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STUDIES ON THE PHYSIOLOGY OF BAMBOO

WITH REFERENCE TO PRACTICAL APPLICATION

BY

Koichiro UEDA

THE KYOTO UNIVERSITY FORESTS  
KYOTO, JAPAN

## E r r a t a

Page	Error	Correct
V 11	Photo. 1. by Dr. I. Ono and Y. Uemura	by Dr. K. Ono, T. Tono and Y. Uemura
1 X	Photo. 2. Above: Dendrocalamus strictus	Above: Melocanna bambusoides
	Below: Melocanna bambusoides	Below: Dendrocalamus strictus
<del>26</del> 29	Locality: Kamigamo, Kyoto	Locality: Mukomachi, Kyoto
1 2 9	Line 9 uplanted i	planted in
1 3 2	Left column Growth in a year	Growth in 2 years
1 4 8	Table 60 Nilambur, Assam	Nilambur, Kelara
1 5 9	References: I. Ono	References: K. Ono

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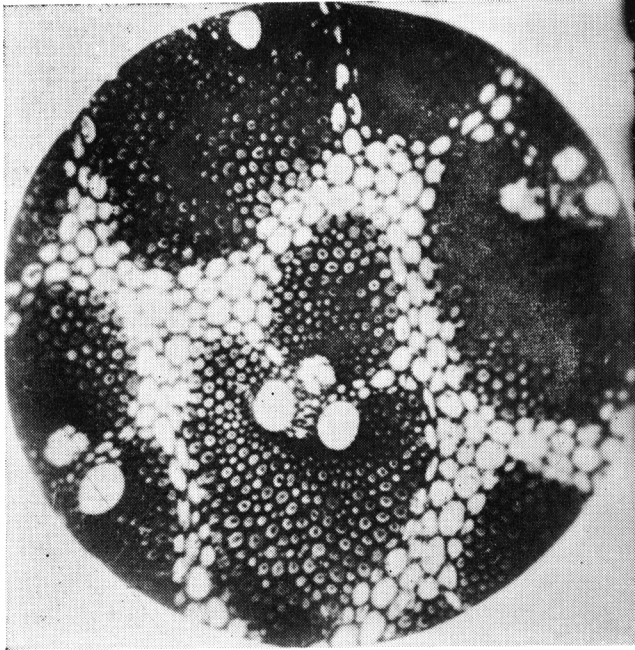
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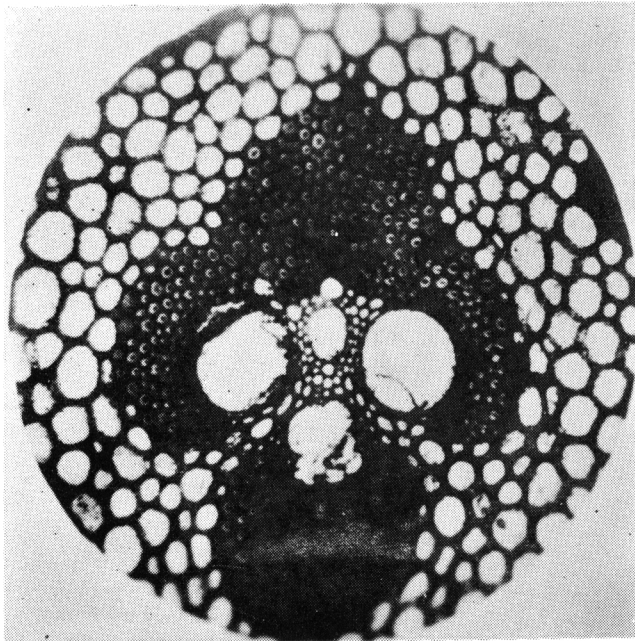
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**Photo. 1.** Cross section of culm

by Dr. I. Ono and Y. Uemura



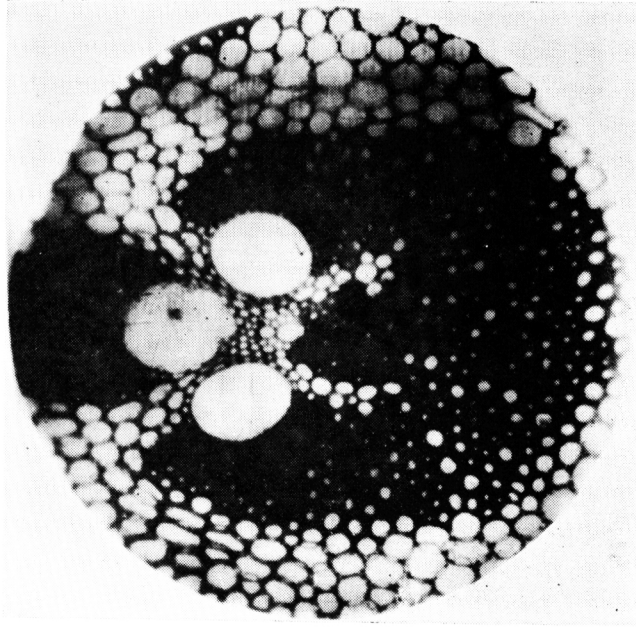
*Phyllostachys reticulata*



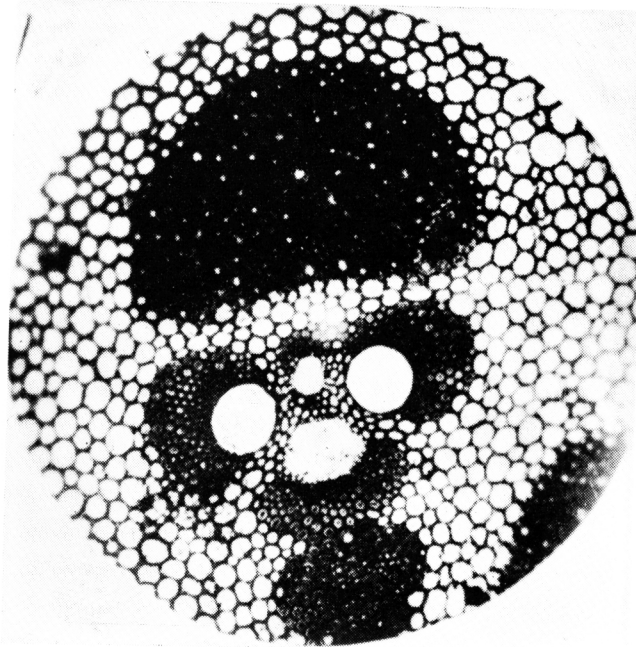
*Phyllostachys edulis*



**Photo. 2.** Cross section of culm



*Dendrocalamus strictus*



*Melocanna bambusoides*

## INTRODUCTION

Bamboos are widely distributed in the Orient, being found in Japan, China, and South-East Asian countries. Some of them are wild and others are cultivated for food and various manufactured wares. In some South-East Asian countries, bamboo culms provide very important materials for house and furniture construction. Recently, the economic importance of bamboo has been enhanced by its utilization as a pulp resource for paper and rayon production.

The commercially attractive features of a bamboo grove can be listed as follows: (1). The new sprout completes its growth to full size within a few months. (2). Number of new culms are produced asexually year after year, giving high yields yearly, and no replanting is needed after cutting. (3). The dense, spreading rhizome systems prevent land from erosion due to floods.

Production of bamboo for paper and rayon pulp requires a great amount of continuous and economical production. However, reckless deforestation of bamboo groves simply because they are widely distributed and propagate asexually is a wrong opinion, since poor management not only reduces bamboo quality but also gradually lessens productivity as a result of depletion of the nutrient supply etc. Furthermore, poor management has so reduced the groves in the vicinity of pulp factories that a search for more distant inland resources has become necessary, although less economical because of long transportation.

For these reasons, bamboo researches are needed not only for increasing production from a limited area but also for increasing the suitability of bamboos by breeding for specific uses. First of all, the physiology and ecology of bamboos must be studied to make clear the characteristics of their growth and propagation. It is also interesting and important, from both practical and fundamental points of view, to search for the origin of cultivated bamboo.

Experimental sites for bamboo studies have been set up at eight different places in addition to the Experimental Forest of Kyoto University. Materials submitted for the present investigation have been collected from all quarters of Japan. As for the species in tropical regions, however, the author's survey in India and in her vicinity and part of his experimental results at Kyoto University are presented. For these, the author expects to complete the study in his future experiment.

The author in cooperation with a number of associate researchers has

devoted himself for a decade to the study of various bamboo problems.

Assistant prof. T. Saito, Research Assistants E. Hashimoto, G. Isa, I. Manabe, K. Yoshikawa, K. Ogasawara, S. Ueda, E. Uchimura and T. Okamoto have worked together in the physiological aspects, and Prof. Dr. K. Yamashita and Research Assistant Y. Inamori in cytogenetics. They are all staff members of Kyoto University. Prof. Dr. K. Ôno of Osaka Prefectural University has taken part in the chemical analysis and Dr. H. Takeda has given the author useful suggestion.

The author wishes to express his sincere gratitude for their unstinted cooperation.

Dr. Koichiro Ueda  
Professor  
Experimental Forest Station  
Faculty of Agriculture  
Kyoto University  
Kyoto, JAPAN

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