

**TRANSACTIONS OF THE CAMBRIDGE  
PHILOSOPHICAL SOCIETY;  
NOVEMBER 15, 1819; VOLUME XII.  
PART I; A MONOGRAPH OF  
EBENACEAE; PP. 27-300**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649087631

Transactions of the Cambridge Philosophical Society; November 15, 1819; Volume XII. Part I; A monograph of Ebenaceae; pp. 27-300 by W. P. Hiern

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.  
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

[www.triestepublishing.com](http://www.triestepublishing.com)

**W. P. HIERN**

**TRANSACTIONS OF THE CAMBRIDGE  
PHILOSOPHICAL SOCIETY;  
NOVEMBER 15, 1819; VOLUME XII.  
PART I; A MONOGRAPH OF  
EBENACEAE; PP. 27-300**



II. *A Monograph of Ebenaceæ.* By W. P. HIERN, M.A., *St John's College.*

---

[Read March 11, 1872.]

THE family EBENACEÆ was first established by *Ventenat* in 1799 in his "Tableau du Règne Végétal," was revised by *Jussieu* in the "Annales du Muséum," Vol. v. p. 417, in 1804, and was finally assigned in 1810 by *Brown* in his "Prodromus Floræ Novæ Hollandiæ et Van-Diemen" and briefly reduced to its present shape.

In 1837 *George Don* in his "General System of Gardening and Botany," Vol. iv., gave an account of the whole family as understood by him; he enumerated 83 species which he distributed amongst 8 genera. He however included the genus *Dioidanthera* with 2 species which is now placed in the family STYRACÆÆ: he placed in ILICINÆ instead of EBENACEÆ *Leucoxyllum buxifolium*, Blum.: and he described the new genus *Diplonema* which however has not been maintained by subsequent authors as distinct from *Euclia*.

In 1844 *Alphonse De Candolle* monographed the family, amongst the earliest of his works, in the "Prodromus Systematis Naturalis Regni Vegetabilis," Vol. viii., and produced 160 species and 8 genera, with the omission however of *Leucoxyllum buxifolium*, Blum. Three of these 8 genera were first defined in this monograph.

No subsequent treatise of an original character on the whole number of species of the family has appeared.

In the present monograph 5 genera only are recognized, one of which (*Tetractis*) is new, and amongst these are distributed about 250 species; an account is also given of the fossils that have been published as members of the family, but these are not included in the above-mentioned estimate.

For the purpose of preparing the present paper I have consulted all the materials within my reach; I may mention the following important collections which I have examined.

(i) The royal herbarium at Kew, well known to be amongst the largest in existence, where I have had the advantage of *Professor Oliver's* incidental assistance.

(ii) The herbarium of the British Museum, containing many valuable type-specimens and a large miscellaneous collection.

(iii) The herbarium belonging to the University of Cambridge, including the late *Dr Lindley's* herbarium and *Lehmann's* herbarium, the latter named for the University by *Mr Bentham*.

(iv) The herbarium of the University of Oxford.

(v) The *Wallichian* herbarium of East Indian plants, now the property of the Linnean Society of London.

(vi) The EBENACEÆ of the University of Dublin, extremely rich in South African plants, got together by the late *Dr Harvey*.

(vii) The EBENACEÆ of *Dr Sonder's* herbarium of Hamburg, also rich in South African plants.

(viii) The herbarium of *Dr Van Heurck* at Antwerp.

(ix) The royal herbarium belonging to the botanical garden at Brussels, containing the private collection of the late *Von Martius*, the editor of the "Flora Brasiliensis."

(x) The royal herbarium at Leiden, where is the best collection in Europe of plants indigenous to the Malay archipelago.

(xi) The imperial herbarium at Berlin, where also is the important type-collection of *Willdenow*.

(xii) The imperial herbarium at Vienna.

(xiii) The royal herbarium at Munich, which is especially rich in Brazilian plants.

(xiv) The type-herbarium of *De Candolle* at Geneva.

(xv) The *Delessert* herbarium also at Geneva.

(xvi) The herbarium of the Paris Museum, which contains the best collections from Madagascar and New Caledonia, the herbarium of *Jussieu*, and a very large general collection of plants.

(xvii) The EBENACEÆ of the fine Angolan collection made by *Dr Welwitsch* with extraordinary care and true scientific judgment in the expedition undertaken by the Portuguese government from 1853 to 1860.

(xviii) The Australian collection of the great botanist *Brown*, now the property of Mr Bennett, late of the British Museum.

I have also been favoured with the manuscript of the African genus *Royena* belonging to the late *Dr Harvey*, which he had prepared but not completed for the "Flora Capensis;" I have taken up some new species of *Royena* which *Dr Harvey* had briefly described in this manuscript.

*Dr Thuaites*, of the royal botanical garden at Peradenia in Ceylon, has with much kindness supplied me with fresh flowers in spirit, as well as dried flowers, belonging to Ebenaceous species indigenous to that island, and published by him in his "Enumeratio Plantarum Zeylanica."

#### ECONOMIC PRODUCTS, &c.

The economic properties of Ebenaceæ are principally connected with the wood and the fruit, though other parts in some species are of value and importance. The valuable wood known by the name of Ebony is a black hard and heavy wood, produced for the most part by members of this family. Other families, however, such as *Leguminosæ*, *Sterculiaceæ*, *Bignoniaceæ*, &c. supply different kinds of wood that are also called by the name of Ebony. *Bertolini* in *Miscellanea Botanica*, VIII. p. 1 (1849), discusses the various claims of different plants to represent the ebony of the ancients, and decides in favour of a Leguminous species, which he calls *Fornasina ebenifera*. For an account of ebony and its varieties, a paper may be consulted which was contributed by Mr P. L. Simmonds in the *Art Journal* for 1872, pp. 66—68. Ebony is confined to the heart-wood of the trees

that produce it and is chiefly found in older trees; the wood of the younger being often of a pale colour.

Ebony, as the term is used in commerce, is a close-grained and nearly black wood of high specific gravity, heavier than water, a cubic foot weighing from 1100 to 1330 oz., is susceptible of a high polish, and is chiefly used for inlaying and fancy-work. The price of the timber as imported into England varies from £8. 10s. to £9. 12s. 6d. per ton; from 700 to 1000 tons are annually imported.

The wood is of an acrid pungent taste, and gives off an aromatic smell when burnt; when dried at 100° C. it is said to contain 49·8 per cent. of carbon, 5·3 of hydrogen and 44·9 of oxygen; it is also said to contain ulmic acid (see Schacht, *Der Baum*, p. 198). The strength of the wood is illustrated by the following experiment, but as it was tried on a piece of inferior specific gravity the result is probably below the full strength of a better class of ebony. A piece planed to one inch square and 24 inches long was supported at each end by two props, the clear distance from prop to prop being 20 inches; it was then found that a weight of 2 cwt. 3 qu. 20 lbs. was required (when hung on the middle) to break the piece. (See *Transactions of the Society of Arts*, Vol. XLVIII.)

Sawdust of Ceylon ebony (? *Diospyros Ebenum*, L.) when treated with cold water produces in the latter a rich or reddish brown colour, and after boiling together for some time no further change of colour results; the sawdust retains its original very dark colour.

Ebony is employed to make pianoforte keys, the stringholder in violins, spear-points, &c.; and the best kind of ebony is very valuable on account of its maintaining a permanent shape and not warping, and is therefore used for rules and measures.

Many hard woods such as box-wood, pear-tree wood, &c. are now artificially dyed black, and are used in commerce as ebony.

The following species supply ebony:

- Diospyros Ebenum*, König. India, &c.
- Diospyros melanoxyloides*, Roxb. India.
- Diospyros Dendo*, Welw. Angola, West tropical Africa.
- Diospyros sylvatica*, Roxb. India, &c.
- Diospyros Gardneri*, Thw. Ceylon.
- Diospyros hirsuta*, Linn. fil. Ceylon.
- Diospyros discolor*, Willd. Malaya, &c.
- Diospyros Embryopteris*, Pers. India, &c.
- Diospyros Ebonaster*, Retz. Malaya, &c.
- Diospyros montana*, Roxb. India, &c.
- Diospyros insignis*, Thw. Ceylon and S. India.
- Diospyros Tupru*, Buch.-Ham. India.
- Diospyros mespiliformis*, Hochst. Tropical Africa.
- Diospyros truncata*, Zoll. and Mor. Java.
- Diospyros tessellaria*, Poir. Mauritius.
- Diospyros haplostylis*, Boiv. Madagascar.
- Diospyros microrhombus*. Madagascar.
- Diospyros ramiflora*, Wall. N.E. India.
- Maba buxifolia*, Pers. India, Madagascar, &c.

Maba Mualala, Welw. Angola, West tropical Africa.

Euclea pseudobenus, E. Mey. South Africa.

&c. &c.

The following species also produce good wood.

*Diospyros Malacapai*, Alph. DC. Wood yellow with black spots. Philippine Islands.

*Diospyros pilosanthera*, Blanc. Ornamental wood. Philippine Islands.

*Diospyros pilosa*, Alph. DC. Timber fit for building purposes. Cochin China.

*Diospyros pentanera*. Wood very hard, pale. Australia.

*Diospyros australis*. Wood close-grained, fit for turnery. Australia.

*Diospyros chloroxylon*, Roxb. Wood pale. Circars, India.

*Diospyros Paralia*, Steud. Wood white and hard. Guiana.

*Diospyros foliolosa*, Wall. Valuable light-coloured wood. S. India.

*Diospyros leucomelas*, Poir. White wood with black lines. Mauritius.

*Diospyros lanceifolia*, Roxb. Hard and handsome wood. E. Indies.

*Maba geminata*, Br. Australia.

*Royena lucida*, J. Cape of Good Hope.

*Euclea racemosa*, L. and *E. undulata*, Thunb. Cape of Good Hope.

In New Caledonia the species of *Maba* and *Diospyros* furnish excellent woods for building.

Calamander or Coromandel wood, a finely variegated and scarce wood, is produced by *Diospyros quesita*, Thw. and by *Diospyros oppositifolia*, Thw.

Black dyes are obtained from *Diospyros mollis* in Burmah, according to the Rev. Dr. Mason; and from *Diospyros Cunalon*, Alph. DC., according to Blanco.

Anchor's for large boats are made, in the province of Tavoy in Burmah, of the wood of *Maba buxifolia*, Pers.

Birds are said to die soon after eating the fruit of *Diospyros toxicaria*; and *Diospyros multiflora*, Blum., *Diospyros Ebenaster*, Retz., *Diospyros samoensis*, A. Gray, and a Brazilian species of *Diospyros* are fish-poisoners (see Allemão, Considerações sobre as plantas medicinaes da flora Cearense, pp. 41, 43 [1862]).

A decoction of the bark of *Diospyros Paralea*, Steud. is valuable against fevers in French Guiana; also in North America *Diospyros virginiana*, L. is used for a similar purpose.

The juice of the fruit of *Diospyros Embryopteris*, Pers. is very glutinous and charged with tannic acid, and is used throughout South India for paying the seams of fishing boats and for preserving fishing lines and nets.

The fresh wood of *Diospyros Malacapai*, Alph. DC. is said to keep off bugs (see Blanco, "Flora de Filipinas," p. 303 [1837]).

A decoction of the leaves of *Maba buxifolia*, Pers. in Madagascar is employed in cases of gastritis.

The fruits of the following species are edible.

*Diospyros Kaki*, Linn. fil. China, &c.

*Diospyros virginiana*, L. North America.

*Diospyros Lotus*, L. Asia.

*Diospyros chloroxylon*, Roxb. Circars, India.



- Diospyros decandra*, Lour. Cochin China.  
*Diospyros melanoxydon*, Roxb. S. India.  
*Diospyros Embryopteris*, Pers. S. India and Ceylon, &c.  
*Diospyros Ebenaster*, Retz. Malaya, &c.  
*Diospyros Kirkii*. East tropical Africa.  
*Diospyros Tupru*, Buch. India.  
*Diospyros mespiliformis*, Hochst. Tropical Africa.  
*Diospyros australis*. Australia.  
*Diospyros batocana*. Tropical Africa.  
*Diospyros tessellaria*, Poir. Mauritius.  
*Maba major*, Forst. Friendly Islands.  
*Euclia undulata*, Thunb. South Africa.  
 &c. &c.

According to *Dr Kirk* near Victoria Falls in Tropical Africa the shrub *Euclia divinum* is the medicine of the diviners, being rubbed in the hands.

## GEOGRAPHICAL DISTRIBUTION.

The head-quarters of this family is India where the species are numerous, but of the five genera which compose the family only two (though these are the largest genera) occur in the whole of the East Indian regions. Two genera are peculiar to the continent of Africa, and one, a new monotypic genus, is peculiar to the island of Madagascar. Not a single species is indigenous to Europe; one however is naturalized in the countries bordering on the Mediterranean sea.

The majority of the species are confined to the tropical regions of both the eastern and western hemispheres; several species are found in the subtropical regions, especially of South Africa; very few in temperate regions, and none in the colder regions of either hemisphere.

A specimen, apparently belonging to a tropical species (*Maba buxifolia*, Pers.), is stated to have been met with near the straits of Magellan; but this is probably an error.

For the better comprehension of the distribution, I have given below lists of species as they are known to occur in the different botanical regions into which the whole earth's surface has been divided by Grisebach.

Arabia, New Zealand, Tasmania, Western Australia, and the district along the Andes in South America are destitute of a single representative of the family.

Geographical distribution of *Ebenaceæ* with reference to *Grisebach's* regions. See "Die Vegetation der Erde." 2 vols. 8vo. Leipzig, 1872,

- I. Arctic flora. 0.
- II. Forest region of the Eastern continent. 0.
- III. Mediterranean region. *Diospyros Lotus*, L. (Naturalized.)
- IV. Steppes region. *Diospyros Lotus*, L.
- V. China, Japan region. *Diospyros Lotus*, L.; *D. Kaki*, L. f.; *D. Morrisiana*, Hance; *D. eriantha*, Champ.; *D. vaccinioides*, Lindl.

- VI. Indian monsoon region. *Diospyros*, 86 sp. *Maba*, 19 sp. Centre for *Ebenaceæ*, &c. "which have not a wide distribution beyond," II. p. 71.
- VII. Sahara. 0.
- VIII. Tropical Africa and Natal. *Diospyros*, 15 sp.; *Maba*, 7 sp.; *Euclea*, 11 sp.; *Royena*, 10 sp.
- IX. Kalahari. *Royena*, 2 sp.; *Euclea*, 5 sp.
- X. Cape flora. *Euclea*, 14 sp.; *Royena*, 8 sp.
- XI. Australia. *Maba*, 10 sp.; *Diospyros*, 6 sp.
- XII. Forest region of the Western continent. *Diospyros virginiana*, L.
- XIII. Prairie region. *Diospyros texana*, Scheele; *Maba intricata*.
- XIV. Californian coast region. 0.
- XV. Mexican region. *Diospyros*, 5 sp.; *Maba*, 3 sp.
- XVI. West Indies. *Diospyros*, 3 sp.; *Maba*, 3 sp.
- XVII. South American region North of the Equator. *Diospyros*, 8 sp.; *Maba*, 3 sp.
- XVIII. Hylæa, region of equatorial Brazil. *Diospyros*, 8 sp.; *Maba*, 2 sp.
- XIX. Brazil. *Diospyros*, 11 sp.; *Maba*, 3 sp.
- XX. Flora of the tropical Andes of South America. 0?
- XXI. Pampas region. 0.
- XXII. Chilean transition region. 0?
- XXIII. Antarctic forest region. 0?
- XXIV. Ocean Islands. *Diospyros*, 27 sp.; *Maba*, 12 sp.; *Tetractis*, 1 sp.
- |   |                     |                          |                    |
|---|---------------------|--------------------------|--------------------|
| 1. Azores. 0.   | 2. Madeira. 0.      | 3. Canaries. 0.          | 4. Cape Verd I. 0. |
| 5. Ascension. 0.  | 6. St Helena. 0.    |                          |                    |
| 7. Madagascar. <i>Maba</i> , 3 sp.; <i>Diospyros</i> , 19 sp.; <i>Tetractis</i> , 1 sp. |                     |                          |                    |
| 8. Mascarene I. <i>Diospyros</i> , 6 sp.  |                     |                          |                    |
| 9. Seychelles. <i>Diospyros</i> , 1 sp.; <i>Maba</i> , 1 sp.                            |                     |                          |                    |
| 10. Sandwich I. <i>Maba</i> , 2 sp.   |                     |                          |                    |
| 11. Fiji I. <i>Maba</i> , 2 sp.   |                     |                          |                    |
| 12. New Caledonia. <i>Diospyros</i> , 3 sp.; <i>Maba</i> , 7 sp.                        |                     |                          |                    |
| 13. Norfolk I. 0.   | 14. New Zealand. 0. | 15. Galapagos. 0.        |                    |
| 16. Juan Fernandez. 0.  | 17. Falkland I. 0.  | 18. Tristan da Cunha. 0. |                    |
| 19. Kerguelens-land. 0.   |                     |                          |                    |

## LISTS OF SPECIES IN ABOVE-MENTIONED REGIONS.

## VI. INDIAN MONSOON REGION.

- Maba acuminata*. Ceylon.
- Maba oblongifolia*. Ceylon.
- Maba ovalifolia*. Ceylon.
- Maba nigrescens*, Dalz. India.
- Maba buxifolia*, Pers.
- Maba Andersovi*, Soland. Tonga Islands.
- Maba major*, Forst. Tonga Islands.
- Maba elliptica*, Forst. Amboina and Cochin China.

- Maba sumatrana*, Miq. Java and Sumatra. Andaman Islands (?).  
*Maba micrantha*, India.  
*Maba lamponga*, Miq. Sumatra.  
*Maba merguensis*. Mergui archipelago.  
*Maba confertiflora*. Labuan.  
*Maba punctata*. Borneo.  
*Maba Teijsmanni*. Java.  
*Maba hermaphroditica*, Zoll. Java.  
*Maba javanica*, Zoll. Java.  
*Maba Maingayi*. Malacca.  
*Maba Motleyi*. Borneo.  
*Diospyros insignis*, Thw. Ceylon and S. India.  
*Diospyros Tupru*, Buch.-Ham. India.  
*Diospyros melanoxydon*, Roxb. India.  
*Diospyros decandra*, Lour. Cochin China.  
*Diospyros affinis*, Thw. Ceylon.  
*Diospyros crumenata*, Thw. Ceylon.  
*Diospyros sylvatica*, Roxb. India and Ceylon. Java (?).  
*Diospyros Kurzii*. South Andaman.  
*Diospyros elhretoides*, Wall. Tavoy, &c.  
*Diospyros hirsuta*, Linn. fil.  
*Diospyros Korthalsiana*. Borneo.  
*Diospyros oocarpa*, Thw. India and Ceylon.  
*Diospyros truncata*, Zoll. and Mor. Java.  
*Diospyros borneensis*. Labuan.  
*Diospyros quersita*, Thw. Ceylon.  
*Diospyros Malacapai*, Alph. DC. Philippine Islands.  
*Diospyros attenuata*, Thw. Ceylon.  
*Diospyros acuta*, Thw. Ceylon.  
*Diospyros Brandisiana*, Kurz. Burmah.  
*Diospyros pruriens*, Dalz. Bombay and Ceylon.  
*Diospyros apiculata*. Penang.  
*Diospyros foliolosa*, Wall. Madras.  
*Diospyros pilosula*, Wall. Silbet.  
*Diospyros paniculata*, Dalz. Bombay.  
*Diospyros Horsfieldii*. Malacca and Java.  
*Diospyros densiflora*, Wall. Moolhayne and Amherst.  
*Diospyros oppositifolia*, Thw. Ceylon.  
*Diospyros Cartheci*. Manila.  
*Diospyros polyalthioides*, Korth. Borneo.  
*Diospyros octandra*. Burmah and Pegu.  
*Diospyros stricta*, Roxb. East Bengal.  
*Diospyros eriantha*, Champ. Borneo and Sumatra.  
*Diospyros dasyphylla*, Kurz. Burmah.