

## Analyses d'ouvrages / Book reviews

Tomlinson P. B., Horn J. W. & Fisher J. B. 2011. —  
*The Anatomy of Palms (Arecaceae–Palmae)*. University  
Press, Oxford, 251 + xxi p.

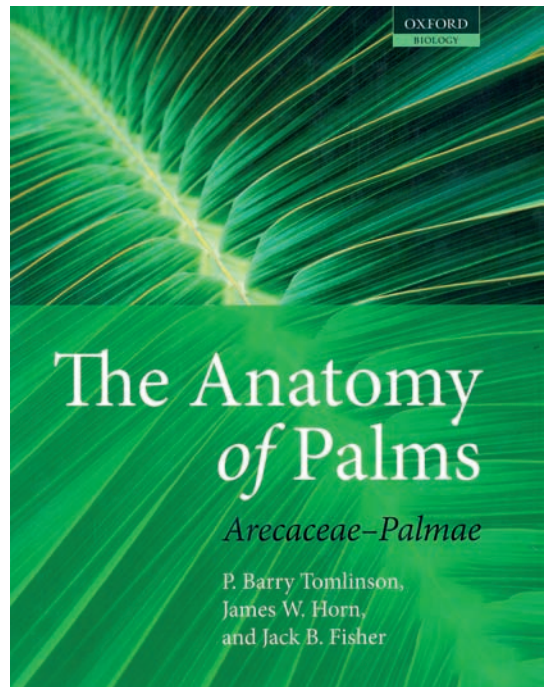
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Format: 28.2 x 22.7 cm, hardcover. Price: \$225.

Woody monocotyledons usually present spectacular growth form and among them, palms are the most diversified, have a well-distinctive physiognomy and have always been magnificent tropical icons. Thus the anatomy of the palms (Arecaceae) has been the subject of many studies. Tomlinson (1961) made a thorough comparative study of the anatomy of palms and includes descriptions and illustrations of the stem anatomy of many groups and genera, also incorporating work of earlier authors (mainly from Mohl 1823-1850), and has been the most comprehensive treatment that was never achieved. Barry Tomlinson, James Horn and Jack Fisher update this information and provide an overview of the vegetative anatomy of palms with the new classification (Dransfield *et al.* 2008), including photographs, for many groups and genera.

Palms are sometimes difficult to collect and to identify and because of their hard lignified and silicified tissues (anatomical preparations are very delicate), with the examined material of 300 species, the authors have realised an impressive and considerable work.

The book consists of two parts: 1) introduction to palm structure (77 pages); 2) systematic anatomy of palms (162 pages). The authors illustrate the anatomy with 88 beautiful figures (around 800 photos). This book deals with the anatomy of leaf (lamina and petiole), stem and root but leaf anatomy is mainly emphasised. In the first part the authors present in nine chapters the anatomical methods used (several stain combinations have been used giving a striking beauty), a brief overview of the palm family, the structure of the leaf lamina, leaf axis, stem, root, vascular tissues and cell inclusions,



spines and a final chapter concerning an overview of anatomical evolution of palms. The anatomical structure on the stem anatomy is well documented (vascular system, vascular pattern, variation along a single axis, sustained primary growth). Several keys are given: key to leaf base types in palms, synoptic key to stem anatomy in climbing palms, synoptic key to spines. In the second part, all the five sub-families are described. For each of them, a general introduction presents anatomical synapomorphies mainly based on the leaf (except for the Arecoideae because synapomorphies remain obscure). The authors outline the evolution of some selected characters at the tribe level within Calamoideae, Coryphoideae and Ceroxyloideae. Anatomical features of each tribe and subtribe are given. Leaf (lamina and petiole) is

described for all genera and stem and root are also described for most of them. The authors provide keys for some genera (e.g., *Hyophorbe*), subtribes (e.g., Attaleinae, Livistoninae), tribes (e.g., Cryosophileae, Ceroyxyleae), or subfamilies (key to tribe of Coryphoideae, Ceroyxloideae). Thereby this is the most comprehensive book on the palm anatomy that was ever published.

At the beginning of the book, the authors apologise to the fact that their results are “incomplete” (because of the reductionism of the traditional approaches of plant anatomy). But this “incompleteness” is a titanic and beautiful work and should become a reference to the palm community for many years to come because of the exhaustiveness of the material studied and the interpretation of all the collected data. By its high quality, *The Anatomy of Palms*

(*Arecaceae–Palmeae*) opens new opportunities for the botanists.

Romain Thomas (Université de Picardie)

#### References

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Endersby J. 2008. — *Imperial Nature. Joseph Hooker and the Practices of Victorian Science*. The University of Chicago Press, Chicago, London, 429 p., 50 black and white figs.

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One century after his death, the long and rich career of Sir Joseph Hooker (our “Hook.f.” as author name) carries on inspiring deep studies about the birth of modern botany. After the beautiful and detailed biography by Ray Desmond (1999), the aim of Jim Endersby, now Senior Lecturer (History) at the University of Sussex, is to focus on the appearance of standardised herbariological schedules – in a broad sense, including botanical illustration and editorial policy – put in the complex and moving sociological context of the Victorian empire. So, all aspects are carefully considered along ten chapters, which are in fact moments in a same research process.

As it is indeed out of question to summarise here all the raised questions, few examples shall be enough:

1) The prominent role of drawing (chapter 4: Seeing, p. 112), as a tool for investigating plant structure and even as a way for learning botany, is well illustrated by the great figure of Walter Hood Fitch – a major contributor to the *Curtis's Botanical Magazine* at this

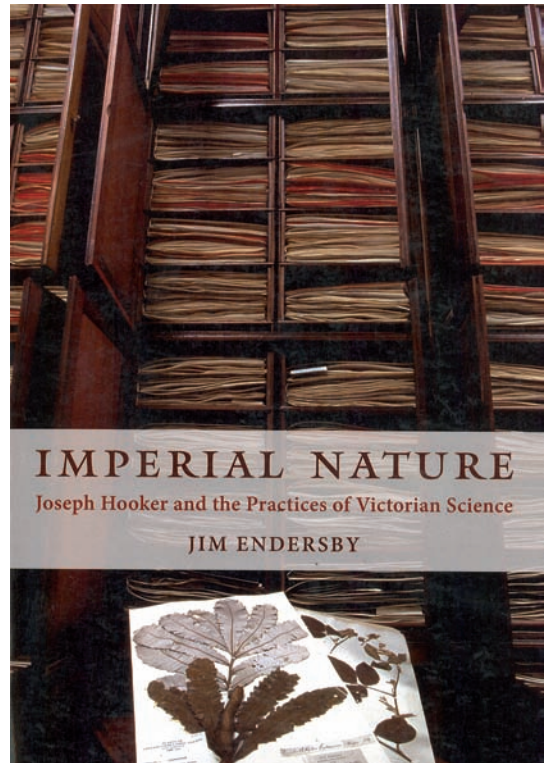
time – who tackled and solved manifold problems such as the use of herbarium specimens (most often including a quick and reliable restoration, as well as a good knowledge of geometry for getting the perspective right), the reuse of field sketches drawn by botanists and native artists for making up realistic landscape views and the production of coloured wall charts for teaching needs. In floras it is obviously cheaper to use line drawings, and even faster to publish without any figure, as in the *Flora Indica*: in this case, species descriptions are to be accurate, with a vocabulary the reader is able to learn easily. The old relationships of Hooker's family with recognised artists, such as the watercolourist John Sell Cotman, are emphasised, explaining the combination of artistic skill and scientific accuracy leading to a somewhat idealised species concept (p. 135).

2) The chapter 5 “Classifying” (p. 137) deals with this core and many-faceted activity of classification. The technical consequences on the ticketing, mounting and ordering of specimens in the herbarium are interestingly detailed, and demonstrate from the author – as in the chapter 2 “Collecting” – an acute awareness of the daily work of the botanist, confronted to the outstandingly diversity of plants, somewhat overestimated by colonial collectors, always inclined to split the taxa, not only because of a lack

of literature, but for more personal grounds too. Jim Endersby shows convincingly that the metropolitan botanists were rather lumpers in an imperial scope, bringing out (p. 156): “patterns that were invisible to the field-worker and to ignore those details that threatened to obscure the perceived pattern”. In this context, the famous, long and elaborate relationships and discussion with Charles Darwin (pp. 166 and 243, see also Fay 2011) were reconsidered, so revealing a parallel development of Darwinism (natural selection) and modern botanical systematics (typology), with a mutual influence around the question of the species stability, at least relative and temporary.

3) All along the book, the author stressed the deciding role of social relationships in the appearance and blossoming of new approaches in botany, as in all other fields of science. The respect of a code of politeness – and even of honour – explains the complete success of Hooker, especially by building an extensive network of collectors-correspondents, avoiding yet any crippling conflict. So the seemingly strict Victorian society could in fact shelter a wide range of botanists, with diverging and sometimes eccentric ideas. This point is well expounded, pp. 238-243, in the “Connexion between botany and geology”, with the contrasting figures of Richard Taylor (multiple centers of creation) and Edward Forbes (land bridges and “Atlantis theory”). At the same time, the British Empire underwent deep economic changes. In this context, Sir Joseph Hooker was confronted with a major challenge: ensure a smooth transition from almost a private and even family firm (as previously with Sir Joseph Banks) to an institution mainly – or wholly – funded by government, while keeping a strong scientific control of it. In this scope, the author did not hesitate to fully report some debates (such as “Ayrton incident”, p. 282-303), thus revealing the conflicting – often justified yet – interests of the protagonists.

On the other hand – and this is probably the main criticism to be made – it is perhaps unfortunate that no development was devoted to the correspondence with foreign botanists (only Asa Gray is cited). That should have not been unnecessary, as Hooker was inspired by the “Jardin des Plantes” of Paris by reorganizing the Kew Gardens as a public institution. A brief comparison with the development of other



large contemporary herbaria (e.g., Berlin and Leiden) would have been also useful, in order to outline more accurately the peculiarities of Victorian botany. This is the fate of the best works to point out too obvious continuations.

The author style is vivid and nice to read. This erudite book – undoubtedly a milestone in the history of botany – is to be recommended warmly, as it will provide a firm food for thought to anybody interested in the history of herbariology.

Thierry Deroin

#### REFERENCES

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