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The South African Bamboo. (*Arundinaria tessellata*, Munro.)

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finished specimens of papers. The paper made from 'all-grass' pulp would, with judicious treatment for improvement of colour, be very suitable for printing purposes.

"The following table of figures was obtained and compiled from tests and analyses made on the air-dried finished papers—

<i>Pure Lalang.</i>	<i>Half Lalang,</i>	<i>„ Cotton.</i>
Physical properties—		
Breaking strain (lbs.) ...	8·37	8·88 (way of machine)
Stretch (per cent.) ...	1·03	1·35
Rubbing test ...	27	151
Thickness (inches) ...	1 ¹ / ₅	2 ¹ / ₅
Chemical constituents, per cent.—		
Rosin size ...	2·20	2·43
Ash (natural and loading) ...	3·01	1·94
Moisture ...	10·40	8·68

"The addition of cotton to the pure lalang fibre has the effect of improving its resistance to crumbling, and also in a lesser degree its tensile strength."

X.—THE SOUTH AFRICAN BAMBOO.

(*Arundinaria tessellata*, Munro.)

OTTO STAFF.

THE existence of a bamboo in Cape Colony has been known for more than seventy years. It was discovered by Drège on several of the high mountains of the Colony as long ago as 1832, if not 1829. His collections include it from Table Mountain (Queenstown Division), Katberg (Stockenstrom Division), and the Witte Bergen (Aliwal North Division). On his labels he also records it from the Bamboesbergen (Tarka and Molteno Divisions), and other "very high localities on the boundaries of Caffraria." The altitudes given by him show a vertical range from 4,000 to 7,000 feet. According to him, it is very common in damp places in the Witte Bergen, where it grows to a height of 15 to 20 feet, whilst in the drier stations on Table Mountain and in the Bamboesbergen it varies from 5 to 10 feet. Almost simultaneously it was found by Ecklon on Winterberg, to the west of Katberg. Neither of the two collectors observed it in flower or fruit; but, from a certain similarity of the vegetative parts with *Nastus borbonicus*, Gmel., Nees, in his elaboration of the *Gramineae* of South Africa (1841), suggested that it was a *Nastus* and named it *Nastus tessellata*. In 1868, however, Munro in his monograph of the *Bambuseae*, transferred the plant to *Arundinaria* as *A. tessellata*. Although Cooper collected it again in the Maluti Range, Basutoland, in 1861, and, recently, Wood and Schlechter in the Drakensbergen, the flowers remained unknown and the generic position was therefore, to a certain degree, still hypothetical, when the bamboo was more fully described in the *Flora Capensis* in 1900. Last December, however, fine flowering

specimens of the bamboo were received at Kew from Mr. J. M. Wood, Director of the Botanic Garden at Durban, Natal. They had been communicated to him by Mrs. W. Putterill, and were collected on the Drakensbergen, near Harrismith, at an altitude of 5,000 to 7,000 feet.

The examination of the flowering specimens proved that Munro was right in referring the species to *Arundinaria*. A technical description of the inflorescences and flowers is given below, supplementing the description of the vegetative parts in the *Flora Capensis*. vii., p. 748. The species is quite distinct from the common tropical African *A. alpina*, K. Sch., and bears a certain resemblance to the Himalayan *A. spathiflora*, Munro, with which it has the spathaceous inflorescences and strongly tessellate leaves in common. The two-flowered spikelets, however, and also the nature of the glums distinguish it sufficiently. In fact it is impossible to point out any close and evident ally in the genus.

In the Kew Report for 1878, pp. 47, 48, there is a paragraph dealing with the economic value of this bamboo. In 1877, samples of the bamboo which according to Commandant J. H. Bowker "are found mostly on the northern slopes of the high mountain range dividing the east and west watershed of South Africa, and mostly on the most exposed sites" had been sent to Kew by the gentleman mentioned, and as a paragraph extracted from the "Natal Mercury" had gone the round of the English papers and caused enquiries concerning the bamboo, the samples received were submitted to a wholesale merchant dealing with such articles. The report was unfavourable, the conclusions arrived at being that the "South African canes, unless far superior to the samples sent, would have no place in the market in competition with the Chinese." Mr. Bowker himself, however, wrote:—"The bamboos are much used by the natives for spear handles, house-building, fences and gates to sheep-folds, &c. They can be got from 3 feet to 25 feet in length, and in any quantity. I have used a rod made from it for many years past and found it superior in spring and strength to any other I could get. I think they could be turned to account as coach-whip handles, umbrella handles, walking sticks, &c.; the root grows into almost every shape, and could be cut into handles of different patterns." From this it appears probable that the samples submitted to the expert were of inferior quality. Nothing more was heard about the use or usefulness of the bamboo; but it seems quite worth while to try again whether it could not be put to any practical use the more so as one of its principal stations, the one near the Van Reenen Pass in the Drakensbergen is now easily accessible by railway. At the same time an attempt should be made to take it into cultivation. It ought to prove hardy in this country.

The area of *Arundinaria tessellata* lies from Stockenstrom and Queenstown Divisions over Craddock, Tarka, Molteno, Aliwal North and Basutoland to the Drakensbergen, the easternmost station in that range being at the Van Reenen Pass. It may be pointed out in this connection that Munro in putting the lower limit of *Arundinaria tessellata* at 500 feet merely repeated a mistake or misprint in Nees's account of the bamboo, where it is said to occur on Katberg at 500 feet, instead of 5,000 feet. The

Bamboesbergen, referred to by Drège, are an extensive range of mountains along the boundaries of Molteno Division in the north and Craddock, Tarka and Queenstown Divisions in the south. There is another "Bamboesberg" to the west of Tarkastad and near the Tarka-Craddock boundary. It also has its name presumably from the occurrence of the same bamboo, in which case this mountain would mark the south-western limit of the area of *Arundinaria tessellata*.

DESCRIPTIO:—*Frutex* interdum arborescens, 1·5–6 m. altus; culmi basi ultra 8 mm. diametro, fistulosi—uti rami foliati graciles approximati—teres, laevissimi, ramorum internodiis raro 5 cm. excedentibus. *Vaginae* ad ramorum bases ortae, laminis destitutae, scariosae vel subscariosae, striatae, laeves, caeterae coriaceae, arctae, leviter striatae, praeter margines exteriores superne ciliatæ et ora fugaciter fimbriata glabrae; ligulae obtusae, plerumque breves, rarius ad 4 mm. productae; laminae perfectae 3–4, versus ramulorum apices approximatae, lanceolatae vel lineari-lanceolatae e basi attenuata vel rotundata, breviter acutae vel longe in acumen tenuissimum productae, 6–12 cm. longae, 9–14 mm. latae, coriaceae, interdum subglaucae, ad basin parvissime pubescentes, ad margines spinuloso-ciliolatae (juniores quidem), caeterum glaberrimae, nervis lateralibus primariis utrinque 3 (rarius 4), ob venas transversas approximatas et distinctas plerumque eximie tenuiterque tessellatae. *Racemi* breves, circiter 4–5-spiculati in ramis florentibus undique ex axillis foliorum emortuorum ortis vaginis albido-stramineis emarcidis angustis superne longe attenuatis eos saepe paulo superantibus suffulti, cum vaginis foliorum annotinorum in amplam paniculam spuriam dispositi. *Spiculae* praeter imas interdum bractea racemum aequante suffultas ebracteatæ, breviter pedicellatae, 16–18 mm. longae, 2-florae; rhachilla producta, glabra, anthoecium imperfectum gerens. *Glumae* aequales, lanceolatae, acuminatae, 12–13 mm. longae, utrinque 5-nerves, venis transversis nonnullis. *Valvae* a latere visae suboblique lanceolatae, subacuminatae, 14–15 mm. longae, virescentes, nervis utrinque 4–5, venis transversis numerosis conspicuis. *Paleae* 11–13 mm. longae, carinis superne asperis, nervis extracarinibus utrinque 2–3, venis transversis tenuissimis nonnullis. *Lodiculae* 3 obovato-ellipticae, ciliatae, 2 mm. longae, postica paulo minor. *Stamina* 3; antherae 8 mm. longae.

XI.—NEW ORCHIDS: DECADE 33.

321. *Octomeria arcuata*, Rolfe; habitu *O. sarcophyllae*, Rodr., sed foliis latioribus sordide purpureis, floribus flavescentibus et labello trilobo purpureo-maculato differt.

Herba caespitosa, 8–13 cm. alta. *Caules* subgraciles, 3–5 cm. longi, vaginis membranaceis vestiti. *Folia* subsessilia, lanceolata, acuta vel acuminata, subrecurva, crassiuscula, canaliculata, 6–9 cm. longa, 1–1·5 cm. lata. *Flores* solitarii, subpenduli, 1 cm. longi. *Pedicelli* 5 mm. longi. *Sepala* et *petala* oblonga, obtusa, subincurva, 1 cm. longa. *Labellum* trilobum, 7 mm. longum, recurvum;