

# FLORA OF ASSAM



**KANJILAL & BOR**

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# FLORA OF ASSAM

U. N. KANJILAL, F.L.S.



VOL. IV.

NYCTAGINACEÆ TO CYCADACEÆ

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## FOREWORD.

The publication of Volume IV brings the Flora of Assam to the end of Dicotyledons. Again the late Rai Bahadur U. N. Kanjilal's collections and his excellent field-notes have been of every help in drawing up descriptions of species mentioned in this volume. Of the Monocotyledons, Gramineae have already been taken up by Dr. N. L. Bor, Forest Botanist, Forest Research Institute, DehraDun and will shortly be published as Volume V of the Flora of Assam.

In the task of publication of this volume, I had to do all the proof-reading and to make some additions and alterations here and there. Again I have to record my appreciation of the loyal assistance given by Babu Banka Bihari Syam, my Botanical Assistant. Every endeavour has been made to avoid mistakes.

Shillong,  
The 26th February, 1940.

R. N. De, I.F.S.,  
Botanical Forest Officer.

## PREFACE

It is with great pleasure that the fourth volume of the "Flora of Assam" (Apetalæ & Coniferæ) is presented to the public. The original manuscript of this volume was completed by me in December, 1934. Mr. P. C. Kanjilal, B.Sc., I.F.S. (now of U. P.) offered his ungrudging help and assistance in the preparation of this work, particularly in dealing with *Lauraceæ* a rather difficult family. Exhaustive, accurate and elaborate field-notes of the late Rai Bahadur U. N. Kanjilal have been freely utilised and reproduced in the descriptions, although in most cases they have been drawn up with reference to the living plants or to the herbarium specimens or to both. Addition of fresh materials and revision of my original manuscript continued over a period of about 18 months, and I am glad that I have been able to complete the manuscript in time for its publication within the current year. In course of this work, it was absolutely necessary to make many references to Kew, Sibpur, Edinburgh and DehraDun. I had to run down occasionally to Calcutta to work in the Herbarium of the Royal Botanic Garden, Calcutta, in order to be conversant with the changes in nomenclature and to draw up and check descriptions of new species and new records with reference to literature and by examining actual specimens preserved there. Such a step on my part has told upon my advanced age and my purse in my retired life.

Several species (not previously included) have also been added to this work in smaller types or without serial number. This procedure had to be adopted in order to avoid alterations in the generic and specific Keys. It is, however, not claimed that the compilation of the "Flora" is fully comprehensive. Omission in this volume of a number of species of herbs, shrubs and trees could not be avoided. Attempt has, however, been made to raise the standard of this volume. It is impossible to do justice to a work of this

nature without proper facilities for ready reference, which unfortunately have not been available for me.

I wish to record my sincere thanks and indebtedness to all the botanists, who have rendered assistance in various ways in the compilation of this Volume.

- (1) Prof. Sir W. W. Smith, Regius Keeper, Royal Botanic Garden, Edinburgh.
- (2) Mr. C. E. C. Fischer, Royal Botanic Garden, Kew.
- (3) Director, Royal Botanic Garden, Kew.
- (4) Superintendent, Royal Botanic Garden, Sibpur.
- (5) Forest Botanist, Forest Research Institute, DehraDun.
- (6) Prof. B. H. Danser, Groningen.
- (7) Mr. M. V. Narayanswami, Royal Botanic Garden, Sibpur.
- (8) Dr. D. Chatterjee, M.Sc., Ph.D. (Edin.).

I must acknowledge my grateful thanks to Mr. R. N. De, B.Sc., I.F.S., Forest Botanist, Assam, who is officially in-charge of the publication of this work for going through the proofs, and also to Babu Banka Bihari Syam who has been associated with this publication for a considerable period, as Assistant to Forest Botanist, Assam.

It now remains to acknowledge my thanks and indebtedness to my friend Dr. K. P. Biswas, M.A., D.Sc., F.R.S.E., Superintendent, Royal Botanic Garden, Calcutta, for his ungrudging assistance in various ways.

In spite of repeated proof-reading, it has not been practicable to avoid printer's mistakes, which is very much regretted.

It is a great relief to me that my labours for the last five years (after my retirement) have come to a successful termination, with the publication of this Volume. It will now rest with my successors to take up the Monocotyledons. I have much pleasure in announcing here that the grasses of Assam have been described by Dr. N. L. Bor and it is now passing through the press.

Royal Botanic Garden, Calcutta,  
The 24th February, 1940.

A. Das.

## INTRODUCTION.

Thirty-three families, 184 genera and about 585 species are embodied in this Volume. Phœbes of Assam (Published in the Assam Forest Records, Botany, Vol. II, 1937) which were revised by me, are now reproduced in this work.

The following new species which were discovered in the Shillong Herbarium, Assam, from the region of this "Flora" are also incorporated here.

1. *Phœbe goalparensis* Hutch var-*Boriana* Das and var-*Martiniana* Das.
2. *Phœbe Cooperiana* Kanjilal ex Das.
3. *Machilus globosa* Das.
4. *Machilus dubia* Das and Kanjilal.
5. *Purkayasthæa pseudo-microcarpa* Purk. and Narayanswami.
6. *Excœcaria* Sp. Nov. Das.
7. *Quercus Milroyii* Purk.

(Vide the Assam Forest Records, Botany, Vol. II, 1937 and Indian Forester, May 1938).

*Machilus dubia* and *Excœcaria* Sp. Nov. could not be described for want of adequate materials, which are being collected now. A new combination of *Pasania Milroyia* (Purk.) Das has been made by me. In my opinion, the descriptive characters justify transferring the species from *Quercus* to *Pasania*.

Mr. C. E. C. Fischer of Kew., Dr. D. Chatterjee, M.Sc., Ph. D., Mr. M. V. Narayanswami and Dr. K. P. Biswas of Royal Botanic Garden, Sibpur, have assisted me in solving many complicated Taxonomical and other problems regarding the species dealt with in this book but it has not been thought advisable to accept all the changes.

I have followed King and Brandis in retaining the generic name *Myristica* for the whole group but it has been split up into three genera *Myristica*, *Horsefieldia* and *Knema* by

Warburg for the Assam species. Warburg's specific names have however been mentioned separately.

A new genus *Purkayasthæa* (Lauraceæ) established by Mr. C. S. Purkayastha and Mr. Narayanswami also finds its proper place.

Hernandiaceæ has been put under Calycifloreæ by some botanists but its position under Apetaleæ has been retained here.

Full advantage has been taken of the publications on Loranthaceæ by Prof. B. H. Danser, Groningen. He has very kindly examined the Assam sheets and rendered valuable assistance to me for adopting modern names for the Assam species. The genera *Hyphear*, *Helixanthera*, *Scurrula*, *Taxillus*, *Dendrophthæ*, *Tolypanthus* and *Macroselon* for *Loranthus* and *Kortalsella* *opuntia* for *Viscum opuntia* have been introduced in this publication. A new variety of *Viscum album*, viz-var—meridianum and a new species *Taxillus assamicus* have been recently identified and described by Prof. Danser from the Assam sheets sent to him but unfortunately they could not be incorporated. I am particularly grateful to Prof. Danser for his valuable co-operation.

The Genus *Phyllanthus* has been split up into *Phyllanthus*, *Embllica*, *Kirgenalia*, *Prosorus*, *Neo-peltandra*, *Reidia* and *Fluggeopsis*. There is a good deal of difference of opinion on this subject. I have followed Gamble and Haines as I prefer their classification to others for my purpose.

The generic name *Dryptes* Vahl has been replaced for *Cyclosiemon* and *Oreocnide* Miq for *Villubrenea*.

The Genus *Quercus* has been divided into *Quercus* Linn and *Pasania* Oerst as the characters of the section *Pasania* are quite distinct and justify this adoption.

*Ceratophyllaceæ* has been omitted although *Ceratophyllum* Sp. is recorded from Assam.

In describing the Gnetums, I have followed Dr. Fr. Markgraf (Monographie der Gattung Gnetum in Bulletin Jard. Bot. Buitenzorg, sec. III. Vol. X, Levr. 4, 1930).

In describing the Conifers I have followed the classification adopted in the "Handbook of Coniferæ" (Dallimore and Jackson).

It has been realised that the compilation of a work of

such a magnitude should have been undertaken at the Royal Botanic Garden, Sibpur, where adequate facilities are conveniently available for ready reference to complete literature and examination of herbarium specimens. The defects now noticeable in the volumes of the "Flora of Assam" could thus have been undoubtedly minimised.

Royal Botanic Garden, Calcutta,  
The 24th February, 1940.

A. Das.