

A
CRITICAL REVISION OF
THE GENUS ARISTIDA

BEING A PRELIMINARY STUDY

AND

AN INTRODUCTION TO THE MONOGRAPH

BY

J. TH. HENRARD.



SUPPLEMENT.

SUPPLEMENT.

Aristida arenaria Gaudichaud.**var. brevistipitata Henrard.****nov. var.**

Differt a typo praesertim columna valde abbreviata, tantum 8 mm. longa, bene torta, aristis brevioribus, circa 25 mm. longis; glumae inaequilongae, inferior 8—10 mm. longa, acuta, superior 13—14 mm. longa, subobtusa, gluma fertilis laevissima, callo acuto $1\frac{1}{2}$ mm. longo, ad 5 mm. longa.

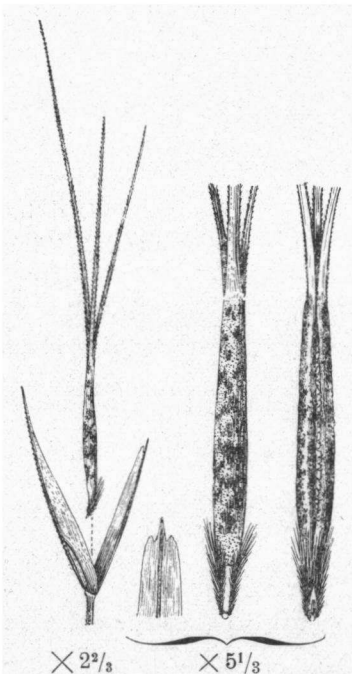
Central South Australia: without precise locality, collected bij H. J. HILLIER, no. 46. Type in the Kew Herbarium, presented in 1906.

Aristida armata Henrard.**nov. spec.**

(Sectio *Chaetaria*). Perennis, caespitosa, florendi tempore innovationibus paucis. Culmi stricte erecti, cum paniculis 60 cm. vel plus alti, inferne simplices, ad nodos fastigiato-ramosi, teretes vel subcompressi, striati, plus minus scaberuli, internodia inferiora 10—15 cm. longa, nuda; vaginae internodiis duplo breviores, teretes, arctae, striatae, scaberulae, ligula breviter ciliata, auriculae pubescentes et pilis longis sparsis albis praeditae; laminae glaucae, saltem inferne planae, superne convolutae. ad 10 cm. longae, $1\frac{1}{2}$ — $2\frac{1}{3}$ mm. latae, glabrae vel supra scaberulae, marginibus scabris incrassatis, sensim longe acuminatae; panicula longe exserta, ad 30 cm. longa, valde interrupta, ad 8 cm. lata, primo subcontracta, deinde laxa effusaque, axis angulosus, glaberrimus vel superne scaberulus, in axillis pulvinatim incrassatus, ramis solitariis vel subgeminatis, potius a basi bipartitis, primo erecto-adpressis, ad maturitatem divergentibus vel horizontaliter patentibus, ramuli adpressi, scaberrimi, paucispiculati, pedicellis subcompressis subclavatis, scaberrimis; spiculae pallide flavae vel subcoloratae, erectae, adpressae, glumae lanceolatae, inferior circa 10—11 mm. longa, sensim acuminata sed vix aristata, scabriuscula, carina scaberrima, sub-3-nervia, nervis lateralibus brevioribus, anastomosantibus, gluma superior angustior, 8—9 mm. longa, 1-nervis, carina laevis, apice

distincte emarginata, bilobulata, inter lobos breviter aristata; gluma fertilis nigro-maculata, dorso glabra, marginibus involutis, ventre longitudinaliter sulcata, in sulco pilis spinulosis rigidis rectis vel curvatis praedita, callo subacuto, circa 1 mm. longo, dense barbato, 8 mm. longa, superne in aristas basi applanatas superne triquetras scaberrimas abiens; aristae inaequilongae, centralis ad 20 mm. longa, laterales 12—15 mm. longae.

Australia: Central Queensland between Rockhampton and Westwood, 25. II. 1927, leg. C. T. WHITE no. 3395. Typus speciei in Herb. Kew (no. 4115). From the Queensland Herbarium Botanic Gardens, Brisbane. Dupl. typus in Herb. Lugd. Bat. sub no. 927. 230—276.



ARISTIDA ARMATA Henrard.

From type specimen.

Allied to the Australian *A. praealta* HENR., (a species with the same inverse position of the glumes and the furrowed ventral side of the lemma) but differing in the curious spiny hairs of the furrow as in *A. inaequiglumis* DOMIN. The new species differs from *A. praealta* moreover in the short lateral nerves of the lower glume and in the stiffly spreading branches at maturity, spikelets bearing nearly to the base. Immature specimens of the new species have erectly ascending branches. *Aristida inaequiglumis* differs in the 1-nerved longer lower glume and in the long and narrow panicle. *Aristida pruinosa* DOMIN differs in the much shorter lemma, scabrous upwards but

without spiny hairs in the furrow, in the very glaucous colour of the whole plant and in the densely pruinose internodes.

Besides the type, I saw this species in the Zürich Herbarium (from the Sydney Herb. N. S. Wales) collected by BOORMAN in 1906, a depauperate immature plant with contracted, spiciform, subinterrupted panicle. Such meagre specimens are also present in the Munich Herb. (no. 4910) from Springfield, ded. HANS ANDRAE, 1890.

Good specimens I found in the Leningrad Herbarium, collected in 1909 by J. H. MAIDEN near Duaringa in Queensland (from Sydney Herb.), and in the Kew Herb., a good specimen collected by J. L. BOORMAN near Warwick in Queensland (ex Nat. Herb. N. S. Wales no. 54).

Aristida barbicollis* Trin. et Rupr.*var. *conglomerata* Henrard.**

J. TH. HENRARD: A Monograph of the Genus *Aristida*. Vol. I. [1929] p. 132 (cum descript. angl.)

Culmi cum panicula breviores quam in typo, circa 15–20 cm. alti, subsimplices, auriculae vaginarum densiter ciliato-barbatae, quasi annuliformes; panicula stricte erecta, ad basin subinterrupta, 5–6 cm. longa, ad 2 cm. lata, subdensa et subspiciformis, ramis solitariis 1–3 cm. longis, stricte erectis et adpressis, fere a basi spiculiferis, subsessilibus.

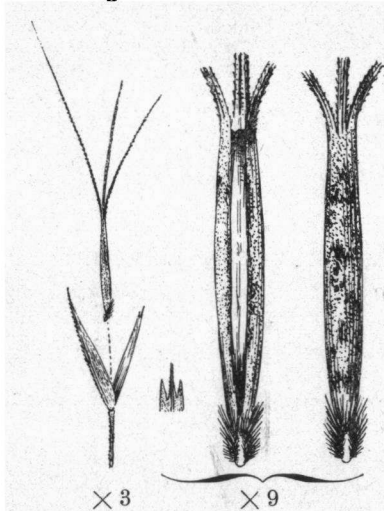
Africa australis: Fort Beaufort Div. Hermanskraal leg. DRÈGE pl. exs. spec. a!. Herb. Lugd. Bat. sub no. 908.83–882, 883 et 1305.

In my Critical Revision on p. 49 the data of *Aristida barbicollis* are given. The species was described by NEES as *Chaetaria Forskolii* and NEES mentioned already a variety with contracted spiciform panicle. The Russian authors mentioned the same variety as „*β. panicula contracta spiciformi*”, they compared the variety with *Aristida congesta*, without giving it a name. The specimens were collected by DRÈGE and are found in nearly all the collections as *Chaetaria Forskolii* N. ab E. pl. exs. spec. a et b.

Aristida Benthani* Henrard.*nov. spec.**

(Sectio *Chaetaria*). Perennis, caespitosa; culmi erecti, simplices vel interdum parum ramosi, circa 1 mm. crassi, cum paniculis ad 60 cm. alti, 2–3-nodes, internodia subaequilonga, elegantia, teretia, substriata, glabra; vaginae arctae, subteretes, inferne compressae, superne teretes, substriatae, interdum hiantes, internodiis breviores, glaucae, glabrae, ligula breviter ciliolata, auriculae pubescentes, plus minusve barbatae praesertim eae innovationum, collo glabro; laminae culmorum inferne planae, circa 1 mm. latae, superne convolutae vel involutae, subsetaceae, vix $\frac{1}{2}$ mm. crassae, circa 15 cm. longae, interdum breviores, eae innovationum convolutissimae, vix 10 cm. longae, subtus glabrae, supra scaberulae vel hirtellae, setaceo-acuminatae; panicula exserta pedunculo ad 15 cm. longo, angusta, contracta, circa 1 cm. lata, ad 15 cm. longa vel brevior et vix 10 cm. longa, sublaxa, plus minus praesertim inferne interrupta, axis inferne glaber teres, superne subangulosus scaberulus, ramis

binis vel potius bipartitis, a basi nudis, scaberulis, capillaribus, ad 4 cm. longis, flexuosis vel curvatis, erecto-ascendingibus vel interdum subnutantibus, paucispiculatis, sensim decrescentibus, ramulis scaberulis; spiculae substantes, vix congestae, erectae, flavescens vel purpurascens, pedicellis scaberulis subclavatis, glumae linearilanceolatae, 1-nerves, inferior longior, carina scabra, minutissime scaberula, circa 6 mm. longa, acuminata vel leviter aristata, superior glaberrima, carina laevis, circa 5 mm. longa, apice bifida, inter lobos acutos distincte aristata, aristula circa $\frac{1}{2}$ mm. longa; gluma fertilis punctulata plus minus nigro-maculata lateraliter subcompressa vix angustata callo subacuto circa $\frac{1}{2}$ mm. longo, dense barbato, circa 5 mm. longa, marginibus involutis glabris; aristae ad basin planiusculae, scaberrimae, erectae vel subpatentes, inaequilongae, centralis circa 10 mm. longa, aristae laterales 5—6 mm. longae.



ARISTIDA BENTHAMI Henrard.
From type specimen.

Australia: Queensland; Brisbane River, leg. F. v. MUELLER. Typus speciei in Herb. Kew.

This plant was placed by BENTHAM in Flora Australiensis under *Aristida ramosa*, from which it is however quite different. It differs not only in the inverse position of the glumes but also in the much smaller spikelets with shorter glumes lemmas and awns.

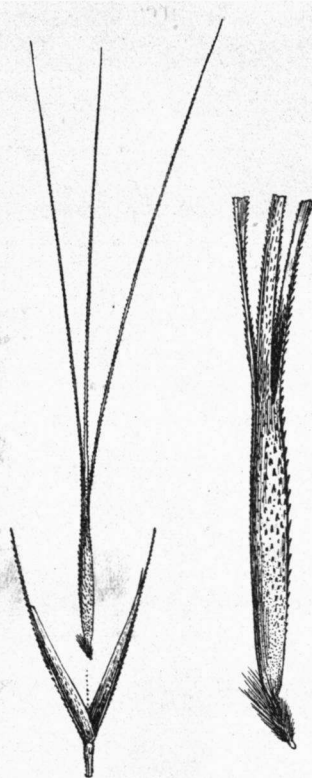
Very beautiful material of this species was studied in the recently received collection from the Bot. Gard. Herb. at Brisbane, it was collected by SHIRLEY, WHITE and others (no. 4052, 4053, 4057, 4059, 4060, 4061, 4065, 4067, 4092, 4104 and 4110). One of these specimens collected by BICK and WHITE in 1916 (no. 4057) is fully developed and has a nodding panicle with filiform branches.

***Aristida borumensis* Henrard.**

nov. spec.

(Sectio *Chaetaria*). Annuæ. Culmi erecti vel adscendentes, sine paniculis circa 50 cm. alti, compressi, striati, scaberuli, plurinodes, e nodis inferioribus ramosi; vaginae compressae, striatae, internodiis breviores, pilis longis albis sparsis, praesertim versus margines,

praeditae, ligula ciliata, interdum pilis longis albis stipata, auriculae pubescentes vel plus minus barbatae, collo glabro; laminae inferne planae. 2 mm. latae, sensim angustatae, acutatae, superne involutae, circa 15 cm. vel plus longae, utrinque scabrae, nervo medio crasso percursae, marginibus plus minusve incrassatis; panicula exserta, ad 30 cm. longa, stricte erecta, patula vel primo subcontracta, rhachi angulosa, scaberula, in axillis glabris incrassata, ramis elongatis, erecto-patulis vel patulis, binis ternisve, inferne nudis, inferioribus dimidiam paniculam haud aequantibus, ad 12 cm. longis, superioribus brevioribus, 9—10 cm. longis, sensim decrescentibus, adpressis, sessilibus, ramulos adpressos, 2—4-spiculatos gignentibus; spiculae erectae, congestae, brevipedicellatae, flavidulae, lineares; glumae lineari-lanceolatae, longiaristatae, ambae scabrae, unives, vel sub-3-nerves, nervis lateralibus congestis, gluma inferior circa 6 mm. longa, subabrupte in aristam scabram circa 3 mm. longam abiens, gluma superior aequilonga, apice bifida, inter lobos acutos aristata, arista 3 mm. longa, setae laterales acutae circa 1 mm. longae; gluma fertilis tubulosa, callo subacuto, dense barbato, $\frac{3}{4}$ —1 mm. longo, 6 mm. longa, inferne punctulata, superne aculeolato-scaberrima, sensim in aristas scaberrimas abiens, aristae ad basin planae, subaequales, ad 20 mm. longae vel arista centralis parum longior.



× $3\frac{1}{3}$ × 8
ARISTIDA BORUMENSIS

Henrard.

From type specimen.

Africa centralis: District Mozambique, Portuguese East Africa. Boruma. Flumen Zambesi, in montibus. Dec. 1890, leg. MENYHARTH. Typus speciei in Herb. Lugd. Bat. sub no. 908, 328—921.

This species has in the vegetative characters somewhat the habit of *Aristida adscensionis* L., but it is, apart from the different spikelets easy to distinguish by the scattered white hairs on the sheaths and along the margins.

Aristida calycina R. Br.**var. strigosa Henrard.****nov. var.**

Differt a typo (A Critic. Revision of the Genus *Aristida*. Vol. I. p. 71) praesertim glumis fertilibus superne dense adpresse seriatim strigosis. Dimensiones spicularum ut in typo.

Australia: Arkaringa Creek. Elder Exploring Expedition, 15. V. 1891, leg. HELMS. Typus in Herb. Kew. ex Nat. Herb. Melbourne no. 23.

Among the plants allied to *A. calycina*, this is a very critical one, the material hitherto studied is rather scanty and in the future we have therefore probably to unite some plants in but one species. An allied plant I have described as *Aristida echinata*, where the lemmas are covered nearly all over by curious hyaline spines. In the var. *strigosa* only the uppermost part of the lemma just below the awns is provided with hairs, which are much thinner, equally broad and without the conical base as in *A. echinata* and they are moreover quite adpressed; I have therefore placed the var. *strigosa* under *A. calycina*. It may be proved that *A. echinata* is only a variety of the *A. calycina* too, when more and better material is available. Fragments of the var. *strigosa* I saw in the Kew Herb. from Mr. GOSSE'S Expedition in the Centre of South Australia, communicated by R. SCHOMBURGK in May 1874 with the numbers 135 and 178.

Aristida canescens Henrard.**nov. spec.**

Sectio *Chaetaria*. Perennis, florendi tempore innovationibus paucis; culmi erecti, graciles, circa 4-nodes, simplices, haud vel vix ramosi, teretes, striati, leviter scaberuli, praesertim infra nodos, cum panicula 6—7 dm. alti; vaginae internodiis multo breviores, leviter compressae vel superne teretiusculae, striatae, glabrae vel scabriusculae, ligula brevissime ciliolata, auriculae pubescentes etiam eae innovationum haud barbatae; laminae angustae, lineares, 20 cm. vel plus longae, complicatae vel involutae, inferne interdum subplanae, sensim longe setaceo-acuminatae, glaucae ut tota planta, vi explanatae vix 1 mm. latae, subtus subscaberulae vel glabrescentes, supra hirtellae, marginibus albis incrassatis scaberrimis; panicula erecta,

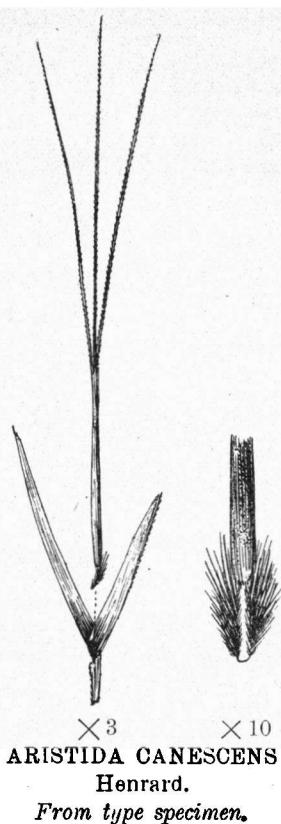
sublaxa sed contractiuscula, ad 20 cm. longa, rhachi angulosa vel triquetra, scabra. ramis remotis binis vel superne solitariis, in parte inferiore nudis, spiculae ad extremum ramulorum dense aggregatae, erectae, adpressae, breviter pedicellatae, pedicellis scaberulis; glumae flavo-virides, 1-nerves, inaequilongae, inferior 8 mm. longa, minute scaberula, carina superne incrassata scabra, inferne laevi, subobtusa, emarginata vel leviter bifida, setulis lateralibus obtusissimis. inter lobulos mucronata, gluma superior ad 11 mm. longa, carina laevis, subobtusa, subbifida, leviter aristata vel mucronata; gluma fertilis callo subobtusulo 1 mm. circa longo dense barbato, circa 10 mm. longa, laevissima, superne vix angustata haud rostrata, aristae aequales, scaberrimae, circa 15 mm. longae, palea minuta.

Africa australis: Transvaal, District Wolmaranstad, leg. S. CRONJÉ. no. 7643. Typus speciei in Herb. Kew, ex Nat. Herbarium Pretoria.

Allied to and agreeing in different characters with the South African *Aristida Galpini* STAPF, *A. junciformis* TRIN. et RUPR. and *A. nemorivaga* HENR. The *Aristida junciformis* which agrees in the characters of the blades, differs in the long-awned glumes, both very acute without lateral setulae and in the compressed internodes of the culms. *Aristida nemorivaga* differs in the abruptly long-awned glumes and in the curled strap-shaped flat lower blades. *Aristida Galpini* differs in the shape of the panicle, in the about 1-noded culms, in the shorter culms with nearly basal leaves and in the much shorter blades and panicles.

A very beautiful specimen of this species was recently received for study from the Director of the Kew Herbarium. It was collected in Southern Rhodesia by the chief agriculturist at Salisbury and numbered. 3277 with the determination „aff. *A. adscensionis* L.”

This specimen is more robust and more than 1 meter high, the blades are somewhat broader and flat below, the auricles of the innovations have a few long hairs, the spikelet-characters agree with those of the type, the glumes are both subobtuse with a mucro.

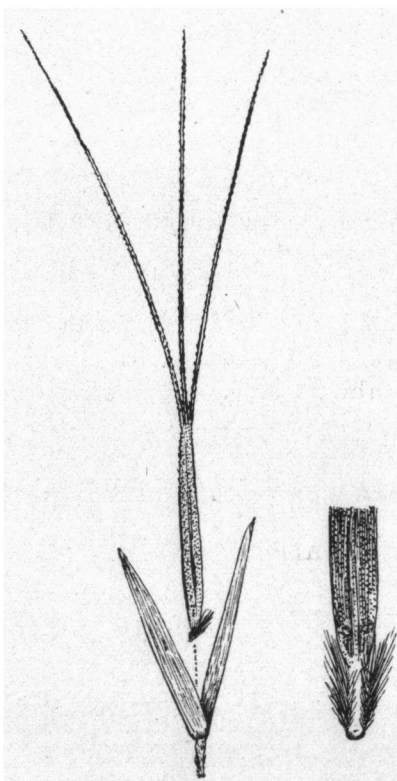


The basal portion of the specimen proves that it is a perennial, to *A. adscensionis* it is not at all allied. Another specimen I received from Mss. STENT from the Government Herbarium at Salisbury (Southern Rhodesia), it was collected in the Orange Free State near Bloemfontein by GEO POTTS no. 2407. In this specimen the panicle-branches are shorter, but otherwise it agrees perfectly with the other specimens, mentioned above.

***Aristida capillifolia* Henrard.**

nov. spec.

Sectio *Chaetaria*. Perennis, glauco-viridis vel canescens, inferne fastigiato-ramosa, superne simplex, elegans; culmi erecti vel adscendentes, circa $\frac{1}{2}$ mm. crassi, cum



ARISTIDA CAPILLIFOLIA Henrard.
From type specimen.

panicula ad 5 dm. alti, internodia teretia, laeviaque, nitida, vaginae inferiores hiantes, internodiis breviores, superiores teretes vel subcompressae, striatae, ultimae striatae vel sulcatae, scaberulae, ligula breviter ciliolata, auriculae breviter pubescentes, collo glabro; laminae angustissimae, convolutae, subjunciformes sed non rigidae, rectae vel plus minusve curvatae, sensim longe acutatae, circa 10—15 cm. longae, vix $\frac{1}{2}$ mm. crassae, vi explanatae vix 1 mm. latae, inferiores brevissimae, paucinerves, subtus scaberulae, supra scabrae vel hirtellae, marginibus subincrassatis; panicula longe exserta, pedunculo nudo circa 20 cm. longo, lineari-lanceolata, contracta, praesertim inferne interrupta, axis visibilis, teres, striatus, glaber, rami bini vel superne solitarii, stricte erecti et appressi, distantes, inferiores ad 4 cm. longi, pedunculo circa 1 cm. longo, superiores multo breviores et reducti, paucispiculati, rami ramulique scaberuli; spiculae stricte erectae,

appressae haud congestae, pedicellis scaberulis subincrassatis, pedicelli breves vel interdum spiculae sessiles; glumae flavo-virides.

parum inaequilongae vel subaequales, glabrae, 1-nerves, inferior 6–7 mm. longa, apice bifida, inter lobulos breviter aristulata, carina glabra, superior $7\frac{1}{2}$ –8 mm. longa, glaberrima, arista scabra circa $\frac{1}{2}$ mm. longa praedita, gluma fertilis tubulosa vel subcompressa, superne ad carinam scabra, puncticulata, haud vel vix angustata, callo obtuso circa 1 mm. longo, dense barbato, circa 7 mm. longa, aristae erectae vel leviter divaricatae, scaberrimae, inferne subplanae, subaequilongae, circa 14–15 mm. longae.

Australia: Sout Australia. Victoria desert. Elder exploring expedition. Camp 5. Collected in the year 1891 by R. HELMS.

Typus speciei in Herb. Lugd. Bat. et in Herb. Kew. Only known from the type collection.

***Aristida congesta* Roem. et Schult.**

var. *megalostachya* Henrard.

J. TH. HENRARD: A Monograph of the Genus *Aristida*. Vol. I [1929] p. 126 (cum descript angl.)

Differt a typo praesertim culmo robustiore, altiore, cum panicula circa 70–85 cm. alto, panicula longiore, 20–25 cm. longa, in parte inferiore interrupta, innovationibus bene evolutis, foliis elongatis, longissimis, 20 cm. vel plus longis, spiculis majoribus, gluma I. 5 mm. longa, arista ad 4 mm. longa praedita, gluma II. circa 8 mm. longa in aristam circa 4 mm. longam abiens, lemma et columnna ut in typo sed aristis longioribus ad 30 mm. longis.

Africa australis: Rhodesia; M'rewa, leg. Col. A. F. APPLETON, Jan. 1911. no. 26.

Bulawayo et Matoppo Hills, leg. Col. A. F. APPLETON no. 17. Specimina in Herb. Kew.

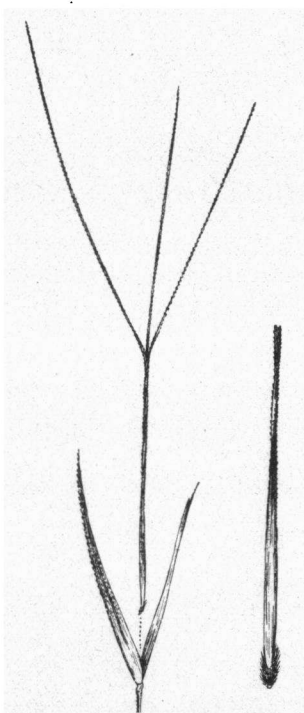
A very robust variety of the species with the habit of *Aristida alopecuroides*, but without bearded auricles of the blades and innovations and without the prominently tubercled lemmas. The plants differ from the common *Aristida congesta* in the robust vegetative parts and in the longer panicle with longer glumes and awns.

***Aristida decipiens* Henrard.**

nov. spec.

(Sectio *Chaetaria*). Perennis, probabiliter dense caespitosa sed innovationibus paucis. Culmi stricte erecti, sine paniculis ad 60 cm.

alti, 1—2-nodes, nodis subbasalibus glabris, inferne simplices, e nodis ramosi, teretes, vix striati, scaberrimi, infra nodos glaberrimi; internodio imo nudo 6 cm. longo; vaginae infimae vetustae hiantes, stramineo-fuscae, superiores elongatae, arctae, subcompressae, striatulae, asperrimae, glaucae, internodiis longiores, ligula breviter ciliolata, auriculae ciliatae vel pilis brevibus barbatae; laminae saltem inferne planae, 2—3 mm. latae, superne convolutae, sensim



× 2²/₃

× 5¹/₃

ARISTIDA DECIPIENS

Henrad.

From type specimen.

inaequilongae, suberectae vel subpatentes, scaberrimae, centralis 16—18 mm. longa, laterales 12—14 mm. longae.

longe setaceo-acuminatae ad 20 cm. vel plus longae, glaucae, supra sulcato-nervosae, utrinque scaberrimae; panícula exserta pedunculo saltem 30 cm. longo, contracta, spiciformis, basi cuneata, inferne subinterrupta, axis visibilis, ad 20 cm. longa et 1 cm. lata, axis subteres, scaberrimus, superne angulosus, ramis solitariis fere a basi ramosis et spiculiferis, 5—6 cm. longis internodiis paniculae longioribus, sensim decrescentibus, ramulis scaberrimis brevibus; spiculae stricte erectae, pedicellis brevissimis scaberrimis, glumae viridi-glaucoscentes, uninerves, inferior longior, 12 mm. longa, carina praesertim superne scaberrima, dorso hirsutula vel breviter pubescens, sensim angustata et breviter aristulata, aristula scaberrima, longitudinaliter subplicata, gluma superior angustior, glabra, carina laevis, apice leviter bifida distincte aristulata, arista 1 mm. longa, circa 10½ mm. longa, gluma fertilis glabra, tubulosa, sensim in columnam scabram valde tortam abiens, cum stipite 12—13 mm. longa, columna circa 6 mm. longa, callus dense barbatus, subobtusus circa ½ mm. longus; aristae parum

Argentina: Provincia Cordoba; Cordoba, leg. L. R. PARODI, 10. III. 1922, no. 4636. Typus speciei in Herb. Lugd. Bat. sub no. 929, 38—62.

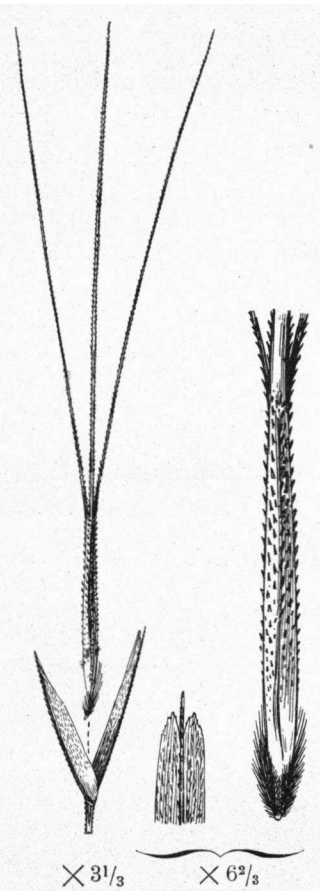
Much allied to the *Aristida achalensis* Mez from the same region, but at once to distinguish by the inverse position of the glumes. In *A. achalensis* the lower glume is always distinctly shorter than

the upper one, in the new species the glumes have in all the well-developed not damaged spikelets the prominent inverse position, in the less-developed spikelets the glumes are not so very unequal although the lower one exceeds the upper one.

***Aristida echinata* Henrard.**

nov. spec.

(Sectio *Chaetaria*). Perennis, florendi tempore innovationibus paucis. Culmi erecti, basi nudi, superne ramosi, cum panicula ad 80 cm. alti, teretes, glaberrimi. vix vel leviter striati, circa binodes, internodio infimo 13—17 cm. longo, internodio supremo longissimo 25 cm. vel plus longo, nodis culmorum tumidis, nodis vaginarum annularis constrictis; vaginae inferiores delapsae, superiores hiantes, glaberrimae vel superne leviter scaberulae et striolatae, 5—6 cm. longae, ligula brevissima, ciliolata, auriculae pubescentes collo pubescenti; laminae 7—10 cm. longae, basi tantum subplanae, superne convolutae, setaceo-acuminatae, subtus scabriusculae. supra hirsutulae vel puberulae; panicula exserta pedunculo longissimo, 10—15 cm. longa, absque aristas 1 cm. circa lata, contracta, densissima sed inferne subinterrupta, axis in parte basali visibilis, teres, glaberrimus vel superne subangulosus et scaberulus, ramis solitariis a basi divis, multispiculatis, cum aristas ad 5 cm. longis, sensim decrescentibus, stricte erectis, adpressis, scaberulis vel pubescentibus, pedicellis brevissimis; spiculae erectae flavo-virides vel subcoloratae, glumae subaequilongae, uninerves, scaberulae vel scabriusculae, gluma inferior 7—9 mm. longa, lineari-lanceolata, carina scaberrima, subabrupte acuminata et brevissime aristulata, gluma superior angustior, 8—10 mm. longa, carina scabra, apice distincte bifida, setae laterales subobtusae, subcrenulatae, ex emarginatura aristata, arista scabra vix 1 mm. longa, gluma fertilis tubulosa callo subacuto vix 1 mm.



ARISTIDA ECHINATA

Henrard.

From type specimen.

longo, dense barbato, circa 8—9 mm. longa, subcompressa, inferne glabra laevisque, superne aculeolis prominentibus erecto-patentibus praedita, haud stipitata, sensim in aristis abiens, aristae basi applanatae, scaberrimae, erectae vel subpatentes, aequilongae, ad 20 mm. longae.

Australia: Queensland; Morven, leg. W. Mc COMB, April 1918. sub nom. *Aristida ramosa* R. BR. Queensland Herbarium, Botanic Gardens, Brisbane Herbarium no. 6064. Typus in Kew Herb.

New South Wales; FRASER's 1st Exped. anno 1826. In British Museum.

The following specimens were observed in the Kew Herbarium: Queensland: (Brisbane Bot. Gard. Herb.) no. 4038. Kin Kin leg. FRANCIS. South Australia: (Nat. Herb. N. S. Wales) Mounth Lyndhurst, leg. MAX KOCH no. 53 in 1899; Victoria desert. Elder exploring expedition in 1891, leg. R. HELMS no. 69a. In the Herb. of the University at Vienna there is a specimen from the Blue Montains (from the Sydney Herb.)

This species agrees in habit with *Aristida calycina* R. BR., but it differs in the curious antrorse conical hyaline spines, placed nearly over the whole length of the lemma, only the very base of the lemma is smooth, moreover the glumes are at least in the typical species more or less distinctly scaberulous. I observed already that it may be that we have in the future to unite this species with the *A. calycina* when more material can be studied. At first sight this species is not to distinguish from *A. calycina* and its variety *strigosa*, the former has quite smooth lemmas and the latter is hairy below the awns but the hairs are very different and not spiny at all. The specimen collected by HELMS, cited above, differs in the shorter awns, glumes and lemma, and may represent a different variety, good material of this form was not available.

***Aristida echinata* Henrard.**

var. nitidula Henr.

nov. var.

Differt a typo praesertim glumis haud scaberulis, fere glabrescentibus, nitidulis.

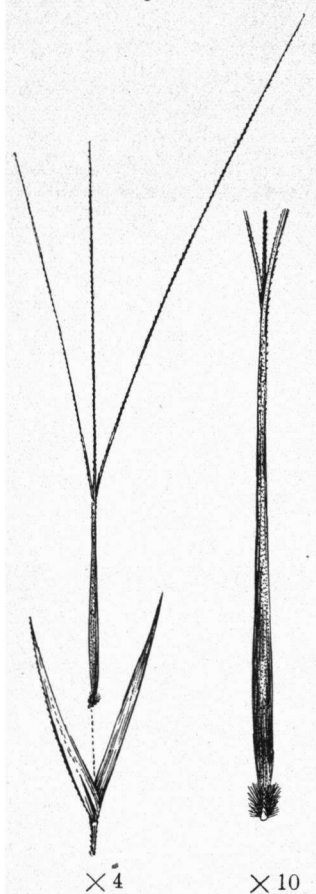
Australia centralis: Mission Station; Finke River, coll. KEMPE, anno 1879 ex Nat. Herb. Victoria, Melbourne no. 4.

Typus in Herb. Lugd. Bat. sub no. 930,101—7.

***Aristida ecuadoriensis* Henrard.**

nov. spec.

(Sectio *Chaetaria*). Perennis, caespitosa, innovationibus paucis; culmi simplices, stricte erecti, foliosi, plurinodes, nodis obtectis, teretes, minute scaberuli, haud striati, elegantes, cum paniculis circa 70 cm. alti, purpurascens; vaginae arctae, inferne glabrae, teretes, striolatae, superne distincte scabrae vel leviter papillosae, internodiis longiores vel paullo breviores, ligula breviter ciliolata, auriculae pilosae vel lateraliter subbarbatae, eae innovationum pilis longioribus manifeste barbatae, collo haud distincto; laminae circa 20 cm. longae, inferne planae, superne sensim longe acutatae et convolutae, circa $2\frac{1}{2}$ mm. latae, flexuosae vel circinatae, loriformes, eae innovationum breviores, convolutissimae, erectae, subtus glaberrimae, supra scaberulae, ad basin pilis longis albis sparsis praeditae, marginibus scabris valde incrassatis; panícula exserta, pedunculo scabro, ad 20 cm. longa, contracta sed laxa, ad basin interrupta, ad 4 cm. lata, inferne et superne angustata, axis teretiusculus vel angulosus, scaber, rami erecti vel ascendentes, singuli, distantes praesertim inferne, a basi indivisi. nudi, ramuli longe pedunculati, scaberrimi, spiculis ad extremum ramulorum subcongestis, breviter pedicellatis vel lateralibus subsessilibus, pedicellis vix clavatis, scaberrimis; spiculae erectae plus minus adpressae, pulchre purpureae, glumae inaequilongae, acuminatae, haud aristatae, anguste lineares vel lineari-lanceolatae, inferior plus minus scaberula, carina scabra, 1-nervis vel sub-3-nervis, nervis lateralibus brevibus haud distinctis, circa 7 mm. longa, gluma superior 1-nervis, glabra, carina laevis, circa 8 mm. longa; gluma fertilis $6\frac{1}{2}$ —7 mm. longa, anguste linearis, tubulosa, superne paulo angustata leviter rostrata, punctulata, superne scaberula, callo obtuso vix $\frac{1}{2}$ mm. longo, pilis plus minusve erecto-divergentibus



ARISTIDA ECUADORIENSIS
Henrard.

From type specimen.

dense barbato; aristae subaequilongae, erecto-divergentes, scabrae, centralis 18—20 mm. longa, laterales circa 12 mm. longae.

- Ecuador:** Provincia Chimborazo. Huigra. alt. 1200 m., Jul. 1923. leg. A. S. HITCHCOCK no. 20761. Typus speciei in Herb. Lugd. Bat. sub no. 929.56—1. Duplic. in U. S. Nat. Herb. Provincia Oro, inter Portovelo et El Tambo própe Zaruma, alt. 600—1000 m. Sept. 1923, leg. A. S. HITCHCOCK no. 21305. Cotype in Herb. Lugd. Bat., dupl. in U. S. Nat. Herb.
- Bolivia:** Irupana. Rio de la Paz, alt. 1500 m. 12. 3. 1928. C. TROLL, Iter Andinum, 1926—1929. No. 1626 (Herb. Mus. Berol.)
- Peru:** Depart. Cajamarca, Callacate, Mayo 1879, leg. A. RAIMONDI No. 5046. (Herb. Mus. Berol.).

The specimens from Ecuador were already mentioned by Prof. HITCHCOCK in his work on the grasses of the Andes as *Aristida marginalis* EKM.. *Aristida ecuadoriensis* is however a species from high altitudes and was recently seen in a collection received for identification from the Berlin Herbarium, the species being represented there also from Peru and Bolivia.

Aristida marginalis has not only a different geographical distribution, it was described from lower regions in Matto Grosso in Brazil, but it differs in the characters of the spikelets, having equal glumes which are manifestly awned. The species from the high Andes has acute unawned, distinctly unequal glumes. Both species have beaked lemmas, the beak is however not twisted.

We have here once more an example that the different geographical distribution, together with slight, although constant morphological characters, helps to distinguish the species.

***Aristida eriophora* Henrard.**

nov. spec.

Sectio *Chaetaria*. Perennis, culmi 5—6-nodi, parum ramosi, nodis aequidistantibus, stricte erecti, cum paniculis ad 80 cm. longi, dense lanati, nodis glabris, nodi culmorum tumescentes; vaginae internodiis longiores, hiantes, striatae, villosa-lanatae vel vetustae glabrescentes, inferiores laminis 3—4 cm. longis, superiores laminis ad 20 cm. longis praeditae, laminae angustae, 1½ mm. latae, planiusculae, demum involutae, nervo valido percursae, marginibus incrassatis, subtus glabrae vel utrinque minute puberulae, sensim longe acuminatae, ligula breviter ciliolata, auriculae barbatae, collo

ciliato; panícula densa, spiciformis, breviter exserta, ad 10 cm. longa vel paulo longior, axis inferne lanatus. superne glabrescens vel glaber, rami solitarii vel semiverticillati, 4–5 cm. longi, sensim decrescentes, stricte erecti, a basi spiculiferi vel ima basi breviter nudi, subteretes, glabri vel minute scaberuli, ramuli erecti, adpressi, pedicellis glabrescentibus, pedicelli laterales glumis breviores, ultimae aequilongae; spiculae pallide purpureae vel purpurascens, glumae lineari-lanceolatae, inaequales, inferior acutiuscula haud aristata, minute puberula, 1-nervis, carina scabra, circa 8½ mm. longa, superior angustior, 1-nervis, superne minutissime puberula, carina laevis, apice distincte bifida, inter lobulos obtusos breviter mucronata, 10–11 mm. longa, gluma fertilis fusiformis inferne laevis, superne scabra, angustata sed haud rostrata, callo obtuso, 0,6–0,7 mm. longo praedita, aristae erectae vel leviter patentés, centralis 16–17 mm. longa, laterales circa 3 mm. breviores.

South Africa: Rhodesia; District Hatfield, collected by Miss STENT no. 3976. From the Government Herbarium, Salisbury.

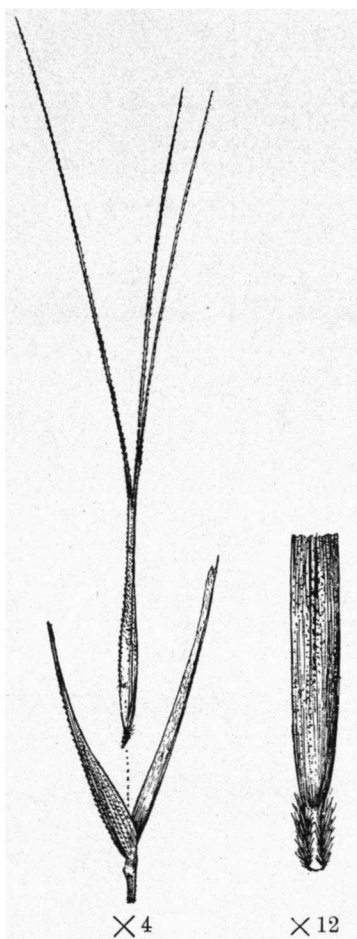
Typus speciei in Herb. Lugd. Bat. sub. no. 931,267–20.

A very beautiful species, allied to *Aristida leucophaea* HENR., but well to distinguish by the different position of the glumes. *Aristida Sciurus* STAF. differs in the very unequal glumes, the lower scarcely half as long as the upper one.

***Aristida filiformis* Henrard.**

nov. spec.

Affinis *A. scabrivalvi* HACK., *A. Waibelianae*, *effusae* et *borumensi* HENR.. Gluma inferior lanceolata, scabra, 1-nervis, circa 6 mm.

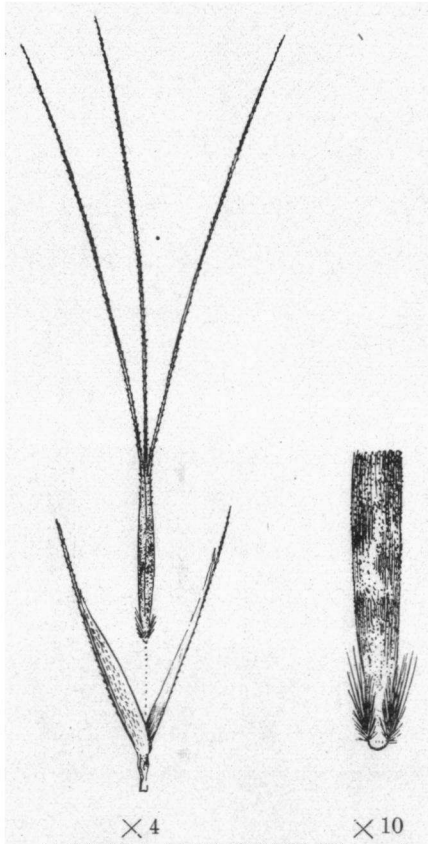


ARISTIDA ERIOPHORA

Henrard.

From type specimen

longa, in aristam scabram, circa 2 mm. longam abiens, gluma superior angustior, glaberrima, carina remote scabra, apice manifeste bifida. inter lobos acutos aristata, cum arista scabra, $1\frac{1}{2}$ –2 mm. longa ad 9 mm. longa; gluma fertilis laevis vel superne minutissime scaberula, circa 5 mm. longa, callo obtuso circa $\frac{1}{2}$ mm. longo, aristas erectis, scabris, aequalibus, circiter 15 mm. longis.



ARISTIDA FILIFORMIS Henrard.

From type specimen.

Southern Rhodesia: District Waukie. In „Aropani” Veld, 11. 3. 1929. leg. A. A. PARDY no. 4934. Typus speciei in Government Herbarium, Salisbury, Southern Rhodesia.

Only known from a single specimen.

Foto of this in the Herb. Lugd. Bat.

In South Africa there occurs a group of very delicate annual species, represented by *Aristida scabrivalvis* HACK. and its allied ones. Two of them *A. Waibeliana* and *A. effusa* have lemmas much longer than the glumes, the latter are moreover obtuse or acute, but unawned. The other ones belonging to this group are *A. scabrivalvis* and *A. borumensis*. These species have long-awned glumes and lemmas shorter than the glumes. The new species, proposed here is allied

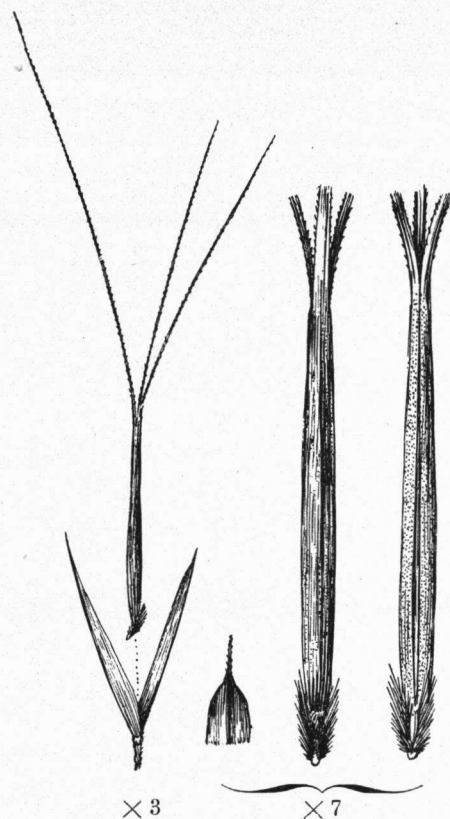
to the last mentioned species, but it differs in the smooth lemmas, the panicle-characters more agree with *A. borumensis*, but the vegetative parts differ in the absence of the hairs on the sheaths.

***Aristida glumaris* Henrard**

nov. spec.

Sectio *Chaetaria*. Perennis, caespitosa, innovationibus extravaginalibus, culmi cum paniculis 80 cm. vel plus longi, stricte erecti, ramosi, ramis erectis adpressis, 2–3-nodi, internodia 10 cm. vel

plus longa, nuda, vaginis delapsis, vaginae superiores hiantes, striatae et minute scaberulae, internodiis breviores, teretes vel superne subcompressae, marginibus subhyalinis, ligula minuta, ciliolata, auriculae pubescentes, collo ciliolato; laminae inferne planae, superne convolutae plus minusve 1 mm. latae, ad 10 cm. longae, stricte erectae, sensim angustatae, acutatae, multinerves, marginibus haud incrassatis, subtus glabrae vel subglabrae, pagina superior scaberula; panícula longe exserta, circa 25 cm. longa, subcontracta sed valde interrupta, ramis distantibus, praesertim inferne, rhachis subteres vel subtriqueter, inferne glabra, superne angulosa et scaberrima, rami bini, scabri, adscendentes vel divaricati, haud raro divergentes, a basi nudi, pedunculo 2 cm. longo, ad 5–7 cm. longi, rami superiores breviores, pedunculo 1 cm. longo, vel sessiles, pauciflori, erecti, adpressi, pedicellis compressis scaberulis, pedicelli laterales brevissimi; spiculae subcongestae, erectae purpurascens, glumae lanceolatae, acuminatae, scaberulae vel glabrae, inferior 9–10½ mm. longa, brevissime aristata vel acuta, 1-nervis vel sub-3-nervis, carina remote scabra, superior 8–9½ mm. longa, carina laevis, abrupte acuminata, gluma fertilis subcompressa, punctulata, superne vix angustata, callo dense barbato subacuto circa 1 mm. longo, ad 9 mm. longa, ventre anguste sulcata, marginibus glabris convolutis; aristae scaberrimae, basi applanatae, erectae vel subpatentes, inaequilongae, centralis ad 20 mm. longa, laterales 12–15 mm. longae.



ARISTIDA GLUMARIS Henrard.

From type specimen.

Queensland: Brisbane River, 7. II. 1927. leg. W. J. WINCHESTER. no. 4112, as *A. calycina* R. BR., received from the Kew Herbarium. Typus speciei in Herb. Lugd. Bat. sub no. 928.18–296. Duplicate in Herb. Kew.

Since the type was studied and described, I saw an extensive material of this species from the Queensland Bot. Gard. Herb. at Brisbane, in the Kew Herbarium, kindly received for determination from Dr. A. W. HILL. Barcaldine leg. WHITE no. 4050; Goodna. F. N. C. Exc. 1917, WHITE no. 4080; Canugra, WHITE no. 4077; Hughenden leg. HAWTHORN in 1919 no. 4085; Helenslee, Campaspe River, leg. F. L. BURNEY no. 4084; Buderim Mountain, leg. GWYTHER no. 4048; Towerhill leg. WHITE no. 4049; Stradbroke Island leg. BICK et WHITE no. 4056; Bribie Island leg. WHITE no. 4022; Brisbane River, Kangaroo Point, leg. BICK no. 4076.

From the Sydney Herb. N. S. Wales there are the localities: Warialda leg. HADLEY, 4. 1908, no. 60; Cassino leg. MC AULIFFE, 4, 1912, no. 57.

From New South Wales I saw moreover a specimen in the Vienna Herbarium collected by J. L. BOORMAN (Vienna number 13895) and two old collections in the Kew Herbarium mentioned by BENTHAM: Rockhampton leg. O'SHANESY in 1877 as *A. ramosa* and Liverpool Plains leg. A. CUNNINGHAM, May 1823, as *A. calycina*, cited by BENTHAM however under *A. ramosa*.

This species, which is probably not very rare, is allied to *Aristida Benthami* HENR. and less so to *A. calycina* R. BR.

A. glumaris and *A. Benthami* have both an inverse position of the glumes and a furrowed ventral side of the lemma, the latter has however smaller spikelets with shorter glumes and shorter, not over 10 mm. long awns. The panicle of *A. Benthami* is different on account of the capillary scabrous branches and branchlets. *A. calycina* has a denser, strictly erect panicle and the position of the glumes is not inverse. It is noteworthy that on the authentic sheet of *A. calycina* R. BR. in the Kew Herbarium, the type is mixed with a specimen of *Microlaena stipoides* R. BR. (a species which is very easy to recognize) but there is on the sheet also a small fragment of *A. glumaris*. The species treated here is thus overlooked, and BENTHAM, who had good specimens before him, did not recognize it and placed the plants under *A. ramosa*, from which they however abundantly differ.

***Aristida hispidula* Henrard.**

nov. spec.

Sectio *Chaetaria*. Perennis, caespitosa, glauco-viridis, culmi cum paniculis ad 70 cm alti, teretes, striati, glabri vel minute scaberuli,

2—3-nodes, internodio supremo longe exserto; vaginae internodiis breviores, inferiores carinato-compressae, valde nervosae, superiores subteretes, striatae, subcarinatae, scaberulae, arctae, interdum apice subhiantes, ligula abbreviata, breviter ciliata, auriculae pubescentes vel subbarbatae, collo glabro; laminae sat breves, eae innovationum 5—8 cm. longae, strictae, complicatae vel convolutae, apice subobtusae vel subacutae, marginibus valde incrassatis, subtus glabrae laevesque, supra scaberulae vel puberulae, laminae culmorum inferne planae, superne convolutae, saltem costis 5 crassis percursae, ad 8 cm. longae, vix $\frac{1}{2}$ mm. crassae; panícula patula, 10—14 cm. longa, exserta, axis teres, striatus, superne subflexuosus, rami valde distantes, solitarii vel inferiores binati, primo erecti, deinde patentes vel divaricati, sat rigidi, in $\frac{1}{2}$ inferiore indivisi, nudi, subcompressi. ramuli breviter pedunculati, stricte erecti, appressi, spiculis dense congestis, pedicellis scabris compressis; spiculae sessiles vel breviter pedicellatae, pallidae vel roseo-virides, glumae lineari-lanceolatae, inaequales, inferior 9—9 $\frac{1}{2}$ mm. longa, 1-nervis vel sub-3-nervis, toto scaberula, superne angustata sed haud aristata, superior carina glabra, 1-nervis, superne minute scaberula, circa 6 mm. longa, gluma fertilis circa 5 mm. longa, seriatim hispidula, superne angustata sed vix rostrata, callo vix $\frac{1}{2}$ mm. longo, obtusissimo, dense longiter barbato praedita, aristae scabrae, erectae, centralis circa 8 mm. longa, laterales paulo breviores.



ARISTIDA HISPIDULA Henrard.
From type specimen.

Rhodesia: District Matopos. Black land paddocks, alt. 4500 m. 14. 2. 1930. leg. J. M. RATTRAY, no. 16. From Government Herbarium, Salisbury, Southern Rhodesia, received from Mss. SYDNEY STENT. Typus speciei in Herb. Lugd. Bat. sub no. 931.267—26. Only known from the type collection.

Allied to the perennial *A. bipartita* TR. et RUPR., from which it differs in the habit, the panicle-branches with densely congested imbricate spikelets, forming elongate spiciform secondary panicles at the end of them, moreover the lemmas are hispidulous nearly all over.

***Aristida jerichoensis* Domin.**

var. *subspinulifera* Henrard.

nov. var.

Differt a typo glumis fertilibus ventre sulcatis haud glabris, sed leviter tuberculatis.

New South Wales: Nyngan. 5 1913. leg. J. H. MAIDEN. no. 45 ex Nat. Herb. N. S. Wales.

Typus in Herb. Lugd. Bat. et Herb. Kew.

There occur in Australia different species where the margins of the lemma are not overlapping as is commonly the case in the genus. These species have at maturity lemmas with inrolled margins so that the inner surface of the lemma is more or less visible. Among these species there are a few curious ones where this gaping furrowed ventral side of the lemma bears along the margins rows of hyaline spiny hairs. Such species are: *Aristida armata* HENR. and *A. inaequiglumis* DOMIN, both with an inverse position of the glumes.

Aristida jerichoensis occurs from Queensland to New South Wales and *A. armata* was recently also found in New South Wales, so it is possible that there occur hybrids between *A. armata* and *A. jerichoensis*. A sheet in the Sydney Herb. (no. 61) from Eanabalong, leg. BOORMAN, 5. 1906 as *A. ramosa* bears the *A. jerichoensis* and the variety.

This is in the future an interesting object for field study.

***Aristida kenyensis* Henrard.**

nov. spec.

Sectio *Chaetaria*. Annua, caespitosa, absque innovationibus. Culmi erecti vel geniculato-ascendentes, cum paniculis ad 60 cm. vel plus longi, teretes, striati, leviter scaberuli, e nodis dichotomo-ramosi, ramis paniculiferis; vaginae striatae, scaberulae, internodiis breviores, hiantes, compressae, carinatae, carina incrassata; laminae circa

1—1½ mm. latae, planae, saltem ad basin, superne sensim angustatae et complicatae, multinerves, nervo medio incrassato praesertim subtus valde distincto, 10 cm. vel plus longae, vel eae ramorum multo breviores, erectae vel erecto-patentes, ligula valde abbreviata, ciliolulata, auriculæ minute incrassatae, puberulae, collo glabro; panícula erecta, ad 20 cm. longa, ampla, longe pedunculata, pedunculo tereti, striato, inter striis leviter scaberulo, rami paniculae filiformes, bini vel solitarii — et tunc fere a basi tripartiti —, patentes, curvati vel circinatim reflexi, valde remoti, inferne nudi, teretes, leviter tantum scaberuli, superne ramosi, ramulis brevibus dense spiculiferis, spiculis in glomerulos cuneatos curtos vel subelongatos congestis; spiculae pro ratione plantae parvae, circa 5—6 mm. longae, pulchre viridi-violaceae, breviter vel brevissime pedicellatae, pedicellis leviter scaberulis, superne vix incrassatis, glumae steriles aequilongae vel subaequilongae, uninerves, inferior paulo latior, carina scabra, sensim angustata, acuta sed haud aristata, superior paulo angustior, carina laevis, haud raro in aristulam scabram brevissimam abiens, interdum apice minutissime bidenticulata, gluma fertilis inferne tubulosa, superne scabra et appanata, callo brevissimo obtuso sed dense barbato, 5—6 mm. longa, aristae scabrae, inaequilongae, intermedia 12—15 mm., laterales 10—12 mm. longae.

British East Africa: Kenya; Nairobi to Kisumu, grass plots Scott Laboratory. Sept. 14, 1929, leg. A. S. HITCHCOCK no. 24829. Typus speciei in Herb. Lugd. Bat. sub no. 932.28—88. Other beautiful specimens of this species were collected by A. S. HITCHCOCK, no. 25075, at Kenya on open ground Sept. 21, 1929 near Sabatia.

The specimens mentioned above, determined as *Aristida adscensionis* L., agree indeed somewhat with the open-panicked form of *A. adscensionis*, but they have at first sight a very distinct aspect, on account of the very remote, long, naked, curved branches of the panicle with groups of congested spikelets at the ends of the branchlets. But the most striking character, never observed in one of the numerous varieties of *A. adscensionis*, is the equal length of the glumes and lemma. The beautiful material, received through the courtesy of Prof. HITCHCOCK is quite uniform, the new species is allied to *A. adscensionis*, very distinct in the characters of the spikelets and already by its habit well to recognize.

Aristida megapotamica* Sprengel.*var. *brevipes* Henrard.****nov. var.**

Panicula minus densa, laxior quam in typo, minus implexa, glumae fere ut in typo, inferior 22 mm. circa longa, superior 19 mm. longa; gluma fertilis cum callo subobliquo dense barbato 1 mm. vel plus longo, 6—8 mm. longa, glaberrima, in columnam rectam valde tortam elegantem, 2—3 cm. longam abiens, aristae breviores, rectae, aequales, circa 3 cm. longae.

Brasilia: Prov. S. Paulo, prope S. Manoel de Botocatu, leg. E. GERDES, no. 48 in 1890. Typus in Herb. Hackel Vindobonensis sub no. 15587.

This variety is at first sight very different in habit from the typical *Aristida megapotamica*, on account of the not spirally contorted awns and agrees so well with *Aristida riparia* TRIN., that only the study of the characters of the spikelets proves the differences. MRS. A. CHASE recently collected this variety in Minas Geraes, Diamantina, Serra de San Antonio (Chase, Plants of Brazil no. 10395).

Aristida megapotamica* Sprengel.*var. *genuina* Henr.**

Gluma inferior haud 3 cm. longa, vulgo 24—25 mm. longa, superior circa 18 mm. longa; columna minus robusta, 3—4 cm. longa, aristis laxe spiraliter tortis, circa 4 cm. longis, gluma fertilis superne distincte scaberula, callo acuto 8 mm. longa.

This variety represents the typical plant as described by SPRENGEL and figured in the monograph on pl. C. In my Critical Revision Vol. II., I have already indicated that the type of *Aristida megapotamica* is in the Herbarium at Halle, the good specimen agrees with *Aristida implexa* TRIN.. The characters of the plant at Halle are given in the description above and the figure on p. 256 of the Revision is taken from the plant at Halle. OTTO KUNTZE had already taken up to name of SPRENGEL, a name having priority, although some agrostologists are still using the name of TRINIUS. Although SPRENGEL'S species was insufficiently described, there is no reason to reject his name.

Aristida megapotamica* Sprengel.*var. longipes** Henr.**nov. var.**

Glumae valde elongatae, inferior circa 30–32 mm. longa, superior circa 24 mm. longa; columna robusta, vulgo 6–8 cm. longa, aristis laxe spiraliter contortis, saltem 5 cm. longis; gluma fertilis glabra vel superne leviter scaberula, callo acuto circa 9–10 mm. longa.

Paraguay borealis: Caballero-cué, inter Rio Apa et Rio Aquidaban, leg. K. FIEBRIG, Febr. 1909. no. 5189. Typus in Herb. Lugd. Bat. sub no. 910.215–175.

Aristida meraukensis* Henrard.*nov. spec.**

Sectio *Chaetaria*. Perennis, probabiliter caespitosa; culmi erecti, simplices vel e nodis basalibus plus minus ramosi, elegantes, circa 1 mm. crassi, multinodes, inferne leviter compressi, striatuli, glaberrimi, nodis parum tumescentibus, cum paniculis saltem ad 90 cm. alti; vaginae internodiis paululum breviores, arctae vel ad ramorum hiantes, inferne subcompressae, superne teretes, striatae, inter striis leviter sed distincte scaberulae, ligula inconspicua, breviter ciliolata, auriculae haud prominulae, pubescentes, praesertim eae innovationum lateraliter longe barbulatae; laminae saltem 20 cm. longae, inferiores et superiores minores, haud raro 7–10 cm. longae, complicatae vel hinc inde planiusculae et tunc ad 2 mm. latae, sensim obtuse acutatae, subtus glabrae, supra scaberulae, marginibus paulo vel vix incrassatis; panícula breviter exserta, sublaxa vel subcontracta, haud densa, ad basin valde interrupta ramis remotis; axis striatus vel angulosus, lateraliter sulcatus, scaber, bene visibilis, rami binati vel a basi tripartiti, erecto-patentes, angulosi, scaberrimi, capillares, haud raro plus minus curvati vel circinatim flexuosi, longiores ad 8–9 cm. longi. a basi nudi, superne dichotomo- vel trichotomoramosi, longe pedicellati, pedicellis capillaribus scaberrimis, superne incrassatis, pauci-spiculati, rami breviores circa 5 cm. longi; basi nudi, 3–4-spiculati vel interdum unispiculati; spiculae aureo-flavae vel flavo-brunneae, glumae glabrae, uninerves, inferior 7–8 mm. longa, carina scaberula, sensim acutata vel breviter aristulata, gluma superior carina laevis, ad 12 mm. longa, sensim in aristam circa 1½ mm. longam abiens; gluma fertilis glabra, laevis, inferne subtubulosa, superne applanata, circa 7 mm. longa, callus acutus dense

barbatus circa $1\frac{1}{2}$ mm. longus, gluma superne haud angustata, in columnam 12—13 mm. longam, firmam, valde tortam abiens, gluma fertilis cum callo et stipite 21—22 mm. longa, aristae scabrae, inter se diversae, laterales tenues, erectae vel leviter divergentes, rectae, circa $2\frac{1}{2}$ cm. longae, arista centralis crassior, saltem in parte inferiore regulariter arcuatim curvata, superne recta vel leviter recurvata, vulgo ad 3 cm. longa.

Nova Guinea: Soengei Merauke, leg. JAHERI 4, IV, 1901. Ex Herb. Hort. Bot. Bogor. Typus speciei in Herb. Lugd. Bat. no. 933,48—142.

The discovery of this plant on New Guinea is very interesting. The species is, as to the characters of the spikelets and its whole habit, most allied to the Australian *A. heterochaeta* HENR., which has the same central awn, more or less regularly curved in a semi-circle and very distinctly heterogeneous awns. *A. meraukensis* is a more elegant plant with longer leaves. *A. heterochaeta* differs in the mostly distinctly 3-nerved lower glume, which is longer, up to 11 mm., in the longer upper glume which is in the type at least 15 mm. long and in some forms even longer, the lemma and the callus are longer too and the former is scabrous on the keel and very rough upwards. In my monograph the new species finds its place thus next to *A. heterochaeta* on p. 181. In the chapter dealing with the geographical distribution of the genus *Aristida*, I indicated on p. 27 that the genus was wanting in the Malayan Archipelago. *Aristida utilis*, a species from Queensland was however observed in British New Guinea (Monogr. p. 144).

Since this was written, some species were found in recent or older collections from the Malayan region. Besides the *A. meraukensis* I saw the beautiful little annual *Aristida Cumingiana* from Celebes, collected by KJELLBERG no. 3720 in August 1929, 300 m. alt. near Beao where the plant was common in alang-alang fields.

Aristida adscensionis was found on Timor in 1929 by M. E. WALSH no. 69. The plants seen are rather robust for this species and are intermediate between the subv. *vulpioides* and the subv. *interrupta*.

The beautiful *Aristida polyclados* from Queensland (see the photograph in the first volume of the monograph) was abundantly collected on the Soemba expedition in 1925 by IBOET near Pajeti (no. 1) and near Kendara (no. 143).

***Aristida migiurtina* Chiovenda.**

E. CHIOVENDA: *Plantae novae vel minus notae ex Aethiopia*, in *Lavori eseguiti presso il R. Istituto Botanico di Catania I.* [1928] p. 29!

(*Arthratherum*). Perennis dense caespitosa, humilis, demtis aristis 8–10 cm. alta, culmi usque ad paniculae basim et innovationes vaginis strictis quam internodia longioribus dense obvallati. Vaginae cylindratae, coriaceae, durae vetustae non fibrosae, exteriores subnerviae, interiores striato-nervosae, glabrae sed apice annulo breviter et dense lanuginoso terminatae; laminae valde caducae lineares 1–4 cm. longae setaceo-involutae 0,8 mm. diam, explicatae 2,6 mm. latae, glabrae, apice extremo obtuso. Panicula laxa, paucispiculata, ramis solitariis vel infimis geminatis, pedicelli 3–10 mm. longi triquetri scabruli. Glumae glabrae lineari-lanceolatae, I (seta apicali computata) 13 mm. sensim in subulam longiusculam transiens, II 23 mm. longa, apice minutissime bidenticulata longe subulato attenuata, mucrones ambi circ. 3 mm. longi. Palea 8 mm. longa cylindratae-convoluta. Aristae columna torta 12 mm. longa basi articulata, glabra, rami tenuissimi plano-convexi, medius 10 cm. laterales 8 cm. longi.

Affinis *A. stipoidi* Lam, quae distinguitur culmis usque ultra metralibus, ligula longe villosa glumis obtuse emarginatis.

Somalia settentrionale — Costa dei Migiurtina, spiaggia e duna di Hafun 30. I 1924 (Puccioni e Stefanini no. 8 [8]).

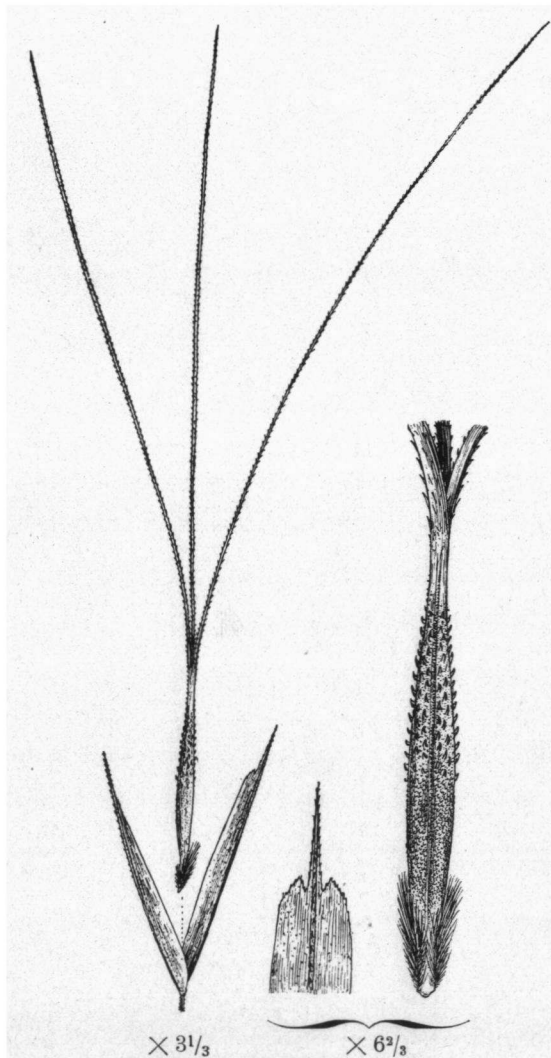
This species was also mentioned by CHIOVENDA in his *Flora Somala* (1929) p. 336! and a reproduction of a photograph was given there on Tab. XXXIX. fig. 3., which is, from the original description, about half the natural size. CHIOVENDA compared his species with *A. stipoides* LAMK., but nothing is said about the prolongation of the callus, which is very characteristically bifid in *A. stipoides* and its allies. Before this character of *A. migiurtina* is known we cannot compare the species and indicate where it finds its place in the monograph.

***Aristida muricata* Henrard.**

nov. spec.

Sectio *Chaetaria*. Perennis, caespitosa, innovationibus intravaginalibus; culmi erecti, simplices vel inferne tantum ramosi, cum paniculis

circa 50 cm. longi, teretes, minute scaberuli, striati, binodes, internodio basilari circa 6 cm. longo, supremo (pedunculo) 12—15 cm. longo, nodis tumidis; vaginae arctae vel superne hiantes, teretes vel ad basin carinatae, glabrae vel minutissime scaberulae, distincte



ARISTIDA MURICATA Henrard.

From type specimen.

striatae, internodiis parum breviores, ligula breviter ciliata, auriculae pubescentes vel pilis longis paucis praeditae, collo glabro; laminae inferne planae, circa 1 mm. latae, superne convolutae, longe setaceo-acuminatae, ad 20 cm. longae vel infimae breviores, subtus scaberulae, supra hirtellae; panícula circa 25 cm. longa, breviter exserta, ad basin laxissima, superne densior, valde interrupta, axis bene visibilis, teres, striatus scaberulus, rami bini vel a basi tripartiti, inferiores distantes, longiores a basi nudi, pedunculo 1—2 cm. longo, ad 10 cm. longi, breviores subsessiles, capillares, plus minus curvati vel flexuosi, suberecti, laxè floriferi, spiculae haud dense congestae, rami ramulique subtriquetri, scabri, ultimi haud divisi, sensim decrescentes, subsessiles, erecti plus

minus adpressi; spiculae purpureo-brunneae, erectae, pedicellis filiformibus, brevibus, glumae uninerves, subaequales, inferior carina remote scabra, breviter aristata, 10—11 mm. longa, superior carina laevis, 11—12 mm. longa, abrupte obtuso-acuminata, distincte aristata, apice subbifida, gluma fertilis tubulosa, superne parum

angustata, callo 1 mm. longo, subobtusio, dense sed inferne breviter barbato, ad 8—9 mm. longa, superne tuberculata, pilis hyalinis brevibus antorse curvatis praedita, inferne glabra sed punctulata, aristae elegantes, capillares, ad basin minute appanatae, scaberrimae, parum inaequales, centralis ad 30 mm. longa, laterales ad 25 mm. longae.

New South Wales: Gulon. leg. W. D. BROWN, June 1913. Ex National Herbarium of New South Wales, Botanic Gardens, Sydney. No. 63, sub nom. *Aristida ramosa* R. BR. Typus speciei in Herb. Lugd. Bat. sub no. 932.55—106.

***Aristida mutabilis* Trin. et Rupr.**

var. *laeviglumis* Henrard.

J. TH. HENRARD: A Monograph of the Genus *Aristida*. Vol. I. [1929] p. 136! (cum descript. angl.)

Differt ab varietatibus aequilongis et longifloris praesertim glumis glaberrimis laevissimis.

Africa boreali-orientalis: Abyssinia; terr. Agow. in arenosis et glareosis prope Goelleb leg. SCHIMPER no. 2132, in arenosis vallis Ussla prope Gurrsarfa leg. SCHIMPER no. 2198. Eritrea; Assaorta, Valle del Comailè, 4. III. 1903 leg. A. PAPPI no. 5814. Specimina in Herb. Lugd. Batav..

This variety differs from the plants described by the Russian authors only in the quite glabrous glumes, it occurs probably together with the forms with scabrous lower glumes.

***Aristida obscura* Henrard.**

var. *luxurians* Henrard.

nov. var.

Panicula longior, laxior, cum aristas ad 15 cm. longa, 8—9 cm. lata, rami longiores quam in typo, gluma inferior 15 mm., superior circa 20 mm. longa, ambae distincte aristatae, aristas haud raro 2—3 mm. longis, gluma fertilis scaberula, aristas aequalibus circa $\frac{1}{4}$ cm. longis.

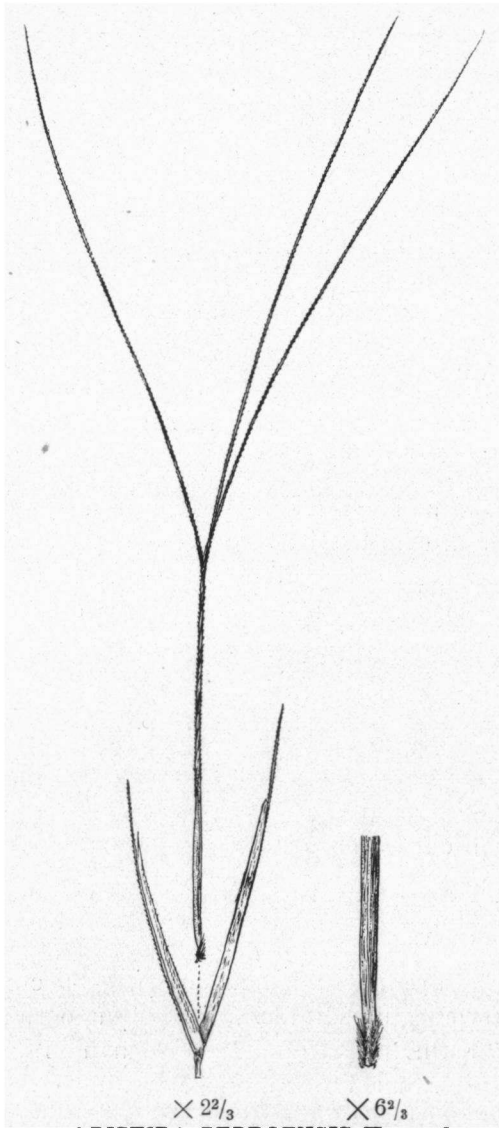
New South Wales: Nyngan, leg. E. BETCHE, X. 1883.

Type in Kew Herb. ex Nat. Herb. of New South Wales No. 30 sub nom. *Aristida Behriana* F. v. M. a form.

Aristida pedroensis Henrard.

nov. spec.

Sectio *Chaetaria*. Perennis, caespitosa, culmi robusti, cum paniculis ad 1,3 metr. alti, stricte erecti, simplices, firmi, teretes, substriati,



ARISTIDA PEDROENSIS Henrard.

From type specimen.

glabri, $2\frac{1}{2}$ –3 mm. crassi, 4–5-nodes, nodis aequidistantibus, tumescentibus; vaginae basales pallide stramineae, hiantes, superiores haud raro purpurascens, teretes, superne tantum hiantes et involutae, internodiis longiores, striolatae, scaberulae; ligula minutissima, ciliata, auriculae incrassatae, glabrae vel rarissime pilis paucis praeditae, collo scaberulo; laminae ad insertionem fragilissimae, longissimae, haud raro plus quam 60 cm. longae, anguste involutae, sensim longe acuminatae, interdum basi subplanae, expansae ad 3 mm. latae, utrinque scabrae, circa 6-nerves, marginibus late incrassatis; panícula longissima, angustissima, inferne folio supremo subinclusa, axis scaberulus, subteres, lateraliter canaliculatus, internodiis longissimis, in axillis minute pubescentibus vel scabris, rami remoti, stricte erecti, longissimi, binati vel superne subfasciculati, inferiores longiores a basi nudi, pedun-

culo circa 3 cm. longo, scaberulo, stricto, appanato, ramuli breviores, stricte erecti appressi, congesti; spiculae erectae, breviter pedicel-

latae, pedicello circa 3 mm. longo, virides vel brunneo-purpureo-suffusae, pedicellis angulosis vel subtriquetris; glumae angustissimae, 1-nerves, inferior cum arista 3—4 mm. longa ad 14 mm. longa, dorso praesertim margine longitudinaliter adpresse pilosula, carina scabra, apice bifida, arista scabra inter lobulos distinctos valde acutos sita, gluma superior cum arista 4—5 mm. longa ad 18 mm. longa, carina superne scaberula bifida sed lobulae laterales breviores et obtusiores, gluma fertilis in columnam elegantem bene tortam, saltem 10 mm. longam abiens, callo obtusissimo, sparse breviterque piloso, circa $\frac{1}{2}$ mm. longo, columna inclusa ad 18 mm. longa, aristae tenues, strictae, scabrae, subpatentes, aequilongae, ad 30 mm. longae.

Argentina: Provincia de Jujuy; Jujuy, camino à San Pedro, leg. L. R. PARODI, 19, II 1931 no. 9784. Typus speciei in Herb. Lugd-Bat. sub no. 931,349—12.

This species is very curious on account of its affinity to an Old World species, the prime characters and the habit of the plant agree in such a high degree with *A. Balansae* from Cochinchina, that only a very careful examination shows the differences. Both species with quite the same habit, have very long blades, overtopping the panicles, which are dense and congested, the blades are narrowed into a very long setaceous point. The slight differences between the two species are here supported by a quite different geographical distribution.

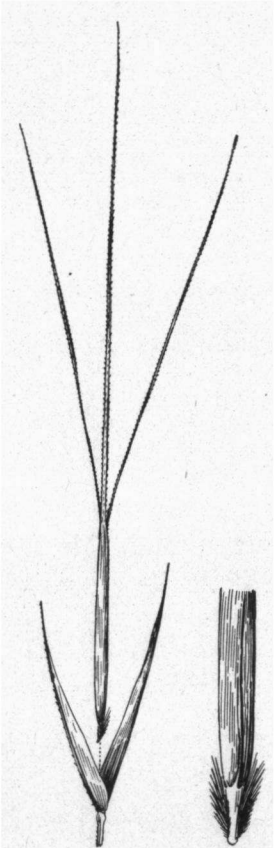
A. Balansae has a lemma with a column, which is shorter than the body of the lemma and only about 4 mm. long, in *A. pedroensis* the column is at least 10 mm. long. In the vegetative parts *Aristida Balansae* is distinct by its distribution of the culmnodes, there are in *A. Balansae* groups of 3 congested nodes with short internodes, these groups are separated by long internodes. In *A. pedroensis* the culmnodes are equally distributed.

***Aristida personata* Henrard.**

nov. spec.

Sectio *Chaetaria*. Perennis, caespitosa, innovationibus paucis, culmi erecti, fasciculato-ramosi, elegantes, vix 1 mm. crassi, teretes, scaberuli, minute striati, cum paniculis ad 1 met. vel plus alti, pluri-nodes, internodio summo elongato; vaginae internodiis breviores, inferne compressae, hiantes, scaberulae, marginibus plus minusve

hyalinis, ligula valde abbreviata, ciliolata, auriculae pubescentes vel interdum pilis longis delapsis praeditae; laminae ad basin planae, superne convolutae, setaceo-acuminatae, circa 10 cm. vel plus longae,



× 4 × 6²/₃
ARISTIDA PERSONATA
 Henrard.
From type specimen.

1—2 mm. latae, multinerves, marginibus haud incrassatis, subtus glabrae, supra scaberulae vel hirtellae; panícula angusta, longissima, plusquam 30 cm. longa, paniculae laterales breviores, valde interrupta, rami distantes, internodiis paniculae breviores, axis subteres, inferne scaber vel glaber, rami bini, capillares, erecti et appressi vel interdum flexuosi, adscendentes, longiores a basi nudi, breviores breviter pedunculati vel sessiles, omnes pauciflori, ramuli scaberuli; spiculae erectae, pedicellis brevibus scaberulis subclavatis praeditae, glabrae, pallidae, glumae 1-nerves, inferior 7—8 mm. longa, lineari-lanceolata, acuminata, carina scaberrima, superior 8—10 mm. longa, glaberrima, lineari-lanceolata, ambae manifeste aristulatae, arista saltem 1 mm. longa scabra, gluma fertilis laevissima, tubulosa vel subcompressa, callo subobtusum vel subacuto, 1 mm. longo, dense barbato. 7—9 mm. longa; aristae scaberrimae, ad basin applanatae, erectae, centralis 17—18 mm., laterales 14—15 mm. longae.

Queensland: inter Rockhampton et Westwood, coll. C. T. WHITE, no. 3396. 25, 2, 27. *Aristida* no. 4114 ex Herb. Hort. Bot. Reg. Kew. Typus speciei in Herb. Lugd. Bat. sub no. 928.18—7.

***Aristida plumosa*. L.**

var. *superciliata* Henrard.

nov. var.

Differt a typo (var. *genuina* HENR. in Monogr.) spiculis paulo minoribus, gluma I. ad 12 mm., gluma II. 14—15 mm. longa, sed praesertim columna multo brevior, tantum 3—4 mm. longa, arista centrali ad 4 cm. longa, basi longiter nuda, tantum in $\frac{1}{3}$ superiore

erecto-adpresse plumosa, apice exserta nuda, aristis lateralibus multo brevioribus ad 12 mm. longis.

Algeria: El Golea, à la base du Tadmoit, à l'entrée de la route de Ouargla. 7—4—02. leg. CHEVALIER no. 130bis. Typus in Herb. Lund.

***Aristida Pradana* Leon.**

LEON, ap. N. L. BRITTON; Studies of West Indian plants. XIII. Undescribed species from Cuba, in Bulletin of the Torrey Botanical Club. Vol. LIII, [Oct. 30. 1926] p. 458!

Perennial, culms caespitose, 60 to 80 cm. long, erect, wiry, somewhat flattened, simple and naked, the upper leaves of the culms, if any, reduced to the elongate, strongly adherent and mostly bladeless sheath; ligule a short ciliate membrane less than 0,5 mm. long; blades firm, closely involute from the base, with usually a few hairs on each side of it, scaberulous on the upper surface, glabrous beneath, flexuous, often splitting, up to 60 cm. long or more; panicle 25 to 35 cm. long, the branches few flowered, usually with one branchlet at base, at first stiffly erect, finally divergent or spreading, the lower ones distant, up to 8 cm. long, the axis and branches scabrous; glumes unequal, 10 to 12 mm. long, the first caducous, scabrous on the keel, 1-nerved, awn-tipped, the second glabrous, awn-tipped from a bifid apex; lemma 15 to 17 mm. long, including the short pilose callus about 1 mm. long, and the dark colored scaberulous beak; awns unequal, ascending, the central one slightly recurved, 2 to 3 cm. long, the lateral ones somewhat approximate, one-half as long as the central one or little more.

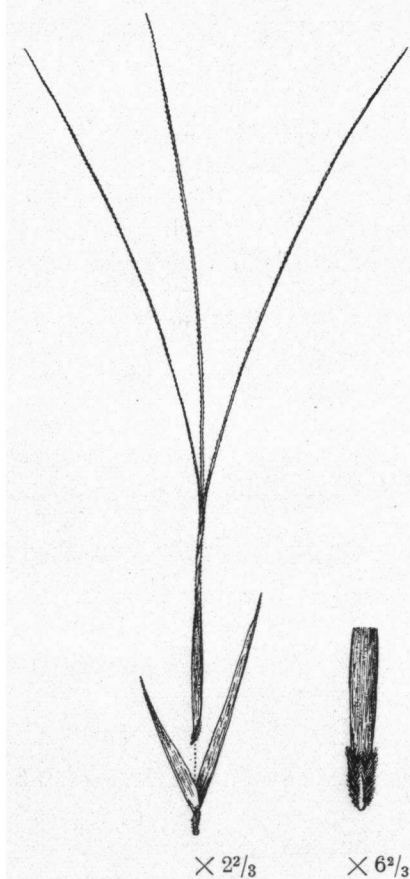
Arid rocky silicious hillside, Peladeros de Jauco, southwest of Baracoa, Oriente, Cuba (*Léon 12299*).

This species is allied to *A. divaricata* Humb. & Bonpl. of Mexico, but may be distinguished by its much longer and closely involute leaves. It is named in honor of Sr. Enrique Prada of Jauco, who helped very efficiently in collecting work. The type specimen is preserved in Colegio de la Salle Herbarium, Vedado, Havana.

The type was not seen, the description is too incomplete to compare it with other species in the monograph, the glumes are given as 10 to 12 mm. long but nothing is said about their real position and no indication is given if the branches are naked at the base, although this is probably the case. The species was therefore omitted in my monograph.

Aristida psammophila **Henrard.****nov. spec.**

Sectio *Chaetaria*. Perennis, caespitosa, innovationibus intravaginalibus, sine paniculis circa 40 cm. alta, culmi teretes, striolati,



ARISTIDA PSAMMOPHILA
Henrard.

From type specimen.

glabri vel inferne scabri, circa binodi, internodio supremo longissimo, nodis tumescentibus; vaginae inferiores delapsae, internodium nudum, superiores plus minus hiantes, marginibus involutis vel summa arcta, internodia subaequantur, plus minusve compressae vel superne teretes, striatae, glabrae vel scaberulae, ligula minutissima, ciliolata, auriculae colloque minute ciliolatae; laminae planae, apice tantum involutae, sensim acuminatae, utrinque scabrae vel hirtellae, marginibus haud manifeste incrassatis, ad 15 cm. longae, circa 1½ mm. latae, eae innovationum breviores, angustiores, vel infimae brevissimae, convolutae, auriculis barbatis vel saltem pilosis; panicula erecta, 20 cm. vel plus longa, angusta sed vix spiciformis, sublaxa et interrupta, circa 3 cm. lata, axis striatus, angulosus, subscaber, a basi visibilis, rami solitarii, interdum binati vel tripartiti, erecti vel subadscendentes, angulosi, scaberuli, laxe floriferi, breviter pedunculati vel a basi spiculiferi, ramuli

erecti, paucispiculati, spiculis plus minus congestis, pedicelli breves vel nonnullis glumas subaequilongi, angulosi, scaberuli, apice subclavati; spiculae virides vel brunneae, leviter purpureo-suffusae, glumae inaequales, anguste lanceolatae, uninerves, acutissimae, breviter aristatae, inferior 6–7 mm. longa, superne minutissime hirtella, carina scabra, superior glabra, carina fere glabra et laevis, 10–12 mm. longa; gluma fertilis tubulosa, glabra, callo acutissimo circa 1 mm. longo, dense, praesertim superne longe barbato, circa

8 mm. longa, in columnam manifeste tortam, 3—4 mm. longam abiens, aristae suberectae vel patentēs, scabrae, aequales, circa 25 mm. longae.

Australia: Queensland; Dalby, leg. C. T. WHITE, Apr. 1916. Queensland Herbarium Botanic Gardens Brisbane. No. 4096. Typus speciei in Herb. Kew.

There is at Kew a sheet, determined by BENTHAM as *A. calycina*, plants from Peak Downs, leg. BURKITT. Herb. Mueller 1877. The right panicle on the sheet is *A. psammophila*, the other fragments belong to *A. personata* HENR.. *A. psammophila* is by its well-developed twisted column quite distinct from *A. calycina*. In the herbarium at Brussels there is a specimen from Peak Downs by BURKITT with the name *A. infirma* F. v. M., an unpublished name. This specimen belongs to *A. psammophila*. The unequal glumes distinguish this species from the *A. latifolia*.

Aristida Pseudo-bromus Chiovenda.

E. CHIOVENDA; *Plantae novae vel minus notae ex Aethiopia*, in *Lavori eseguiti presso il R. Istituto Botanico di Catania I.* [1928] p. 28!

(*Arthratherum?*). *Densissime caespitosa, vaginis basalibus in fibras pallidas rigidas delabentes, vaginae strictae, coriaceae, glabrae, striato-nervosae apice glabrae; ligula brevissime pilosa. Laminae tenuiter setaceae cylindratae, glabrae, exteriores curvatae vel circinnatae, usque 25 cm. longae, 0,5—0,6 mm. crassae, apice subulato-attenuatae, acutissimae, supra sulco tenuissimo exaratae, laeves, adultiores enerviae, juniores tenuissime, non impresse nervulosae. Culmi simplices cum paniculis foliis breviores, illi 7—10 raro usque 18 cm. longi, apice minutissime puberulo-scabri; nodi 2—3 glabri, globoso-incrassati. Panicula lanceolata, densissima absque aristis 4—6 cm. longa, 1—1,8 cm. lata, rami fasciculati breves e basi spiculiferi, pedicelli 0,5—1 mm. longi scabruli. Glumae e basi lanceolatae longe subulato-attenuatae I. 9 cm. apice minutissime bidenticulatae et subulam 3 mm. longam gerens, II 3 cm. longa apice sensim longe subulato-attenuata. Flosculus anthesi callo brevissime barbulato acuto 1,2 mm. longo; palea glabra 0,5 mm. longa; arista columna 0,7 mm. longa non torta glabra, ramo medio 6 cm. lateralibus 5 cm. longis.*

Somalia media. — Sultanato di Obbia, steppa tra Obbia e Sissib, frequentissima 24. IV. 1924. (Puccioni e Stefanini n. 395 [447]).

Le infiorescenze si presentano già avvizzite e nonostante la parte fertile delle spighe si trovi ancora nello stadio poco meno che rudimentale, non vedendovisi ancora traccia di stami e di ovario, probabilmente ciò dipende dall'andamento inclemente della stagione. Non posso pronunciarmi con certezza circa la posizione di questa specie; per tutt' l'aspetto ricorda le specie perenni della sezione *Arthratherum*, ma la colonna della resta è troppo breve anche avuto riguardo allo scarso sviluppo dei fiori.

The species was described by CHIOVENDA from immature material, the palea (lemma) was given as 0,5 mm. and the column as 0,7 mm. long and not torted, nothing is said about an articulation and CHIOVENDA placed his species doubtfully in the section *Arthratherum*. The species was afterwards mentioned in CHIOVENDA's Flora Somala (1929) p. 336 and figured on Tab. XXXIX fig. 4, which is about half the natural size. It is impossible to recognize CHIOVENDA's species, because we know that in *Aristida* the awns are already fully grown out before the lemma and column are developed and one can expect thus at maturity a long lemma with a very long column separated by an articulation or not. We cannot give an idea of the species, the section to which it belongs being not to fix, even if we had this immature type specimen before us. The description agrees in some characters with those of *A. protensa* from Abyssinia, described from good mature material, this species has a distinct twisted column and an articulation between lemma and stipe, belongs therefore certainly to the section *Arthratherum*. CHIOVENDA's species was therefore not taken up in the monograph.

***Aristida ramosa* Rob. Brown.**

var. *scaberula* Henrard.

nov. var.

Differt a typo glumis brevioribus, 5 et 6 mm. longis, vulgo scaberulis, glumis fertilibus purpureis superne, praesertim infra aristis, setulis albidis praeditis.

Australia: New South Wales; Port Jackson District, Centennial Park, leg. J. L. BOORMAN, April 1906. A. KREUCKER: Gram. exsicc. XXI. 1907 no. 621. Typus in Herb. Lugd. Bat. sub no. 908,83—935.

Aristida ramosa* Rob. Brown.*var. *speciosa* Henrard.****nov. var.**

Differt a typo glumis longioribus, 7 et 9 mm. longis, spiculis erectis longe pedicellatis, pedicellis superioribus haud raro ad 15 mm. longis vel lateralibus saltem ad 10 mm. longis, aristis aequalibus circa 15 mm. longis.

Australia: New South Wales; Narromine, coll. R. HELMS, Nov. 1892. Ex National Herb. of New South Wales. Bot. Gardens, Sydney no. 46 sub nom. *Aristida vagans* CAV. var.

Typus in Herb. Lugd. Bat. sub no. 932,5 - 14 et in Herb. Kew.

***Aristida rhizomophora* Swallen.**

JASON R. SWALLEN: A New Species of *Aristida* from Florida. *Journal of the Washington Academy of Sciences*. Vol. XIX. [1929] p. 196! cum fig.

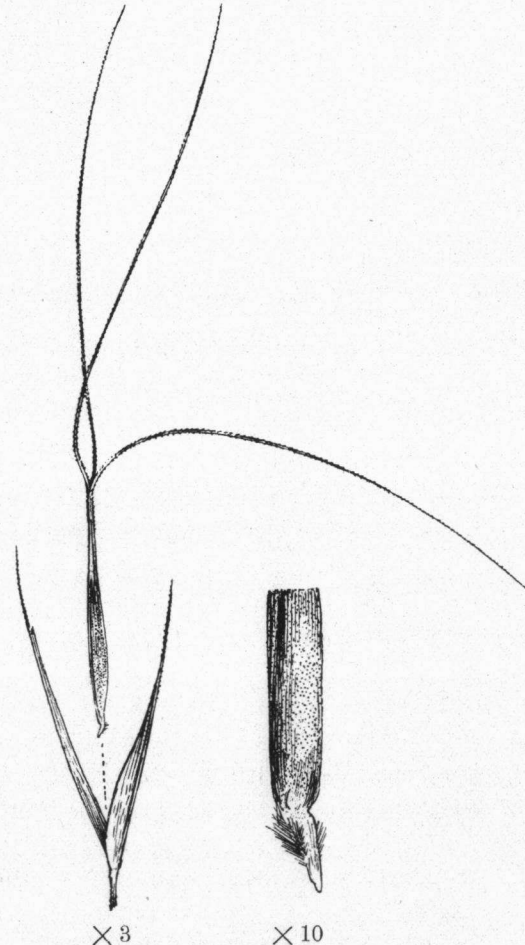
Plants perennial; culms tufted, simple, erect, 65 to 80 cm. tall, producing well developed scaly rhizomes; leaves one or two, the lower internodes short; sheaths persistent, becoming fibrous with age, smooth, with a tuft of hairs at the mouth, especially on those of the innovations, nearly lacking on those of the culm; ligule nearly obsolete; blades firm, flat or folded, somewhat scabrous above, smooth beneath, 7 to 10 cm. long, 1 to 2 mm. wide, those of the innovations flexuous, as much as 30 cm. long; panicle flexuous, 20 to 30 cm. long, the branches two at a node, distant, flexuous, somewhat spreading, few-flowered, spikelet-bearing from near the base, the lower ones as much as 7 cm. long; glumes acuminate and usually awned, the awn 1 to 6 mm. long, the first 1 to 3-nerved, 8 to 14 mm. long, the second 1-nerved, 12 to 17 mm. long including the awn; lemma glabrous, 9 to 12 mm. long, the callus 1 mm. long, sharp-pointed, short-bearded on the sides above, the awns scabrous, flexuous; curved or loosely twisted at the base, spreading, the central often reflexed by a semicircular bend, 18 to 24 mm. long, the lateral 15 to 20 mm. long.

Type in the U. S. National Herbarium, no. 1,435,634, collected in the prairie region north of Lake Okeechobee, near Fort Bassenger, Florida, June 30, 1928, by Dr. Paul Weatherwax (no. 1081).

The other North American species of *Aristida* which produce rhizomes are *A. stricta* Michx., and *A. patula* Chapm. In the former they are exceptional (*Garber* in 1877, *Hitchcock* 19767, *Standley* 13076, and *Weathercax* 1088) and such specimens can be distinguished from *A. rhizomophora* by the strict panicle with more numerous, smaller spikelets, and the dense pubescence on the upper surface of the blades near the base. In the latter they occur frequently, but the species, which belongs to a different group, has large panicles with stiffly spreading branches, as much as 20 cm. long, naked below.

In the form of the panicle and spikelets, *A. lanosa* Muhl. resembles *A. rhizomophora*, but the plants are stouter, usually solitary, with densely lanate pubescent sheaths and flat blades, as much as 4 mm. wide, tapering to a fine involute point.

A very fine duplicate of the type was received from the U. S. National Herbarium, showing the extravaginal innovations, the specimen is fully developed, the central awn has a semicircular bend at the base and is horizontally spreading or reflexed but straight upwards. The species was therefore placed in the monograph near *A. palustris* and *A. virgata* but is otherwise very different. *A. lanosa* is at once to distinguish by its inverse position of the glumes and the flake of wool at the axils of the panicle. Among all the allied species, *A. rhizomophora* is very distinct by its long-awned glumes.



ARISTIDA RHIZOMOPHORA Swallen.
From duplicate type specimen.

Aristida riparia* Trinius.*var. *andina* Henrard.****nov. var.**

Differt a typo insigniter panicula brevior, tantum ad 12 cm. longa, absque aristas $1\frac{1}{2}$ cm. lata, dense spiciformi haud interrupta, spiculis paulo minoribus, gluma I. cum arista 3 mm. longa circa 13 mm. longa, dorso scaberula, gluma II. cum arista 2 mm. longa, ad 12 mm. longa, gluma fertili in columnam vix 10 mm. longam abiens, ad 15–18 mm. longa, aristae setis brevioribus, centrali vix 25 mm. longi, lateralibus ad 20 mm. longis, callo brevior quam in typo, vix $\frac{1}{2}$ mm. longo sed distincte bifido.

Accedit ad *Aristidam oligospiram* HENR. sed callo bifido distincta.

Bolivia: Sur-Yungas; Chulumani, 1600 m. altitud., 22. Dec. 1923
leg. A. S. HITCHCOCK no. 22702. Typus in Herb. Lugd.
Bat. sub no. 928,356—169.

This characteristic plant was kindly received from Prof. HITCHCOCK and already mentioned by him in his work on the grasses of the Andes as *A. riparia*. In the vegetative characters it agrees perfectly with that species, especially in the coarsely hairy mouth of the sheaths and auricles and in the characters of the sheaths and blades. It has the same curious bifid prolongation of the callus as in *A. riparia* the only species with this character in America. HITCHCOCK's plant differs however abundantly from typical *A. riparia* in the panicle-characters, it agrees in these characters and especially in those of the glumes and awns very well with *Aristida oligospira* where the panicle is shorter and denser and the pedicels are very short, the lower glume is very scabrous on the back and the column and awns are also in accordance with *A. oligospira*. The callus of *Aristida oligospira* is however not bifid, simple and very obtuse. If the callus was not provided with the curious bifid prolongation, the new plant was difficultly or scarcely to distinguish from *A. oligospira*.

Aristida Schaeferi* Mez.*var. *biseriata* Henrard.**

J. TH. HENRARD: A Monograph of the Genus *Aristida*. Vol. I. [1929] p. 41 (cum descript. angl.)

Differt a typo gluma superiore infra apicem dorso rigide ciliata pilis hyalinis patentibus basi tuberculatis.

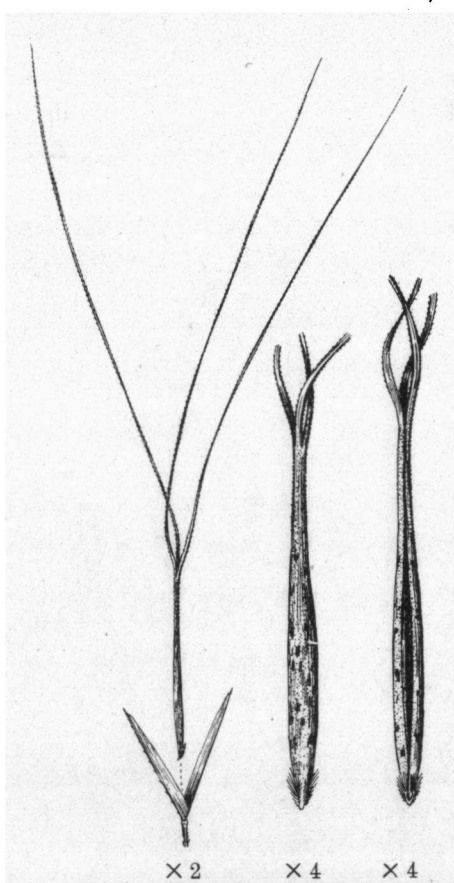
Africa austro-occidentalis: Damaraland; Welwitsch. leg. GALPIN et PEARSON no. 7590. ex Herb. Kew in Herb. Hackel Vindob. no. 22126.

This variety is homologous to the variety *tricholaena* HACK. of *Aristida ciliata*.

Aristida succedanea Henrard.

nov. spec.

(Sectio *Chaetaria*). Perennis dense caespitosa, innovationibus numerosis. Culmi stricte erecti, simplices, ad 50 cm. alti, uni- vel 2-nodes, nodis subbasalibus, striatuli, teretes, glaberrimi; vaginae infimae vetustae in frustulis dilatantes, superiores compressae, glaucae, striatae, scaberulae, internodiis longiores, ligula breviter ciliolata, auriculae pubescentes haud barbatae; laminae in parte inferiore planae ad 2½ mm. latae, circa 15 cm. longae, superne convolutae sensim longe acuminatae, erectae vel superne parum flexuosae, utrinque scabriusculae, marginibus valde incrassatis scabris, eae innovationum setaceae, convolutissimae, ad 10 cm. longae vix ¼ mm. latae vel vi explanatae 1 mm. latae, supra pilis longis sparsis praeditae; panicula erecta, subcontracta sed laxa, 10–15 cm. longa, 2–3 cm. lata, exserta, axis inferne teres, glaberrimus, superne angulosus scabriusculus, ramis filiformibus binis vel solitariis et paulo supra basin divisis, erectis vel subflexuosis, scaberrimis, longioribus 2–3 cm. longis, 5–8-spiculatis, brevioribus 1–2-spiculatis, omnibus in parte inferiore nudis, laxe floriferis, floribus subremotis haud dense congestis; spiculae viridi-purpurascens, erectae, pedicellis scaber-



ARISTIDA SUCCEDANEA Henrard.

From type specimen.

rimis ad 5 mm. longis vel lateralibus subsessilibus; glumae glabrae, unives, inferior carina scabra, 8—9 mm. longa, subabrupte acuminata vel leviter mucronata, superior ad 10 mm. longa, carina laevis, subabrupte acuminata sed vix aristata, gluma fertilis tubulosa, superne angustata sed haud rostrata, laevis vel infra aristas leviter scaberula, callo brevissimo subobtusum vix $\frac{1}{2}$ mm. longo, hirsutulo, 11—12 mm. longa, marginibus involutis ventre a basi ad apicem longitudinaliter sulcata; aristae inferne leviter applanatae subcontortae, superne rectae, scabrae, subaequilongae, circa $3\frac{1}{2}$ cm. longae vel arista centralis paulo longior.

Brasilia: San José dos campos, 21. XI. 1907. leg. ALBERTO LÖFGREN no. 242.
(Herb. Regnell Stockholm.)

As is pointed out in my work on *Aristida*, there occurs in South America a small group of very characteristic species with or without inverse position of the glumes but always with a lemma having inrolled margins, thus furrowed at the ventral side. Species with this character also occur in Australia. The species of this group with inverse position of the glumes in South America belong to the "*circinales*", with laxly contracted more or less interrupted panicle and without a column. This group of "*small species*" is treated on p. 247 of the monograph under no. 137. The new species *A. succedanea* is the only one belonging to this South American group of the "*circinales*" with a normal position of the glumes and is therefore placed among the Australian species with the same character, such as *A. sciuroides*, *A. ingrata* and *A. jerichoensis*.

***Aristida Takeoi* Ohwi.**

JISABURO OHWI: Symbolae ad Floram Asiae Orientalis II., in The Botanical Magazine Tokyo. Vol. XLV. [April 1931]. p. 183!

§ *Chaetaria* Trin. Culmi densissime caespitosi filiformes $\frac{1}{2}$ — $\frac{2}{3}$ mm. crassi trigono-teretes scabriusculi vix striati erizomatosi pedales vel ultra, infra medium remote trinodes. Folia filiformia involuta culmum paullo angustiora erectiuscula parce scaberula rigida, 15—20 cm. longa; ligula barbata. Panicula laxi- et pauciflora ca. 2 dm. longa. Rhachis trigono-teres scaberula, ramis 1—2-nis 1—2-floris erectis triquetris scabris 5—8 cm. longis, imis basi subulato-bracteatis. Glumae steriles coriaceae subulato-lanceolatae pallidae; 1-ma 8—8,5 mm. longa acuminata punctato-scaberula trinervia

(nervis imprimis superne scabris); 2-da ca. 1,2 cm. longa laevissima 1-nervia acuta. Gluma florens subulata pallida longitudine glumam sterilem primam aequans glabra, apice in stipitem tortum scabrum 13 mm. longum inarticulatum producta; aristis 3, scabris; centrali validiore ca. 18 mm. longa; lateralibus 15 mm. longis, horizontaliter patentibus.

Nom. Jap. *Oh-matsuba-shiba* nov.

Typus; Liukiu; Chibana in Nakakusugori (12. IX. 1930. T. Ito) -in Hb. Universitatis Imperialis Kyotoensis.

An ally of *A. somalensis* STAPP from which however, it differs in its shorter spikelets and in its three-nerved first-glumes.

This species was not seen by me. The description given by OHWI is not complete enough to recognize the species and it is therefore at the moment not possible to indicate its place among the other species in the monograph. Nothing is said about valuable characters as shape and outline of the panicle, auricles and form of the callus. The species was therefore omitted in my work.

Aristida tenuisetulosa Mez

var. arenarioides Henrard

nov. var.

J. TH. HENRARD: A Monograph of the Genus *Aristida*. Vol. I. [1929] p. 108 et 114! (cum descript. angl.)

Glumae columnaque breviores quam in typo, gluma inferior circa 11—12 mm. longa, superior 17—18 mm. longa, columna tantum 15 mm. longa. Plantae nanae.

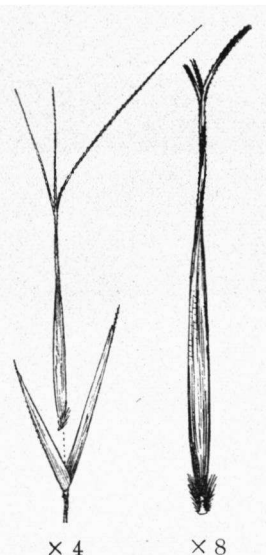
Among the typical plants of the species in the herbarium at Vienna.

Aristida transvaalensis Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis, probabiliter caespitosa, florendi tempore innovationibus nullis. Culmi ad basin simplices, e nodis omnibus dichotomo-ramosi, ramis elongatis erecto-patulis floriferis, elegantes, circa $\frac{1}{2}$ mm. crassi, cum paniculis ad 35 cm. alti, stricte erecti vel leviter curvati, glaucissimi, striati, teretes, laeves vel minutissime scaberuli; vaginae inferiores vetustae pallidae, hiantes, internodio infimo elongato ad 10 cm. vel plus longo, vaginae superiores hiantes, internodiis multo breviores, 2—3 cm. longae, leviter compressae

vel teretiusculae, striatae, glabrae, marginibus submembranaceis, ligula minuta, breviter ciliolata, auriculae haud barbatae, minute puberulae; laminae foliorum culmorum angustae, convolutae, $\frac{1}{2}$ mm. vel vi explanatae vix 1 mm. latae, setaceo-acuminatae. 2—3 cm. longae vel interdum ad 7 cm. longae, subtus glaberrimae vel minute puberulae, supra scabro-hirtellae, marginibus subincrassatis scaber-rimis; panícula angusta, depauperata, sublaxa, 3—5 cm. longa vel laterales breviores, vix exserta, pedunculo incluso, axis subangulosus, scabriusculus vel laevis. ramis solitariis, potius a basi bipartitis, ad 2 cm. longis, erecto-adpressis, a basi spiculiferis vel breviter nudis, ramulis abbreviatis, erectis, spiculis congestis breviter pedicellatis, pedicellis scaberulis; spiculae pallidae vel virescentes, erectae, parvae, glumae acutatae, uninerves, inferior vix 5 mm. longa, carina superne scabra, minutissime aristulata, aristula scabra, superior $6\frac{1}{2}$ mm. longa, carina laevis, apice minutissime subtruncato-acuminata, aristulata, aristula scabra, gluma fertilis laevis, tubulosa, superne angustata et distincte stipitata, in columnam scabram tortam circa 2 mm. longam abiens, callo obtusissimo vix 0,4 mm. longo dense barbato, 6—7 mm. longa, aristae inaequilongae, scabrae, centralis divergens 8—9 mm. longa, laterales erectae, 4—5 mm. longae.



ARISTIDA
TRANSVAALENSIS
Henrard.

From type specimen.

Africa australis: Transvaal; prope Pretoria, Bavianspoort, leg. C. E. Moss, 3. IV. 27. no. 14259. Typus speciei in Herb. Kew.

A very peculiar species, very striking on account of the dichotomously branched thin culms, all the branches panicle-bearing. Allied to different African species as *A. macilenta*, *A. junciformis* and *A. Welwitschii*. It differs from *A. macilenta* in the well-developed twisted column, somewhat shorter glumes and much shorter awns and in the quite different habit. *A. junciformis* a species without column has longer awned glumes, distinctly compressed culms and very long blades. More allied to *A. Welwitschii* which has also a well-developed column, but the latter has longer glumes and lemmas and much longer central and lateral awns. *Aristida huillensis* differs in the longer glumes lemmas and awns, in the pubescent lower

glume and in the much longer blades. *Aristida canescens* differs in the very obtuse glumes, the wanting column and has moreover a quite different habit.

***Aristida triticoides* Henrard.**

J. TH. HENRARD: A Monograph of the Genus *Aristida*. Vol. I. [1929] p. 101. (cum descript. angl.)

(Sectio *Arthratherum*). Imperfecta cognita, specimina incompleta



ARISTIDA TRITICOIDES Henrard.

From type specimen.

fere ad paniculas redacta. Culmi stricti vel leviter arcuati, teretes, striati, glaberrimi, glauci, graciles, nodis glabris; vaginæ superiores arctae, striatae, laevissimae, circa 5 cm. longae, ligula brevissima, longe pilosa, auriculæ longe barbatae, collo glabro; laminae superiores tantum cognitae, angustissimae, basi subplanæ, convolutæ, glaucae, longe setaceo-acuminatae, subtus laevissimae, supra puberulae vel hirtellae, marginibus scabris haud incrassatis, 9–11 cm. longae, vi explanatae, vix 1 mm. latae; panícula breviter vel brevissime exserta, angusta, densissima, contracta, spiciformis, absque aristis plus minus 10 cm. longa et circa 1 cm. lata, stricte erecta, axis subteres vel subangulosus, scaberulus vel scabriusculus, haud visibilis (panícula densa haud interrupta), ramis solitariis, incrassatis, stricte

erectis, basi multipartitis, ramulis erectis adpressis, scaberulis, pedicellis leviter complanatis scaberulis floribus subsessilibus; spiculae viridi-flavescentes vel glaucescentes, stricte erectae, adpressae, glumae glaberrimae, inaequilongae, 1-nerves, inferior 6–8 mm. longa, carina scabra, acuta vel acuminata, brevissime aristata, superior angustior, carina laevis, 15–16 mm. longa, apice distincte bifida inter lobos breviter aristata, arista vix 1 mm. longa, gluma fertilis

laevis vel ad apicem leviter punctulato-scabra, ad basin rotundata, callo curvato acutissimo circa 1 mm. longo, lateraliter longe barbato, circa 5 mm. longa, apice articulata haud angustata, in columnam scabram valde tortam circa 20 mm. longam abiens; aristae inaequilongae, flavescentes vel purpurascens, scabrae, laterales 25—35 mm. longae, erectae, centralis paululum divergens, ad basin leviter curvata, circa 6 cm. longa.

Somaliland: Upper Shaikh. leg. Major APPLETON. Typus in Herb. Kew.

This grass grows according to the collector Major A. F. APPLETON, sparingly at Upper Shaikh, it has a comparatively short stem and is of very little value for feeding purposes.

A distinct species allied to *Aristida Kelleri* and *A. protensa*, both from Somaliland. More allied to the former, which differs in the glumes, both deeply bifid with an awn from the sinus, in the much shorter panicle, the much shorter only 10 mm. long, scarcely or loosely twisted column and in the much shorter awns of the lemma. *Aristida protensa* differs from both species in the about equal awns of the lemma, in the much shorter only 6 mm. long column and in the peculiar shape of the very long upper glume with a very long awn from a deeply bifid apex. The panicle is moreover much denser and the awns are thinner and longer.

***Aristida vinosa* Henrard.**

nov. spec.

(Sectio *Arthratherum*). Perennis, caespitosa, florendi tempore innovationibus paucis vel nullis; culmi erecti, circa binodes, hinc inde e nodis ramosi, teretes, glaberrimi; vaginae arctae, striatae, leviter scaberulae, vel laeves, internodiis multo breviores, ligula brevissime ciliolata, auriculae ciliolatae] tantum, sed collo interdum minute pubescente; laminae angustae, primo planae, ad $1\frac{1}{2}$ mm. latae, deinde convolutae, 6—8 cm. longae, superne sensim decrescentes, multinerves, marginibus haud incrassatis, subtus glabrae laevesque, supra hirtellae; panicula 15 cm. vel plus longa, longe exserta, erecta, anguste contracta, sed haud densa, sublaxa, axis subangulosus, scaberulus, bene visibilis, rami subremoti, bini vel interdum solitarii, in axillis glabri, inferne nudi, ramuli erecti, adpressi, scaberuli, paucispicultati, spiculis remotis haud congestis; spiculae pulchre rubro-violaceae, magnae, glumae valde inaequilongae, uninerves,

inferior 7—8 mm. longa, acuta vel interdum leviter mucronata, carina subscaberula, superior 16—18 mm. longa, angustior, acuta, apice plus minus bifida. inter lobos parvos plus minus breviter aristata, gluma fertilis tubulosa, flavida, nigro-maculata, callo acuto dense barbato ad 2 mm. longo, ad 8—9 mm. longa, superne bene articulata, leviter angustata, in stipitem elegantem, bene tortam, 18—20 cm. longam abiens, aristae subaequilongae, violascentes, scabrae, subpatentes, ad 5 cm. longae.

Southern Rhodesia. District Matopos, leg. J. M. RATTRAY, Feb. 1931 no. 264. Ex Government Herbarium, Salisbury, South Rhodesia. Typus speciei in Herb. Lugd. Bat. sub no. 933,282—45.

The new species, received from Miss STENT, is allied to the 2 South African species *A. ramifera* and *A. graciliflora*, but is distinguished by the nearly simple culms (much branched in the 2 mentioned species), the different shape of the panicle, the at first quite flat leaves and differs from *A. ramifera* in the column which is about twice as long. More allied to *A. graciliflora*, but distinctly different.

***Aristida Wachteri* Henrard.**

nov. spec.

(Sectio *Arthratherum*). Perennis, probabiliter caespitosa, innovationes desunt. Culmi erecti vel subgeniculati, plurinodes, nodis tumidis, obtuse angulosi vel superne teretes, leviter striolati, inferne ad 2 mm. crassi, cum paniculis circa 1 m. alti, simplices vel superne subramosi; vaginae basales hiantes, laxae, internodiis breviores, striolatae, ligula densiter ciliata. auriculae longe barbatae, interdum quasi sublanatae, collo haud raro pilosulo, laminae pro maxima parte desunt, superiores (infra paniculam) ad 13 cm. longae, angustae, complicatae, subtus glabrae, superne scabrae, supra hirtellae, subglaescentes; panicula exserta, pedunculo saltem 10 cm. longo, aristis computatis ad 25 cm. longa circa 10 cm. lata, laxa vel superne subcontracta, axis ut pedicellus teres, laevis, superne subangulosus, subscaberulus, ad basin interrupta, axis bene visibilis; rami in axillis ciliati vel inferne subbarbati, binati vel quasi tripartiti — ramus alter supra basin ramosus — teretiusculi, scaberuli, apice plus minus clavati, remoti, erecti vel erecto-adscendentes, vel inferiores interdum subpatentes, circa 10 cm. longi, internodiis paniculae longiores, superne sensim decrescentes, paucispiculati,

spiculis ad summum ramorum haud dense congestis, subimbricatis; spiculae pulchre violaceo-flavescentes, erectae, glumae uninerves, inferior cum arista 9—10 mm. longa, arista $2\frac{1}{2}$ mm. longa, carina remote scabra, superior carina laevis, 15—16 mm. longa, apice aristata, interdum leviter bifida sed haud distincta, gluma fertilis albida, nigro-maculata, tubulosa, superne leviter angustata, callo acutissimo, regulariter sed breviter barbato, circa 2 mm. longo, ad 9 mm. longa, superne bene articulata, in columnam elegantem bene tortam circa 15—17 mm. longam abiens, aristae subpatentes ad basin leviter curvatae, scabrae, elegantes, subaequilongae, circa 5 cm. longae vel laterales paulo breviores.

South Rhodesia: collected by A. A. PARDY, 10. 3. 1931. no. 3744. District Nyamandhlovu, near Umqusa Spur. Received from the Government Herbarium, Salisbury, Southern Rhodesia. Typus speciei in Herb. Lugd. Bat. sub no. 931,301—22.

This distinct species, recently received from Miss STENT, has the habit of *A. stipoides* and *A. meridionalis*, both also from Africa; it is at once to distinguish from them by the acute prolongation of the callus, which is bifid in *A. meridionalis* and its allies. As to the character of the callus the new species is more allied to *A. graciliflora* and *A. ramifera*, from both it is however distinctly different in the bearded auricles and ciliolate axils of the panicles, the latter with a different shape and outline, and by the less branched culms.

Another specimen was seen in the Government Herbarium at Salisbury, received from Miss STENT for identification; it was collected in the same district by the same collector. Edge of Kalahari Sand, near Matandhlamahla Vlei, near Umqusa Spur, 10, 3, 31. no. 4905. It has a less developed panicle with shorter awns ($3\frac{1}{3}$ — $4\frac{1}{2}$ cm. long), but agrees otherwise with the type. The densely bearded auricles and the pilose collar are here very conspicuous.

(Published 1 December 1933).