew, that now housed in the Banks Building there. What happened?

First of all the herbarium collections were moved to the library building (left of the Danby Gate as you enter) when the professor ceased to live on the premises and the Museum could be extended in bays across the floor, the room then being reached by a spiral staircase and lit by windows as opposed to just the original skylights. Decayed material was removed and the whole arranged according to Natural Orders as had been begun in 1859, but under Professor Vines the collection deteriorated further, though the collection from Cooper's Hill (the School of Forestry near Windsor) was added. During building alterations associated with the accommodation of forestry students, the collections were greatly damaged. In 1902 some of the display cases were moved to the lecture-room and the only catalogue (Sherard MSS 23) of the Museum (as it was in 1869) was saved from Vines's 'rejectamenta' by A.H. Church (the most gifted botanist in the Department at the time and who was at odds with Vines as he had been with the dilettante-professor, Keeble, before him), who had rearranged the collections in 1897, so as to be 'readily accessible for purposes of study'.

The Department's Annual Reports show that when the contents were 'almost entirely re-arranged and thoroughly overhauled' in 1902, a collection of Indian economic products from the Indian Institute in Broad Street was incorporated. Botanical diagrams were presented in 1905 and others (fungi)



purchased in 1906, yet others the following year. Wax models of fossil seeds prepared by H.E. Smedley were added in 1908. In 1913 'an important collection of Gymnospermous cones, including some 250 species' was purchased. Material continued to be presented and, by 1921, the wages of a Museum Attendant were estimated at £200 per annum (the Sherardian Professor got £700), according to a Memorandum put to the University Commission (another one!) in September 1920. But, by 1932, it was argued that space for a Museum was desperately needed 'the old Museum having been dismantled several years ago' and by the 1940s the material was still crowded into a corridor. John (later Professor and Sir John) Burnett's first job in the Department was to attend to the collections which were examined at this time by the great American ethnobotanist Richard Schultes who found a great deal of interest in them.

With the move of the department to South Parks Road in the Long Vacation of 1950, the Museum was allotted the space now occupied as the tearoom, while the large wall diagrams used in lectures were placed in a Diagram Room adjacent to the Large Lecture Theatre. The Sherard Collection and other classic herbaria were housed once more in the Museum, which lay across the corridor from the Fielding and Druce Collections. The Daubeny Herbarium (FHO) belonged to the then Department of Forestry and was called the Forestry Botany Herbarium, but was housed on the first floor directly above the Fielding-Druce Herbarium, where Fielding's Herbarium was joined by Druce's Herbarium, formerly kept in Druce's house in north Oxford (with the music collections of the Pitt Rivers Museum and the Vice-Chancellor's car). Glass-fronted cases with drawers beneath were around the new Museum with free-standing cases in the middle; the fossils were outside the door. Sean Turner's duties included the setting up of the demonstrations including the models, gymnosperm material and plant-fossils as well as the diagrams, and she tells how well they were used in teaching. She also had the task of topping up the spirit collections; a catalogue in a red leather-bound book was kept in Peter Turner's Room. Sadly this is lost but it seems that nothing significant was added to the Museum after the War.

Then arrived the zealous new Sherardian Professor C.D. Darlington. The design of the new building did not please him at all and in 1956 he made 'plans to relieve the general congestion of the department' now named the 'Botany School': the Museum cases were banished to the corridors (again) to make a lecture-room of the Museum; the Sherardian Collections of early books and manuscripts were separated from the herbaria to which they relate and were 'offered' to the Bodleian, certain other books had their library stamps cancelled ready for sale, while an attack was mounted on the Forest Herbarium for its ejection from the building. Later the Diagram Room became part of a new Inquiry Office (now the Blackman Seminar Room); the models were offered to Magdalen College School (none there today), diagrams sold or given away. Meantime Darlington set up the Genetic Garden at No. 10 South Parks Road, later to be moved to the University Parks when the Zoology/Psychology Building was being constructed. Gifts of living plant material for it were received from many institutions in Europe and America. He had models of cell structure made for demonstrations and these were constructed by Ken Hicks and Peter Turner.

The Genetic Garden and Darlington's cell models have already gone. *O Tempora, O Mores*! The Sherard books and manuscripts are rightly returned to the Department where they belong, are undergoing conservation and are housed appropriately. With the successful Green Plants course and a very large whole-plant component in the new Biology Honour School to begin in 1996, the Museum models with their moving parts, the diagrams and the economic botany material from the Museum would have been invaluable. They are all much sought after collectors' items today. Some of the rest survives because it was used in the Tropical Crops course in the former Honour School of Agricultural and Forest Sciences (DJM), the fossils possibly because the case they were in was used as the coffee-stand outside the tearoom for many years. Some of the larger spirit collections relabelled 'Department of Botany' are in the Church Laboratory and perhaps the most appropriate resting-place for the other survivors of the Museum would be that room, as Church was the man with the vision to save what he could of the collections a century ago.

I am greatly indebted to Sean and Peter Turner for their memories of the old Department and to Anne-Marie Townsend for extracting germane material from the Library's collection of reprints.

David Mabberley

The Department of Plant Sciences, Royal Botanic Gardens, Kew and the Linnean Society of London announce their joint meeting:

Frank White Memorial Symposium on **Floral Diversity in Africa and Madagascar**

Thursday 26th and Friday 27th September 1996 at the Department of Plant Sciences, University of Oxford

Introduction: Professor Sir G T Prance

Topics will include: Chorology, Vegetation Structure and Diversity, Plant Adaptation, Animal Interactions, Taxonomic Complexities and Application of Botanical Information.

Speakers will include: I Friis (Copenhagen), P Morat (Paris), M J A Werger (Utrecht), P Lowry (Missouri), R M Polhill (Kew), J M Lock (Kew), F Dowsett-Lemaire (Belgium), C E G Tutin (Gabon), Q C B Cronk (Edinburgh), M H P Jebb (Dublin), D Harris (Oxford) and D F Cutler (Kew).

There will be poster presentations, paintings by Rosemary Wise on the endemic plants of the Seychelles, and computerised data base and mapping demonstrations. There will be personal tributes to Frank White on the afternoon of 26th September. Caroline Pannell will speak on Frank White's scientific achievements. There will be a dinner on Thursday 26th September at Wolfson College.

A memorial volume based on the proceedings is to be published by Kew, and will be available at a prepublication price with registration. The registration fee will be £30 (£15 for students) with lunches in colleges. Accommodation £28.

Organization: G T Prance, C M Pannell, C R Huxley, D F Cutler.

To register your interest in this meeting please write to:

Dr Camilla R Huxley-Lambrick, Picketts Heath, Ridgeway, Boars Hill, Oxford, OX1 5EZ, UK or telephone 01865 735161