

A New Species of *Nastus* from New Guinea

By

N. L. Bor, Kew

With 1 Figure

(Received November 18, 1971)

Since modern taxonomy is tied to the type-method, it is sometimes little short of a disaster when the type specimen is missing, disappears or is certainly destroyed. This is not a matter for serious concern when the type was described in the twentieth century since authors usually give full and detailed descriptions, but difficulties such as that about to be described do arise.

The annihilation of part of the collections in the Berlin herbarium during the holocaust following bomb attacks in 1943 was a great loss to botanists owing to the destruction of a large number of types. Fortunately for agrostologists, part of the collection of *Gramineae* was saved, but the bamboo-collection was lost. This has posed a delicate problem for the writer.

The problem is this. What is to be done when all that remains of a bamboo is the published description of a solitary gathering, but on the other hand a contemporary specimen of the same genus exists (also represented by one gathering), flowering in the same year, from the same geographical area, and which resembles the published description in some respects, but differs from it in others? Is one justified in creating a new species without knowing the range of variation in the spikelets and vegetative parts of the published species, or should one assume that variations do occur, even if very considerable, and create a neotype based on the original description?

In *Botanische Jahrbücher* 52: 174 (1914) PILGER published the description of a new species of bamboo, collected by SCHLECHTER in German New Guinea, Kaiser Wilhelmsland in June 1909. He named the species *Oreiostachys schlechteri*, of which the type no longer exists.

At the same time (1910) another expedition to northwest New Guinea was taking place, the Dutch-German Boundary Commission. Dr. GJELLERUP, a member of the expedition, collected a flowering bamboo which belonged to the same genus *Nastus* SPRENG. to which

HOLTUM reduced both *Chloöthamnus* BÜSE and *Oreiostachys* GAMBLE [Kew Bull. 10: 591-4 (1956)].

GJELLERUP's specimens were sent to Kew from Utrecht in 1914. The specimens remained untouched for 55 years owing to the dislocation of normal routine during World War I, pressure of work in subsequent years including World War II, and accumulations during the latter.

PILGER (loc. cit.) gives a very full description of *Nastus schlechteri*, which differs from GJELLERUP's plant in the following respects.

1. Habit. According to PILGER, SCHLECHTER's plant was a strong, rather tall, erect shrub growing at an altitude of 1300 m. GJELLERUP's plant on the other hand is a climbing scrambler, with slender culms at most 3 cm in diameter, draped over small trees and bushes on the banks of a mountain stream, 2-20 m above sea level.

2. Nodal rings. A striking feature of GJELLERUP's plant are the woody, circular projecting rings developed below each node on the ultimate branchlets; an obvious advantage to a scrambler. There is no mention of such rings in the description of SCHLECHTER's plant, although PILGER seems to have had adequate material before him, e.g. he mentions branches from the nodes. It is inconceivable that an experienced botanist could have missed these infranodal rings had they been present.

3. Glumes. PILGER's description of the glumes in SCHLECHTER's plant runs as follows „die untersten Spelzen, die aus den starren Stachelgrannen mit ganz kleinen Basis bestehen, variieren an Länge, die untere von 10-18 mm, die obere von 12-20 mm“. The lengths of the glumes in GJELLERUP's plant are also variable, but they are very much shorter. The variation is best seen in the following table; those in SCHLECHTER's plant are taken from PILGER's description, those in GJELLERUP's from 10 spikelets taken at random. The measurements are of glumes including the awn, the lengths of the latter are not given by PILGER but are indicated in brackets for GJELLERUP's plant.

SCHLECHTER's plant mm	GJELLERUP's plant mm
Glume 1: 10-18	2.5-5.5 (0.5-3)
Glume 2: 12-20	3.5-6 (1-2.5)
Glume 3: 9.5-13	4.5-6 (0.5-2)
Glume 4: 10	5.5-9 (0-0.5)
Glume 5: 10-11	9-10
Lemma 9-9.5	8.5-10

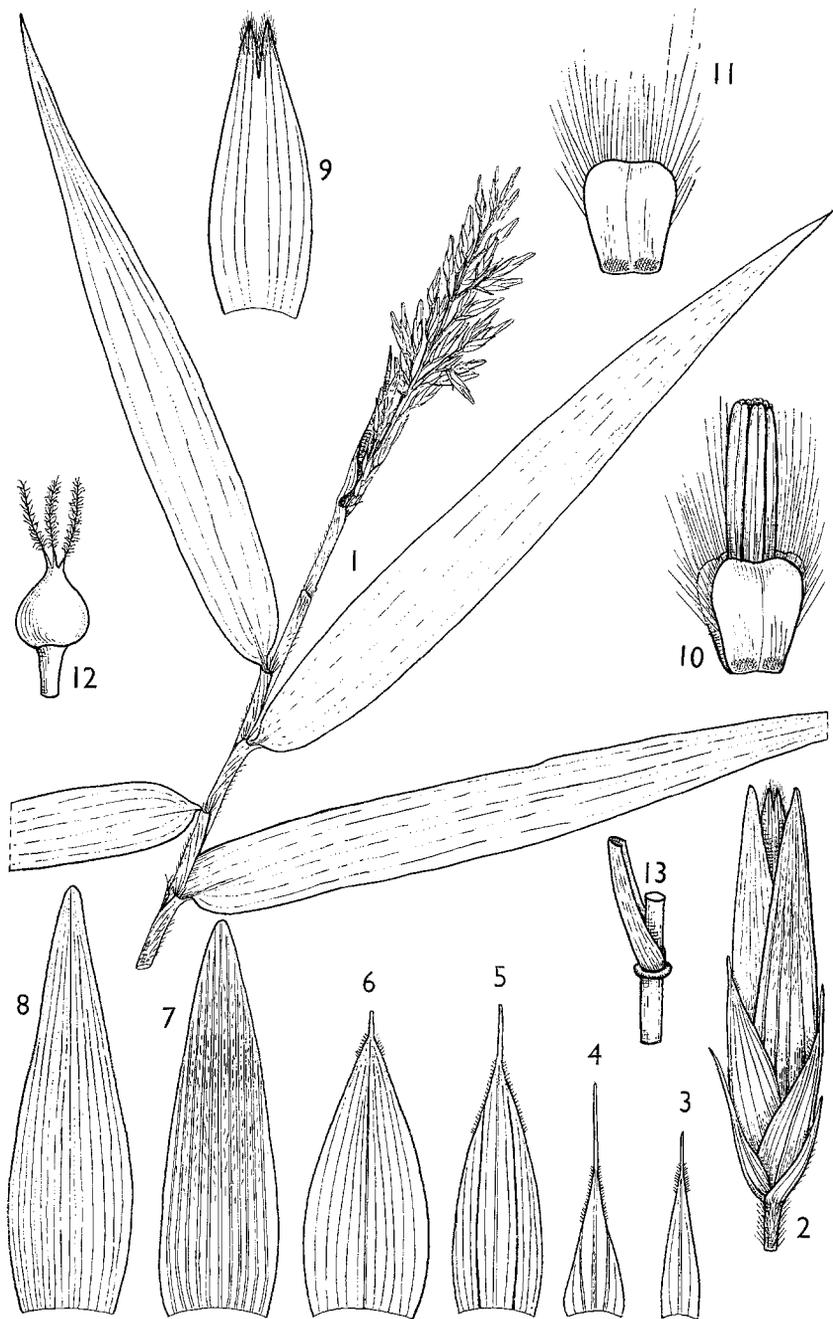


Fig. 1. *Nastus holttumianus* BOB. 1 habit ($\times 2/3$); 2 spikelet ($\times 4$); 3 first glume ($\times 6$); 4 second glume ($\times 6$); 5 third glume ($\times 6$); 6 fourth glume ($\times 6$); 7 fifth glume ($\times 6$); 8 lemma ($\times 6$); 9 palea ($\times 6$); 10 male flower with lodicules ($\times 8$); 11 single lodicule ($\times 8$); 12 ovary and styles ($\times 10$); 13 portion of branch with infranodal ring ($\times 2$)

The internodes of the rachilla in GJELLERUP's plant are extremely short as may be judged from the fact that the length of a spikelet varies between 10–12 mm. In no circumstances could the lowest pair of glumes exceed the length of the spikelet, but if the internodes are as short in SCHLECHTER's plant this could easily happen, and indeed, in any event, the lowest glumes must be longer or only a little shorter than the spikelet. This fact must in itself give a strikingly different fascies to the spikelet of *Nastus schlechteri* PILGER, not at all similar to that of GJELLERUP's *Nastus*.

As far as panicle shape and length are concerned, PILGER's description of SCHLECHTER's plant could easily apply to that of GJELLERUP, but the most factual discrepancies from *Nastus schlechteri* are the lengths of the four lower glumes. Even allowing for a measure of variation one cannot imagine it to be of such a degree as that observed in the length of the glumes of both. As far as the infranodal rings are concerned, it is possible PILGER did not observe them, but this is most unlikely in an observer of his acumen. The writer therefore comes to the conclusion that GJELLERUP's plant must be considered to be a good species. A diagnosis and description follow.

Nastus holttumianus BOR, sp. nov. cum, ut videtur, *N. schlechteri* (PILGER) HOLTUM, comparanda, sed ab ea glumis inferioribus multo brevioribus, et annulis lignosis infra nodos satis distinguitur.

A tufted bamboo climbing or scrambling over low vegetation; culms up to 20 m long, at most 3 cm in diameter, with an annular woody ring below each node; culm sheaths unknown. Branches slender, with similar rings below the nodes, sheathed; sheaths closely clasping, many-nerved, covered with antrose stiff hairs, auricled; auricles with stiff bristles; ligules of similar bristles; blades linear or lanceolate, rounded at the base into a tough, stout, very short petiole, tapering to a short point, up to 16 cm long, 2 cm broad, smooth or glabrous on both surfaces.

Panicle of short branches bearing shortly pedicellate spikelets, very contracted, one-sided, 16 cm long, 2 cm wide; axis, branches and pedicels covered with short, white, stiff hairs. Spikelets 10–11 mm long, 1-flowered; lemma subtended by five glabrous, strongly nerved glumes; glume 1, subulate to lanceolate, awn included, 2.5–5.5 mm, glume 2, lanceolate, awned, 3.5–6 mm; glume 3, ovate or elliptic, awned, 4.5–6 mm, glume 4, ovate-oblong, 5.5–9 mm, glume 5; ovate-elliptic, 5.5–9 mm; lemma elliptic-acute, 9–10 mm, 9–11-nerved, hirsute between the nerves or glabrous; palea several-nerved, ending above in two hairy lobes; stamens 6, 8 mm long; ovary pyriform-stipitate; styles and stigmas 3; lodicules 3, 1.5 mm long, truncate, fringed with hairs 2 mm long.

West Irian (Dutch New Guinea), Bivac Hollandia, 2–20 m above sea level, May 28, 1910, K. GJELLERUP 144 (Holotypus K, isotypus U). Shrub 4–5 m tall, climbing over small trees and shrubs; spikelets greenish white; culms at the most 3 cm in diameter.

I dedicate this new species to Prof. R. E. HOLTUM who, apart from his work on various groups of plants (ferns, orchids, etc.), has contributed largely to our knowledge of New Guinea bamboos, and, in particular, to that of the species of the genus *Nastus*.

Address of the author: Dr. N. L. BOR, The Herbarium, Royal Botanic Gardens, Kew, Great Britain.