

## The Wood Collections at Kew: Current Status and Activity (Part II of II)

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In the first part of this article we explored the 19th century origins of Kew's Museum of Economic Botany, and the development of its wood collections in the era of empire. Here we look at the more recent history and current-day use of wood collections at the Royal Botanic Gardens, Kew.

### The start of wood anatomy at Kew

In the 19th century the main use of Kew's wood collection was for display and teaching. This was to change with the arrival of C.R. Metcalfe as a member of staff in 1930. Metcalfe started the collection of plant anatomy slides (thin sections) in the Jodrell Laboratory that now numbers more than 100,000, and used the wood and slide collections as the basis of a major survey of vegetative anatomy, including wood, *Anatomy of the Dicotyledons* (Metcalfe & Chalk 1950; second edition 1979) and *Anatomy of the Monocotyledons* (Metcalfe 1960). Metcalfe initially met resistance from



The slide collection housed in fire-proof cabinets at the Jodrell Laboratory.

museum staff who were reluctant to see corners cut off wood specimens but they soon saw the advantages in terms of scientific progress. The wood collection is still often sampled for the preparation of wood slides, sometimes with negotiations as to how

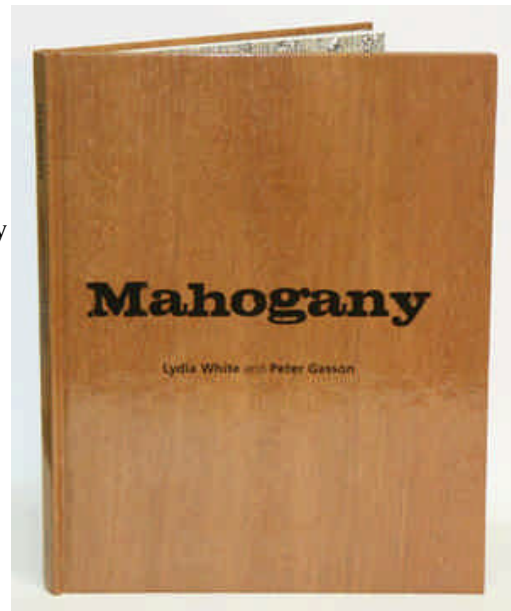
a historic label or annotation can best be preserved.

This active period in the anatomy laboratory saw extensive gifts of wood specimens and slides from other collections including the Forest departments of Malaysia, Australia, Burma and Borneo, and wood collections in Oxford, the Forest Products Research Laboratory (FPRL) at Princes Risborough, the Smithsonian, Leiden, and the Forest Products Laboratory, Madison. However, statistical analysis has shown relatively little overlap between Kew and other collections. Metcalfe's work was continued by his successors, Hazel Wilkinson (joined Kew 1973), Mary Gregory (1961), David Cutler (1962), Paula Ruddall (1979) and Peter Gasson (1979). Furthermore, many anatomical projects and publications, including parts of *Anatomy of the Dicotyledons*, have been undertaken by visiting researchers to the laboratory, mostly from overseas.

### Collections development

In 2013 the wood collection numbered 34,306 specimens. The collection continues to grow by an average of 500 specimens each year. Many acquisitions come through personal contacts, for example with distinguished wood anatomists such as Ken Ogata in Japan (woods of Brunei) and Luis Garcia Esteban and his colleagues in Madrid (woods of the Canary Islands). Some Kew botanists, particularly those working in Brazil, and the legume (Fabaceae) team, are assiduous collectors. Some wood collections come from institutions that are closing, as in the case of a Forensic Science Service laboratory in 2012, or shifting emphasis, as with 2500 wood specimens received from London's Natural History Museum (NHM) in 1983. The NHM no longer has a

xylarium, all the specimens having been passed on to Kew or to Liverpool Museums.



A recent book by Lydia White and Peter Gasson.

Kew staff are very aware that many private collections of wood have been assembled to high standards; recent gifts include Sri Lankan woods collected by a British tea planter, and world woods collected by the wood technologist L. G. Booth for his personal pleasure.

Most donations lead to several new species being added, but it is equally important to have multiple specimens for each species, in order to study within-species variation. Thus, additional material of even common species is useful. Most field collections today are vouchered by herbarium specimens, but older unvouchered specimens were usually collected by expert botanists or foresters and the majority are reliably named. Two major storms, the "Great Storm" at Kew in October 1987, and Hurricane Andrew at Fairchild Tropical Botanic Garden in August 1992, were unexpected sources of samples of well-curved botanic garden trees.

## Curation

In the 1980s the collections of the Museum were moved to a purpose-built research facility, the Sir Joseph Banks Building, and renamed as the Economic Botany Collection. The new building offers excellent conditions for wood, near dust-free, with a temperature of 14°C/57°F (cool because of pest problems in other parts of the collection) and relative humidity of 50%. Following standard museum practice, all wood specimens are frozen at -30°C/-22°F before entering the collection, to eradicate any insect pests. A single member of staff, Mark Nesbitt, looks after the overall 85,000 specimens that make up the Economic Botany Collection, which encompasses many plant products including baskets, textiles, medicines and dyes. Volunteers play a vital role in cataloguing and shelving new accessions.



Peter Gasson in the wood collection in the Sir Joseph Banks building.

## Research

The continuing growth and good health of the wood collection is closely linked to Kew's active programme of wood anatomy research. Peter Gasson's research centres on the legume family (Fabaceae), and on a wide range of applied work. Much of this is concerned with the identification of CITES-listed timbers in international trade, such as mahogany (*Swietenia* species), ramin (*Gonystylus* spp.) and rosewoods (*Dalbergia* spp.).

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Many visitors to the Jodrell Laboratory use the wood and slide collections, on subjects ranging from the environment of the dodo in Mauritius to fossil palms, and visits to Kew often lead to joint-authored papers. Wood samples and microscope slides are often exchanged with other institutions. There is much emphasis on training, through an annual short course on wood identification each February, teaching for Kew and other institutions, training of customs officers, and the hosting of academic visitors. Kew maintains close relations with other wood collections and the International Association of Wood Anatomists, and was a major contributor of digitised slides to the wood identification web site Inside Wood. Kew has compiled and hosts the latest revision of *Index Xylariorum (IX4)*, and has contributed to the two PROTA (*Plant Resources of Tropical Africa*) volumes on timbers.

The wood collection has also proved a valuable source of samples for biochemists, and undoubtedly has potential for other techniques such as stable isotope analysis for pinpointing the geographical location of the original tree. It is also increasingly used by researchers in the arts and humanities; for example, Kew woods and objects were an important resource for Adam Bowett's book (2012) *Woods in British Furniture-making 1400 – 1900*, as well as Caroline Cornish's PhD Thesis (2012) *Curating science in an age of*



Microtoming wood in the plant anatomy room, Jodrell Laboratory.

*empire: Kew's Museum of Economic Botany*. Wood samples are regularly lent for display in exhibitions.

## The future

The wood collection at Kew is one of a handful of 19th century collections still growing and actively used by researchers. Two sources of acquisitions will surely continue to be important in future: donations of woods from individuals and other institutions who appreciate the safekeeping of specimens and easy access to collections assured at Kew, and wood specimens from field expeditions by Kew botanists. While Kew's work in Brazil is well represented, its fieldwork in tropical Africa and Madagascar remains under-represented.

## Find out more

Information about the Economic Botany Collection: <http://www.kew.org/collections/ecbot/>

Online database: <http://apps.kew.org/ecbot/search>

Index Xylariorum: <http://www.kew.org/collections/wood-index/>

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