

It is with the deepest regret that I have to record the untimely death of the senior author, Reverend Father ETHELBERT BLATTER, who died at St. Vincent's High School, Poona, on the 26th May, 1934. BLATTER was born in Switzerland on the 15th December 1877.

C. McCANN.

NCAG—SM/5.

Scientific Monograph No. 5.

The Imperial Council of Agricultural Research.

## THE BOMBAY GRASSES

BY

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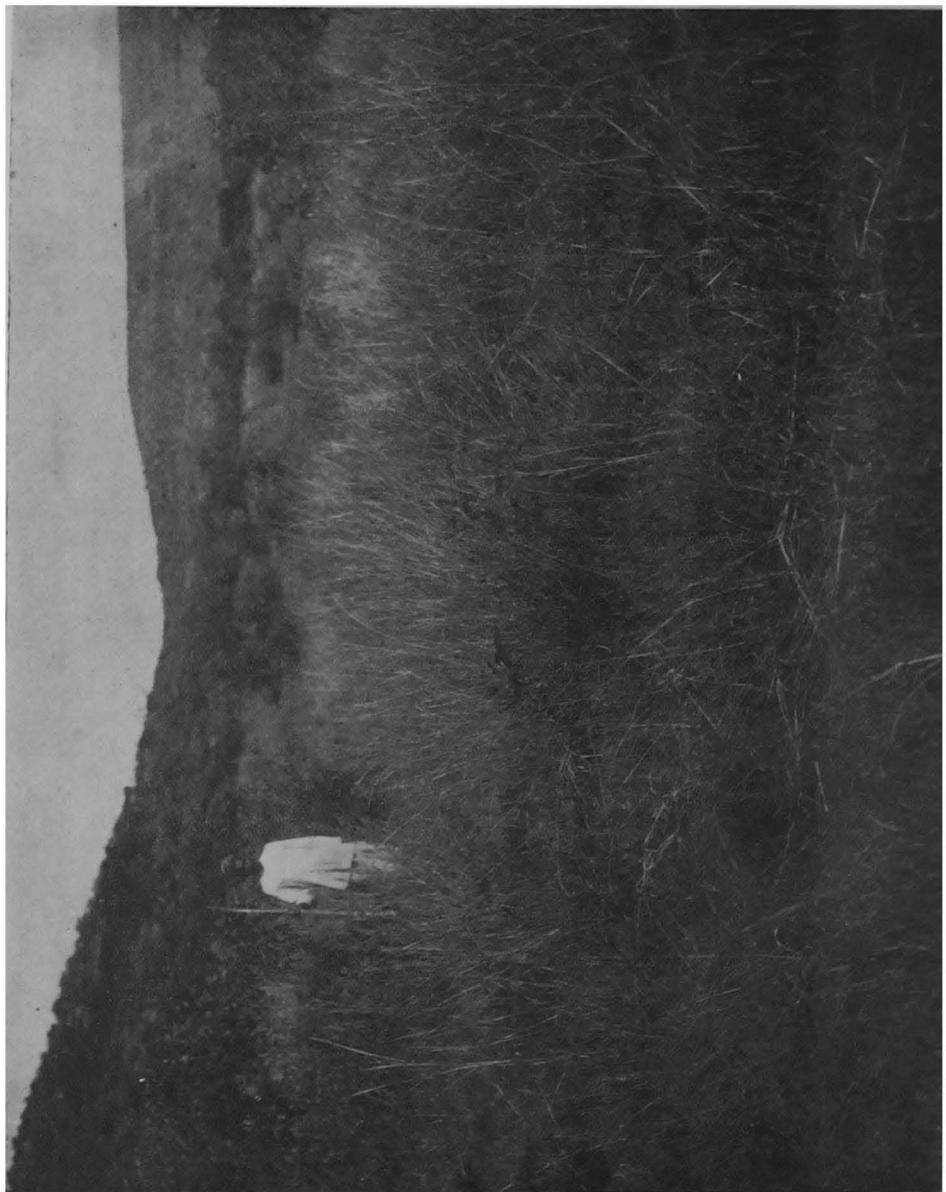
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*Frontispiece.*



A field containing a stand of *Chrysopogon montanus* Trin. and *Schima nervosum* Stapf with scattered *Heteropogon insignis* Thw.  
Photo by

## PREFACE

There are several reasons which have induced us to publish this monograph.

Since T. Cooke's treatment of this family in his Flora of Bombay (1908), a number of new species have been described, and we have been able to add over 60 species which are new to the Presidency.

More important than the numerical additions are the changes made during the last fifteen years with regard to the general arrangement of the grasses and the definition of certain genera. A great amount of work has been done in Europe as well as in America. In Europe it was chiefly O. Stapf who, with his vast experience of the grass-flora of many countries and the rich material of the Kew Herbarium at his disposal, has advanced our knowledge of the grasses and their systematic co-ordination more than anybody else. A comparison of his monograph of the grasses in the Flora of Tropical Africa which is still in progress with that of the Flora Capensis shows at once in which direction and to what extent progress has been made. As regards the second subfamily (*Pooidae*) the two works reveal only minor changes, but considerable changes were found necessary in the first subfamily (*Panicoideae*). Here again it is chiefly the genera *Andropogon* and *Panicum* and their allies which have been affected. In this respect, especially where the tribe of *Paniceae* is concerned, we owe a good deal to American botanists. It was chiefly the fact that there were no definite dividing lines for the genera of *Andropogoneae* and *Paniceae*, that induced Stapf not "to unite the groups wherever intermediate links can be detected," which would bring about endless confusion, but "to be satisfied with approximately definable groups, which can on the whole be easily grasped and remembered." In other words, it is preferable from a practical point of view to adopt smaller genera than unmanageable large genera for merely theoretical reasons. As the Kew Herbarium, as far as the grasses are concerned, owes its systematic arrangement chiefly to Stapf, and as colonial workers will always appeal to Kew in their difficulties, we thought it advisable to follow Stapf in the definition and sequence of the tribes as laid down in the Flora of Tropical Africa.

As of late the grass problems have received renewed attention by the Agricultural Departments in India, we do not consider it superfluous to bring the systematic account of the grass-flora of Bombay up-to-date. It is worthwhile quoting a passage from R. S. Hole (in *Agric Journ of India*, Special Indian Science Congress number, 1917). "It may be said that systematic work . . . is of no economic importance and should form no part of the duties of a so-called Economic Botanist. To some extent this opinion appears to be due to ignorance of the methods, difficulties, and scope of systematic work. For a considerable period systematic botany held the field in India. The idea then gained ground that a great deal of systematic botany dealt with species of no value and this eventually led to a strong swing of the pendulum in the direction of so-called economic botany. This resulted in a provision for the economic study of agricultural plants at the Pusa Research Institute and of forest plants at the Dehra Dun Research Institute. The improvement of agricultural crops does not fall within the scope of ordinary systematic botany which deals with wild species. As regards forest plants, however, it is perfectly clear that sound progress in economics is impossible without an extended study of systematics. The non-botanist is apt to think that, with the publication of the Flora of British India and the formation of good herbaria at Calcutta, Dehra Dun, and elsewhere, systematic work has been completed and has no further scope in India. This, however, is far from being the case. Systematic work is at first necessarily tentative and when, in India, we undertake the detailed study of species in connection with the exploitation of the commercial products yielded by them, which necessitates the identification of large numbers of individuals occurring over extensive areas and the separation of all individuals belonging to species of commercial value from those which belong to valueless but nearly related species, we are forced to recognize the fact that the descriptions in the Floras drawn up from a few often imperfect specimens are more or less fragmentary and not infrequently misleading."

Regarding the descriptions of genera and species we have not made the slightest attempt to be in any way original, thinking that the diagnosis of plants or groups of plants is not the right place for originality. It would be easy to change the sequence of words or to borrow some details from one description, and others from some other book, but it would not tend towards an uniform treatment of the subject and the final result would certainly not be satisfactory. We have, therefore, borrowed a good description where we found one and, in this respect, we have to be especially grateful to Hook f., Stapf, Cooke and Haines.

For the two classes of glumes we have adopted the terms involucral and floral. As to other terms used we refer to the general characters of the family.

## PREFACE.

In the key we have, wherever possible, closely adhered to Stapf in vol. IX of Prain's Flora of Tropical Africa.

We have made the synonymy as complete as possible. We thought this to be not only useful but necessary, especially in a country where very few people have access to good botanical libraries and where many a worker has to rely on some odd books, sometimes of a very early date. Everybody will thus be enabled to co-ordinate the old or antiquated names with the more recent ones.

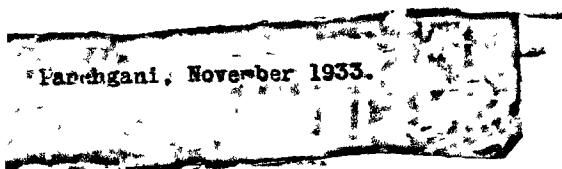
Regarding the vernacular names we mention chiefly those which are known in the Bombay Presidency. We have not been in a position to examine them critically, not even superficially and, therefore, not much reliance should be put on them.

Of herbaria we have seen the following : Calcutta, Dehra Dun, Gujarat College, St. Xavier's College, Poona (Science College, Herbarium of the Economic Botanist, and Talbot's Herbarium), Lisboa's collections and the private herbarium of L. J. Sedgwick and T. R. Bell, and our own collections.

The preliminary revision of the Bombay Grasses was published by us in the Journal of the Bombay Natural History Society, Vol. XXXII-XXXIV (1927-30).

It now remains to express our deep gratitude to all those who have helped us in this work. Mr. C E C. Fischer and Mr. C E. Hubbard of the Kew Herbarium were always ready to reply to our numerous inquiries and Dr. Stapf obliged us in many ways. We can say the same of several other members of the staff at Kew. Equal thanks are due to Dr. W. Burns, Director, Department of Agriculture, Bombay Presidency and Mr. K. Biswas, Curator of the Calcutta Herbarium. Dr. A D Blascheck, President of the Forest Research Institute and College, Dehra Dun has been kind enough to permit the reproduction of 4 plates from Hole's Forest Grasses.

An asterisk in front of a name means that the particular genus or species has been introduced.



E. BLATTER.

C. McCANN.

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**Errata to Scientific Monograph No. 5 of the Imperial Council of  
Agricultural Research entitled 'The Bombay Grasses', by  
E. Blatter and C. McCann.**

- Page vi, item 124, for '*Arundineua*' read '*Arundinella*'  
Page xv, line 3, for 'involucrant' read 'involucral'  
Page 3, line 3 of footnote, for 'traumatism' read 'traumatisme'  
Page 3, line 5 of footnote, from bottom *Add* fullstop after 'Missbildungen'  
Page 3, line 2 of footnote from bottom *Add* fullstop after 'l'embryon'  
Page 4, line 9 from bottom, for 'Dymnock' read 'Dymock'  
Page 29, line 22 from bottom, for 'Birt' read 'Brit'  
Page 36, under Explanation of Plate 25, after the bracket, for 'spikete' read 'spikelet'  
Page 37, line 29, for 'of' read 'at'  
Page 43, line 13, for 'seems' read 'seem'  
Page 43, line 16, for 'Occology' read 'Oecology'  
Page 44, line 26, for 'hillum' read 'hilum'  
Page 44, line 31, for 'spikele' read 'spikelet'  
Page 49, line 5, for 'adaptions' read 'adaptations'  
Page 49, line 2 from bottom *Add* 'rather' after 'generally'  
Page 52, under Explanation of Plate 34, after bracket, for 'Sessle' read 'Sessile'  
Page 55, line 26 from bottom, for 'on the so widely spread a genus like *Sorghum*',  
read 'on so widely spread a genus as *Sorghum*'  
Page 85, line 28. *Delete* comma after 'College'  
Page 105, line 33, for 'Russa' read 'Rusa'  
Page 112, line 25 from bottom. *Add* 'as' after 'long'  
Page 122, line 17, for 'xi' read 'xv'  
Page 123, line 4, for 'Jehu' read 'juhu'  
Page 128, line 17. *Add* semi-colon after 'Ceylon'  
Page 136, line 7 from bottom, for 'Commersoni' read 'Commersonii'  
Page 137, line 22, for 'Commersoni' read 'Commersoni'  
Page 141, line 12 from bottom, for 'indigestable' read 'indigestible'  
Page 141, line 12 from bottom, for 'are' read 'is a'  
Page 161, line 2 *Add* 'it is' after 'but'  
Page 162, line 24 from bottom, for 'Yemem' read 'Yemen'  
Page 176, line 5. *Add* 'for' after 'and'  
Page 176, line 24 from bottom, for 'Tenerife' read 'Teneriffe'  
Page 178, line 23, for 'Alopecuros' read 'Alopeurus'

- Page 181, line 14, *for ' Alopecurus ' read ' Alopecuros*
- Page 202, line 3 from bottom, *for ' maur anica ' read ' mauritanica*
- Page 202, line 2 from bottom, *for ' n palensis ' read ' nepalensis '*
- Page 207, lines 9 } *for ' Brogn ' read ' Brongn '*   
28 }
- Page 215, line 3 from bottom, *for ' from ' read ' form '*
- Page 231, line 11, *for ' Isle of France ' read ' Mauritius '*
- Page 232, line 15, *for ' Général ' read ' Générale '*
- Page 275, line 15, *for ' Pl Aliment des Pays Chaudes ' read ' pl alment des pays chauds '*
- Page 280, line 26    *Add semicolon after ' Butler '*