

The Queensland Government Xylaria

History and use

Gaz Hopewell

Forest Products Innovations, Salisbury



Xylaria

Xylaria are collections of wood samples

- *xylos* (Greek) wood
- *arium* (Latin) separate place

Singular form- *xylorium*

Scientist- *xylologist*



Xylaria

The key resource for wood identification, where wood has been separated from other botanical structures and there is a need to find out the provenance of an object.



Wooden sewer tunnel

Xylaria

- 1,000,000 samples in 164 xylaria globally (56 countries)
- 1931: the International Association of Wood Anatomists
IAWA (journal published quarterly)



Xylaria

Often supported by botanical vouchers and to a lesser extent stained sections mounted on glass slides for microanalysis



Xylaria

– Largest

- National Herbarium of the Netherlands, Leiden
 - 105,000 samples
 - amalgamation of three collections: 1913, 1946, 1955
- USDA Forest Products Lab Wisconsin
 - 103,000 samples
 - amalgamation of three collections: 1896, 1905, 1911
 - Ms Eloise Gerry, the first female scientist in the US Forest Service.

– Oldest

- St Petersburg Botanical Museum
- founded 1823, 14,000 samples and 1,000 slides

Australia

- 12 xylaria (113,691 samples).
- 11% of the world's xylaria specimens.

Xylarium	Date of origin	Size
CSIRO Forest Products Clayton Melbourne, Victoria	1929	47,720
NSW Herbarium, Royal Botanic Gardens, Sydney	1881	30,000
DAF, Forest Product Innovations, Salisbury, Qld.	1922	12,633
ANU Fenner School, Canberra, ACT	1926	8,400
CSIRO Australian National Herbarium, Canberra, ACT	1954	5,000
Woods and Forests, Adelaide South Australia	1900	4,000
Qld Herbarium, Mt Coo-tha, Brisbane, Qld.	1880	3,000
Museum Victoria, Melbourne, Victoria	1885	1,035
University of Melbourne, Creswick, Victoria	1930	708
Forest Products Commission, Western Australia	1916	700
Northern Territory	1960	404
Powerhouse Museum, Sydney, NSW	1880s	91

Queensland

- two xylaria comprising 15,633 samples.
- 13.7% of Australia's xylaria specimens.
- DAF holds 80% of the Qld specimens.

Xylarium	Date of origin	Size
CSIRO Forest Products Clayton Melbourne, Victoria	1929	47,720
NSW Herbarium, Royal Botanic Gardens, Sydney	1881	30,000
DAF, Forest Product Innovations, Salisbury, Qld.	1922	12,633
ANU Fenner School, Canberra, ACT	1926	8,400
Qld Herbarium, Mt Cootha, Brisbane, Qld.	1880	3,000
Museum Victoria, Melbourne, Victoria	1885	1,035
Woods and Forests, Adelaide South Australia	1900	4,000
CSIRO Australian National Herbarium, Canberra, ACT	1954	5,000
University of Melbourne, Creswick, Victoria	1930	708
Northern Territory	1960	404
Powerhouse Museum, Sydney, NSW	1880s	91
Forest Products Commission, Western Australia	1916	700

Qld Herbarium xylaria

Australia's oldest xylarium

- 1880
- 3,000 specimens
- Specialising in:
 - PNG (1,100 from the 1940s)
 - NQ (1,300 from Dr P Forster 1996)



DAF xylaria- four collections

DAF collection-

- Swain appointed as A/Director of Forests
- Using wood samples left on his desk by outgoing NW Jolly he devised a system of anatomically classifying wood-
 - Universal Wood Index (250 species)
- Established the Forest Products Laboratory, first of its kind in Australia
 - Suitability of timbers for specific purposes
 - Published *The timber and forest products of Qld* (200 species; 1928)
- Distinct forestry collection since 1922
- Dept. of Forestry, Qld Forest Service, QFRI, DPI, DPI&F, DEEDI, DAFF.
- DAF AgriScience Queensland, Horticulture & Forestry Science



DAF xylaria

12,633 specimens, 3rd largest in Australia; 9,061 Queensland samples

- Pettigrew Collection- remnants of the original sample boards provided to the Government Botanist FM Bailey from W. Pettigrew - Brisbane's first commercial sawmiller (1853)- in 1899.
- W. Pettigrew read a paper 'The habitat and peculiarities of some of our timbers'
- Before the Qld Philosophical Society in the Brisbane Museum on 2nd September 1877.



DAF xylaria

The FM Bailey collection two sets @ 382 samples



DAF xylaria

- CJJ Watson Collections
- representing trees that attain 30 cm diameter ~ 'commercial' timbers.
 - genus-species: 1,079
 - family-genus-species: 7,218



DAF xylaria

- Australian States' xylaria (478 samples)
- International xylaria (3,158)



DAF xylaria

- Stained microscope slides (4,703 slides, 108 families)
- 1934 – 1977
- Mostly 1940-1960
- High quality sections
- Approx. 300 per drawer



Primary use- wood identification

Wood identification is a dying profession, yet offers a valuable tool to a wide range of scientific disciplines and fields of humanities.

- anthropology, archaeology
- palaeobotany
- art history (frames, antiques, sculptures)
- forensics
- quarantine, cargo integrity

Material for use of future generations of natural scientists, technologists, archaeologists and historians.



Wood identification

Qld Government consultancy rates \$210.

Last of its kind offered by a public institution

Several retired wood technologists offering consultancy service.

Anatomical features, density, burning splint, origin

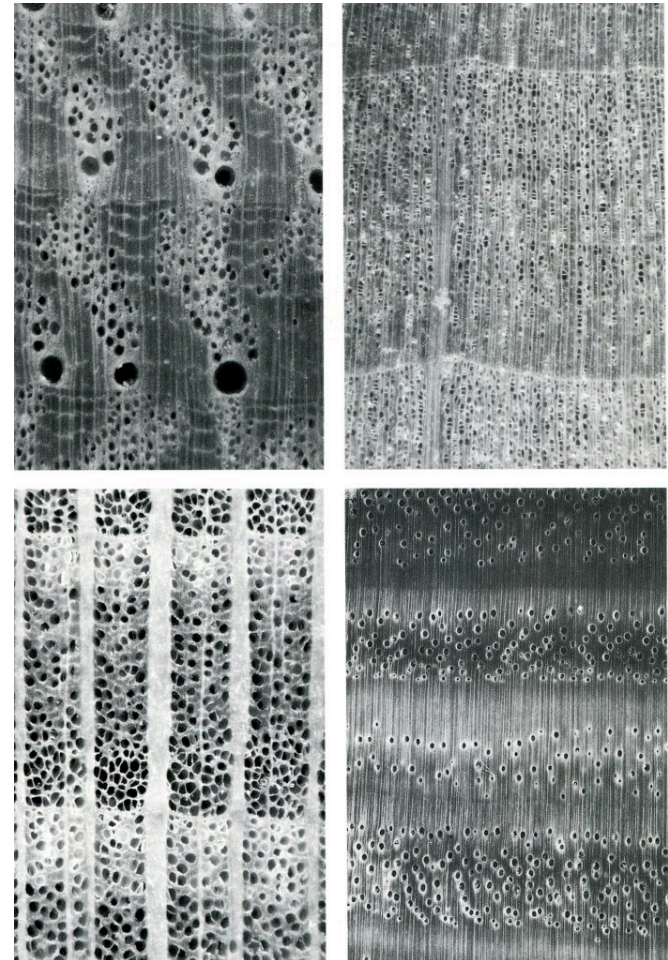
Micro-

transmitted and reflective light
microtome sections rarely used

Macro-

razor knife and hand lens (10X)
key (cards, computer, online)

Xylarium reference samples and literature



Wood identification

Freemasons Grand Lodge

Georgetown Lodge

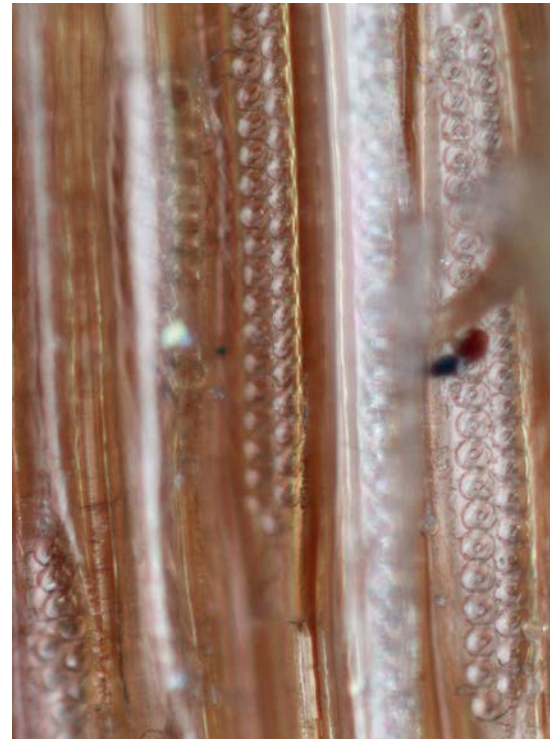
Salvation Army Riverview Homestead

Roma Street Station

Whitty Building

Wickham Terrace Tower Mill

Petrie Barracks



Wood identification

Cutty Sark

Maheno (Fraser Island
1935)

Phantom galleons

Cato (Wreck Reef 1803)



Wood identification



Forensic evidence, client: Queensland Police Service, Ballistics Unit

Wood identification



Heritage listed timber bridge, client: Beaudesert Regional Council

Wood identification



Timber water pipe, client: Museum of Brisbane

Wood identification



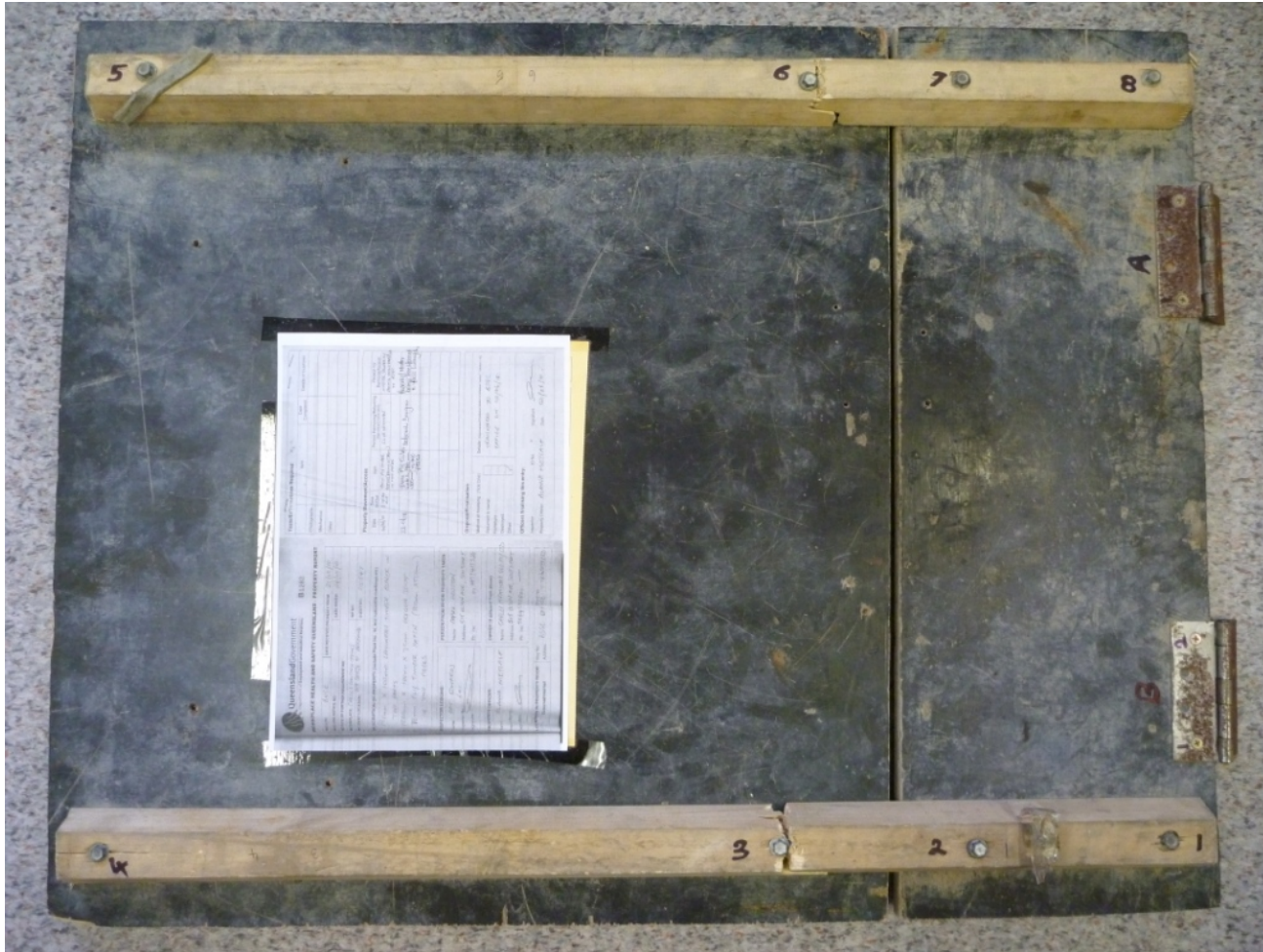
Antique rifle, client: private collector

Wood identification



Imported furniture, client: Eureka Furniture

Wood identification



Timber-in-service failure, client: Workplace Health & Safety Qld

Wood identification



Sleeper audit, client; Queensland Railways

Wood identification



Decking failure, client: private homeowner



Retaining wall sleeper failure, client: private homeowner

Wood identification



Forensic evidence, client: Queensland Police Service, Ballistics Unit

Wood identification



Wooden sewer tunnel, client: Urban Utilities



Wood identification



Imported bi-fold door, client: Cargo Integrity Unit

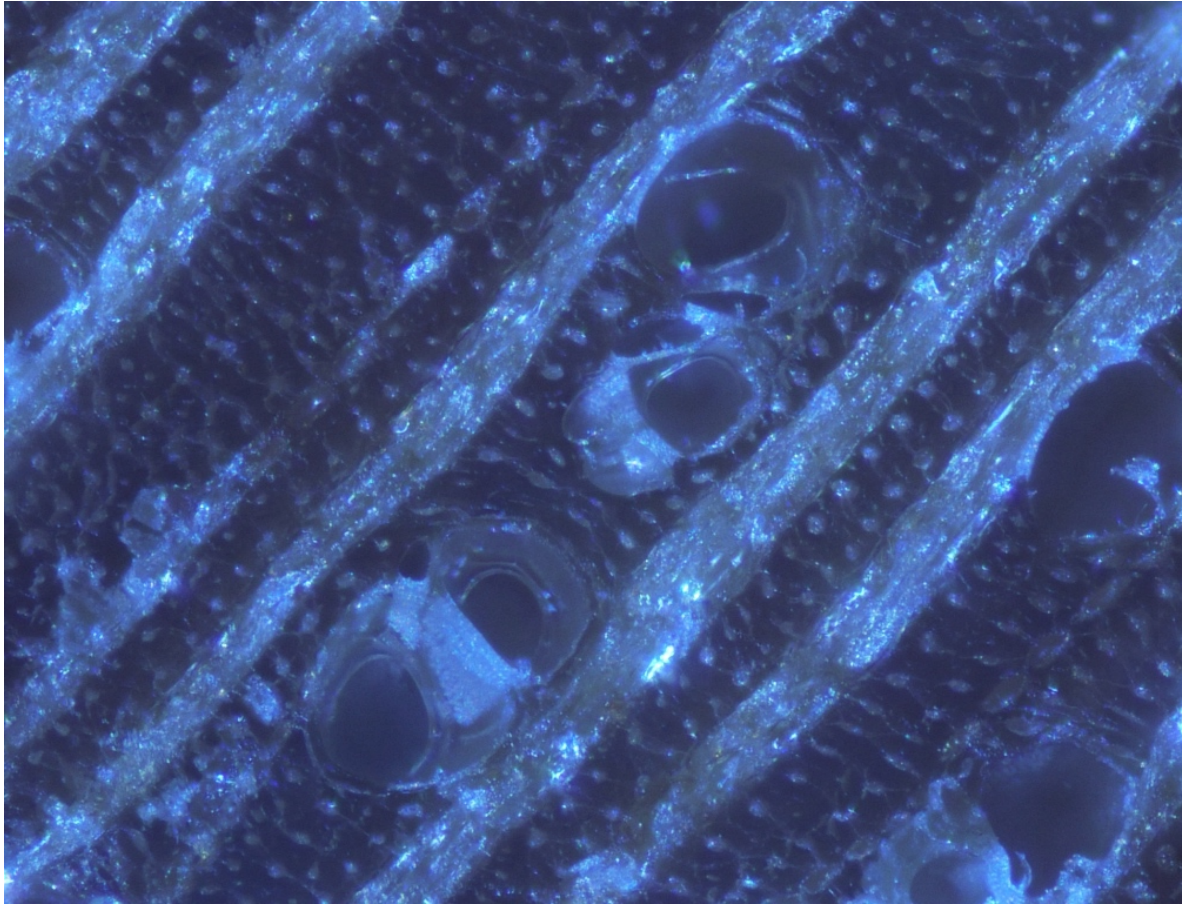
Next job

The timbers of *Bankfoot House*

- **First homestead in the Glasshouse Mountains**
- **1866**
- **Roadside accommodation on the new road from Brisbane to the Gympie goldfields.**



Thankyou



Mastixiodendron pachyclados, garo-garo, PNG; failed decking sample