WHITEOCHLOA, A NEW GENUS OF GRASSES FROM THE NORTHERN TERRITORY OF AUSTRALIA.

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SUMMARY.

Whiteochloa, a new genus of Gramineae, tribe Paniceae, is described.

The tribe *Paniceae* of the family *Gramineae* is exceptionally well-developed in the warmer parts of Australia, no fewer than thirty-nine genera now being recorded as native or naturalized and well-established, a very considerable increase on the thirteen described by Bentham in the Flora Australiensis (1878). This trebling of the number of genera is due mainly to a more uniform conception of these taxa than that adopted by Bentham, the genus being now restricted to species very similar in the structure and arrangement of their spikelets, and presenting a distinctive facies. Thus D. K. Hughes (1923), in her revision of the genus *Panicum* of the Flora Australiensis accepted the genera defined by A. Chase and by Stapf as a result of their studies of American and African *Paniceae* respectively, and divided the species of *Panicum* sensu Bentham among fourteen genera. Further subdivision has been carried out by S. T. Blake in segregating his new genera *Zygochloa* from *Spinifex* and *Ancistrachne* from *Panicum*, and by Pilger in removing *Pseudoraphis* from *Chamaeraphis*. On the other hand, several additions to the Australian genera of *Paniceae* are due to more intensive collecting in botanically unexplored areas; they include the genera *Calyptochloa, Cleistochloa, Dimorphochloa, Homopholis, Ottochloa, Pseudochaetochloa* and *Uranthoecium*. A few exotic genera introduced as fodder plants, such as *Axonopus, Melinis* and *Rhynchelytrum*, have become established in the warmer parts of the Commonwealth.

The most important characters used in distinguishing the genera of the *Paniceae* are to be found in those modifications of the scales of the spikelet which ensure greater protection or more widespread dispersal of the seed, in those produced by lateral or dorsal pressure during the development of the spikelet, in the degree of development of the lower floret, in the arrangement of the spikelets in the inflorescence and in the form of the latter. Among the Australian species referred to the genus *Paspalidium* Stapf by Hughes, is one, *P. semitonsum* (F. Muell. ex Benth.) Hughes (l.c. 317), which differs from all other members of the genus in so many of these diagnostic characters that it must be separated as a distinct genus. The name *Whiteochloa* is

proposed for this new genus. The distinctions between the two genera are set out in the following table: —

PASPALIDIUM.	WHITEOCHLOA.
1. Spikelets plano-convex or slightly dorsally compressed.	1. Spikelets slightly laterally compressed.
2. Upper floret sessile on the rhachilla.	2. Upper floret borne on a very short rhachilla-internode.
3. Lower glume abaxial; upper glume adjacent to the axis on which the spikelet is borne.	3. Lower glume adaxial, adjacent to the axis on which the spikelet is borne.
4. Upper glume glabrous.	4. Upper glume bearing a row of stiff tubercle-based hairs on each nerve.
5. Lower lemma usually flat or slightly depressed on the back.	5. Lower lemma very convex on the back except for a very narrow shallow median translucent longitudinal groove.
6. Upper floret about as long as the lower.	6. Upper floret shorter than the lower.
7. Axes of the inflorescence each terminated by a bristle or blunt naked tip.	7. Axes of the inflorescence each terminated by a spikelet.

Judging from the orientation of its spikelets and by their general structure, *Whiteochloa* is more closely related to *Pseudechinolaena* Stapf than to *Paspalidium*. This genus of forest grasses has been recorded from Papua and may occur in the rain forests of northern Queensland. It comprises two species, *Pseudechinolaena polystachya* (H.B.K.) Stapf, with a wide area of distribution in tropical America, Africa and Asia, and *P. perrieri* A. Camus, which is confined to Madagascar. The two genera may be distinguished by the following characters:—

PSEUDECHINOLAENA.	WHITEOCHLOA.
1. Glumes equal, herbaceous, or the lower slightly shorter, rarely only two-thirds the length of the spikelet.	1. Glumes unequal, membranous, the lower one-third to half the length of the spikelet.
2. Upper glume with more or less translucent spots between the nerves, and usually with a straight or eventually hooked many-celled bristle-like outgrowth from the centre of each spot.	2. Upper glume bearing a row of stiff tubercle-based unicellular white hairs along each nerve.
3. Lower lemma convex on the back.	3. Lower lemma convex on the back except for a narrow median groove.
4. Ligules membranous.	4. Ligule reduced to a ciliate rim.
5. Leaf-blades lanceolate to ovate, short.	5. Leaf-blades narrowly linear, elongated.

It is very probable that the two genera differ much in habit, the species of *Pseudechinolaena* being trailing annuals or perennials, branching and rooting from the prostrate many-noded base, and with very slender ascending leafy culms. Unfortunately the type-material of *Whiteochloa* lacks the base, but it has the appearance of an erect or suberect annual, with simple few-noded culms.

The genus *Ancistrachne* S. T. Blake resembles *Whiteochloa* in some respects, but may be readily separated by its rigid woody branched culms, the slightly dorsally compressed abaxial spikelets, 9-11-nerved upper glume, barren lower floret, 7-9-nerved lower lemma and by the flattened margins of the upper lemma. The genus *Brachiaria,* which

agrees with *Whiteochloa* in possessing adaxial spikelets, may be distinguished by its terete or dorsally compressed spikelets, sessile upper floret, absence of tubercle-based hairs on the nerves of the upper glume, and by the thin median groove of the coriaceus lower lemma.

Generic Description.

Whiteochloa *C. E. Hubbard*, genus novum, affine *Pseudechinolaenae* Stapf, sed glumis membranaceis, gluma inferiore late ovata usque dimidiam partem spiculae aequante, gluma superiore secus nervos pilis brevibus rigidiusculis e tuberculis minutis ortis ciliata, lemmate infero dorso longitudinaliter sulcato, ligula ad seriem ciliorum redacta, laminis foliorum anguste linearibus differt.

Spiculae asymmetricae, a laterae visae semi-ovatae vel semi-elliptico-ovatae, a dorso visae anguste ellipticae et acutae, exaristatae, leviter lateraliter compressae, contiguae vel imbricatae, adaxiales, breviter et inaequaliter pedicellatae, demum totae a pedicellis persistentibus disarticulantes, solitariae vel binae, in ramis et ramulis secundis panicularum erectarum linearium vel lanceolatarum dispositae; rami gracillimi, triquetri, solitarii, inferne ramulos breves appressos paucispiculatos gerentes; rhachilla inter anthoecia internodio gracillimo brevissimo glabro praedita. *Anthoecia* duo, dissimilia; inferum masculum; superum hermaphroditum, infero brevius. *Glumae* inaequales, dissimiles; inferior usque dimidiam partem spiculae aequans, late ovata, obtusa vel acuta, mucronulata, membranacea, 3-5-nervis; superior spiculae aequilonga vel fere aequilonga, cymbiformis, dorso valde convexa, explanata anguste ovata, acute acuminata, membranacea, 5-7-nervis, nervis pilis brevibus patulis rigidiusculis e tuberculis minutis ortis ciliata. *Anthoecium inferum:* lemma spiculae aequilongum vel fere aequilongum, dorso longitudinaliter anguste sulcatum, ceterum convexum, sulco translucente excepto coriaceum, elliptico-oblongum, subacutum vel obtusum, tenuiter 5-nerve, glabrum vel fere glabrum, palea anguste elliptica vel oblonga, lemmati aequilonga vel eo paullo longior, obtusa, bicarinata, circa carinas anguste alatas indurata, ceterum tenue membranacea. *Anthoecium superum* a latere visum semi-elliptico-ovatum, a dorso visum anguste ellipticum et acutum: lemma apiculatum, dorso valde convexum, marginibus involutis angustis firmis, demum crustaceum, tenuiter 5-nerve, tenuiter transverse rugulosum; palea lemmati aequilonga, dorso plana, crustacea, 2-nervis. *Lodiculae* 2, late oblongae, truncato-emarginatae, glabrae. *Stamina* tria; antherae anguste oblongae. *Ovarium* glabrum; styli liberi, terminales; stigmata breviter plumosa. *Caryopsis* a dorso visa elliptica, dorso compressa, plano-convexa; scutellum circiter dimidiam partem caryopseos aequans; hilum basale, ellipticum.—*Culmi* graciles, erecti, simplices; foliorum vaginae anguste lineares, planae; ligulae ad seriem ciliorum redactae; paniculae elongatae.

Species unica, Australiae tropicae incola.

Whiteochloa semitonsa (*F. Muell. ex Benth.*) *C. E. Hubbard*, comb. nov.

Panicum semitonsum F. Muell. ex Benth. Fl. Austral. **7**: 483 (1878); Ewart & Davies, Fl. North. Territ. 39 (1917).

Paspalidium semitonsum (F. Muell. ex Benth.) Hughes in Kew Bull. **1923**: 317 (1923).

Gramen annum (?), basis ignotum, circiter 60 cm. altum. *Culmi* glabri, laeves. *Foliorum vaginae* marginibus apicem versus ciliolatae, ceterum glabrae; laminae usque 12 cm. (vel ultra) longae, 3.5 mm. latae, supra minute scaberulae, glabrae. *Inflorescentia* 10-20 cm. longa, usque 5 cm. lata; rami inferiores usque 7 cm. longi; pedicelli 0·3–2 mm. longi. *Spiculae* 3·5–4·2 mm. longae; internodium rhachillae usque 0·5 mm. longum; gluma inferior 1·5–2 mm. longa, nervis minute hispidula; anthoecium superum 2·2–2·5 mm. longum; antherae 1·3–1·5 mm. longae.

NORTHERN TERRITORY: Victoria River, *Elsey!* (Herb. Kew.).

In addition to the above, Bentham (l.c.) also cites a specimen collected by F. Mueller at Providence Hill, north of the mouth of the Victoria River, at about 14° 30′ S and 129° 30′ E. This material was probably returned to the Melbourne Herbarium. Both J. R. Elsey's and F. Mueller's specimens were gathered on A. C. Gregory's Northern Australian Expedition of 1855-56, on which the former served as surgeon and naturalist and the latter as botanist.

The name *Whiteochloa* is given in memory of Cyril Tenison White, one of Australia's most illustrious botanists. He is remembered by the writer with gratitude and affection as a very good friend, who by his generous help, kindly advice and encouragement, and perfect companionship on numerous botanical excursions, made most memorable a year spent at the Brisbane Herbarium and elsewhere in Queensland in 1930-31.

REFERENCES.

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