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The Journal of the Indian Botanical Society

(Formerly " The Journal of Indian Botany ")

VOL. XXIII] MAY, 1944 [No. 2

THE BUFFALO-HORN BAMBOO OF BURMA

An Inadequately Known Species of Giant Bamboo

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(Communicated by Dr. R. R. Stewart, PH.D.)

Received for publication on May 31, 1943

Sinocalamus latiflorus (Munro) McClure has apparently been described only from herbarium material as the description is incomplete and taxonomically inadequate, many diagnostic characteristics not having been mentioned. Among these are some distinctive characteristics enabling field identification of the species in a vegetative condition. These are particularly important because so many species of bamboo can only be identified from the flower.

Sinocalamus latiflorus (Munro) McClure

1868 *Dendrocalamus latiflorus* Munro, *Trans. Linn. Soc.*, Vol. 26, p. 152.

1873 *Bambusa latiflora* Kurz, *Journ. As. Soc. Bengal*, Vol. 42, p. 250.

1896 *Dendrocalamus latiflorus* Munro, *Gamb. Bamb. Brit. Ind.*, p. 131.

1897 *Dendrocalamus latiflorus* Munro, Hooker, *Fl. Brit. Ind.*, Vol. 7, p. 407.

1913 *Dendrocalamus latiflorus* Munro, Camus, *Les Bambusees*, p. 160.

1921 *Dendrocalamus latiflorus* Munro, Brandis, *Ind. Trees*, p. 678.

1940 *Sinocalamus latiflorus* (Munro) McClure, in New Genera and Species of Bambusaceæ from Eastern Asia.

Material Examined

35 clumps in the field in the neighbourhood of Taunggyi in the Southern Shan States, Burma. Herbarium specimens, Judson College, Rangoon, Nos. 8288, 8372, 8678, 9397, 9398, 9399.

Description

Vegetative Characteristics.—The clumps of this species are from 80 to 100 feet high and rather open. The base of each culm leans out before turning erect, making a curve at the base of each culm like that of a water buffalo's horn (Fig. 2). The openness of the clump is accentuated by this peculiar way the culms have of leaning out before straightening up. No lateral branches are formed on new culms before April of the year following the rainy season (June to September) when the new shoots appeared. The lower 10–20 feet of the culm normally never develop lateral branches. The culms, when young, are covered with a grey-white bloom which is denser below the nodes than above. Mature stems are tough and hard, and are the ones most commonly used near Taunggyi for the posts of bamboo houses. The length of the internode $4\frac{1}{2}$ feet above the ground varies from $8\frac{1}{2}$ to 13 inches, and its circumference from $9\frac{1}{2}$ to 17 inches. The average circumference/length ratio* of the internode at $4\frac{1}{2}$ feet is $\frac{12{\cdot}25}{10{\cdot}80}$ in. or 1·14.

The culm sheath (Fig. 1) is stiff and hard, is highly polished inside, and has appressed brown hairs outside. At the lower nodes at least, the sheaths are longer than the internodes. These lower sheaths are about half again as broad as they are long, *i.e.*, 13 inches long by 22 inches broad. There are broad shoulders on the sheath, above which the sheath is truncate. There are no auricles or oral setæ. The ligule is about 5 inches broad and $\frac{1}{4}$ inch deep, the margin being serrate. The sheath blade (of a sheath at about $4\frac{1}{2}$ feet above ground) is erect and is $2\frac{1}{2}$ inches broad by $3\frac{3}{4}$ inches long. The ligule extends 1 or $1\frac{1}{4}$ inches on either side of the base of the blade which is slightly puckered before joining the sheath. There is a very distinct line separating the sheath from the blade.

Reproductive Characteristics.—When flowering occurs, the culms become great panicles with flexible, pendulous, lateral branches on which the reddish spikelets are arranged in heads at the nodes. The central lateral branch at each node is normally unbranched and on it the spikelets are in large heads of 60 or more ; the internodes of this branch vary in length from 4 inches near the main culm to less than 1 inch towards its apex. All other lateral branches than the central one branch repeatedly, and on them the spikelets are arranged in smaller heads which are almost confluent (Fig. 1). These two types of inflorescence branches are so different that they might easily be ascribed to different species if seen separately.

The lemmas and palets of the florets are very pubescent and long-ciliate on margins and keels. There are no veins between the keels of the lower palets but there are as many as two between the keels of the upper ones. The apex of the anther is pointed and bristly. The long cells of the inner layer of the anther wall are peculiar in containing many annular rings of thickening.

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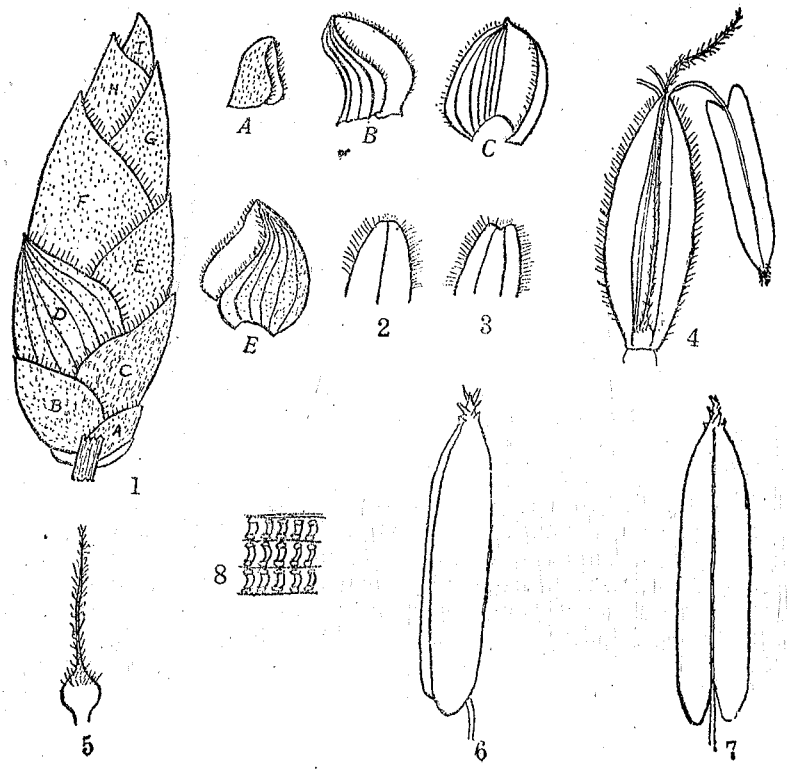
* "The Circumference-Length Ratio," *Jour. Ind. Bot. Soc.*, **21**, Nos. 5-6, 351–53



Figs. 1—8.—*Sinocalamus latiflorus* (Mun.) McClure. Fig. 1. Spikelet, 9/16 in. long, ¼ in. broad, 5/32 in. wide. A, B and C, empty glumes; D, E, F, G, H and I, lemmas of florets. Oldest floret below, youngest above. Reddish brown in colour, shortly hairy, ciliate on margins. A—Lowest empty glume, 1/8 in. long. B—Second empty glume, 3/16 in. long. C—Third empty glume, 3/16 in. long. E—Lemma of second floret, 3/8 in. long. Fig. 2. Tip of palet of E, F or G, somewhat truncate, keels long ciliate, short hairy outside, with one vein between keels. The palet of the lowest floret with acute apex and no vein between the keels. Fig. 3. Tip of palet of H or I. Very slightly bidentate, 2 veins between keels, and 1 vein in each flap. Fig. 4. Palet of D, 5/16 in. long, showing style and anther exserted. Fig. 5. Pistil: ovulary hairy on upper half, style 1, hairy. Fig. 6. Anther, yellow, side view showing bristly acuminate apex. Fig. 7. Anther, front view, 7/32 in. long. Fig. 8. Part of inner wall of anther showing peculiar annular thickening.

Records of Flowering

Sinocalamus latiflorus (Munro) McClure flowered about Taunggyi in scattered clumps during the dry seasons of 1939 to 1941, anthesis beginning during the cold season. At no place did there appear to be general flowering, although nine miles east of Taunggyi at Hopone there were half a dozen clumps flowering within a stone's throw of each other.

Vernacular Names

In the Shan villages, particularly those surrounding Taunggyi, where *Sinocalamus latiflorus* is commonly cultivated, it is called in Shan, *Mai kao quai*, which means Buffalo-horn bamboo. This vernacular name refers to the shape of the young culm shoots and to the bases of the mature culms which slope outward and then up with the same curve as that of a water buffalo's horn (Fig. 2). Other Shan names used for this bamboo are *Mai pok leng* or *Mai leng* which means Red bamboo, probably in reference to the reddish brown spikelets of the inflorescence. The same characteristic has given rise to the name *Wa ni* (Burmese) which was reported from Maymyo in 1896. The Burmese name for this species at Taunggyi is *Wa gyi*, Big bamboo ; this name, however, is used for other species of bamboo and so is not distinctive. The name, Buffalo-horn bamboo, is preferable to the names based on colour inasmuch as it refers to a distinctive vegetative characteristic which is always present.

Remarks

This species is one of the two or three kinds of giant bamboo commonly cultivated in the Shan States. The outward slant and upward curve of the culm bases of this bamboo at once set it apart in the field from the other kinds with which it commonly grows. Should a clump be found where this characteristic is not well developed, then the clear line separating the culm sheath from its blade is sufficient to distinguish this species from other large types growing in the Southern Shan States.

This Buffalo-horn bamboo may be distinguished in a number of ways from a very similar bamboo, *Mai pok mon* (Shan) (probably *Bambusa Copelandi* Gamble) which appears to be widely cultivated in the Shan States, as may be seen from the following chart :

	Mai kao quai	*Mai pok mon*
Height	.. 80–100 ft.	.. Slightly shorter
Base of culm	.. Curves out and then up	.. Lacks outward curve
Bloom on culm	.. Grey bloom denser below node than above	Grey bloom even throughout internodes
$\frac{\text{Circumference}}{\text{length}}$ ratio	.. $\frac{12.75 \text{ in.}}{11.30 \text{ in.}} = 1.13$	.. $\frac{13 \text{ in.}}{12 \text{ in.}} = 1.08.$
Uses	.. House Posts	.. Matting
Culm sheath	.. Broad shoulders and truncate across top	Curved from base rather directly to base of blade
Ligule	.. 5 inches broad	.. 3 inches broad
Culm sheath blade	.. Erect A distinct line separates blade from sheath	.. Reflexed, at least by April. No distinct line ; the tissues seem continuous
Inflorescence	.. Branches drooping, pendulous	.. Branches rigid, ascending
Spikelets	.. Reddish-brown, Up to 60 or more in a head	Straw coloured, Up to 6 in a head

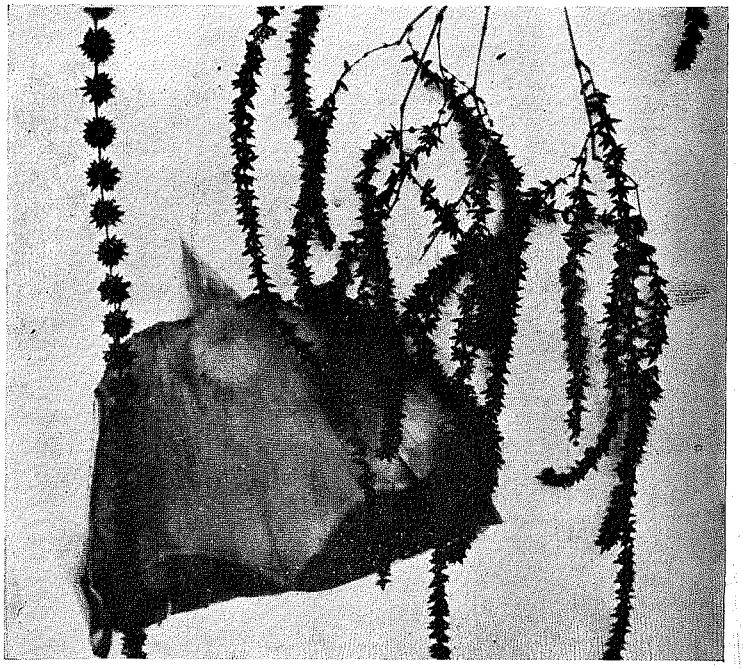


FIG. 1. (*Above*). Culm sheath from the node of *Sinocalamus latiflorus* 4½ feet above the ground, together with branches of the inflorescence, the central undivided branch being shown on the left.

FIG. 2. (*Below*). Base of a clump of *Sinocalamus latiflorus* which is in flower, showing the outward slant of the culms and the central undivided lateral branches of the inflorescence.

SUMMARY

In this paper *Sinocalamus latiflorus* (Munro) McClure of the Shan States, Burma, has for the first time been definitely linked with a Shan name, *Mai kao quai.* Additional characteristics, both vegetative and reproductive, are given which have not previously been described. A comparative chart has been worked out showing how this species differs from another similar giant bamboo, *Mai pok mon*, commonly cultivated in the same region.