

A
CRITICAL REVISION OF
THE GENUS ARISTIDA

BEING A PRELIMINARY STUDY

AND

AN INTRODUCTION TO THE MONOGRAPH

BY

J. TH. HENRARD.

A species with the habit of *Aristida divaricata* H. et B., but well-distinguished by the wanting column and the curious tuberculate lemmas. Closely allied to *Aristida gentilis* HENR., which differs however in the other position of the glumes and in the smooth lemma. The species resembles in some characters the *Aristida Parishii* HITCHC., the latter has however a totally different shape of the panicle and the lemma is not tuberculate-hispid, but scabrous only on the upper half. Among duplicates from the U. S. Nat. Herbarium, kindly received from Mrs. A. CHASE, I found a second plant belonging to the species, a plant also collected in Arizona, north slope of Santa Rita Mountains, leg. D. GRIFFITHS no. 7269.

Aristida Hassleri Hackel.

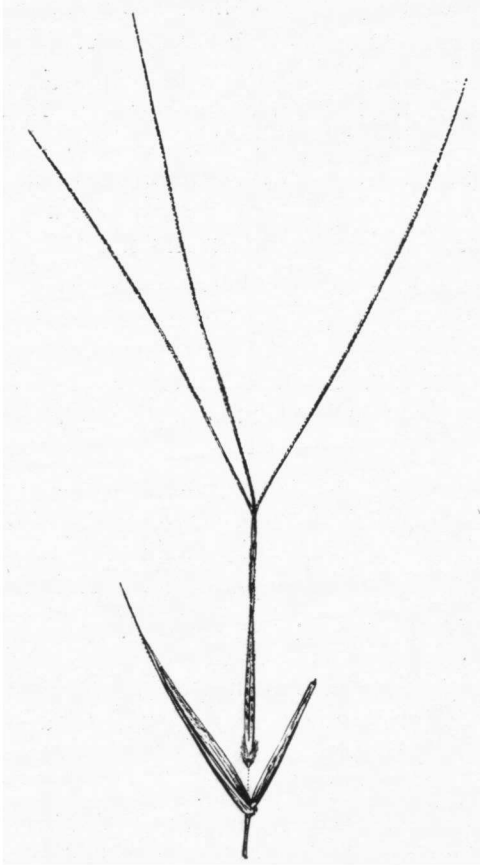
E. HACKEL, ap. R. CHODAT et E. HASSLER; *Plantae Hasslerianae* in *Bulletin de l'Herbier Boissier, Seconde Série. Tome IV. [1904] p. 277!*

Perennis. Culmi erecti, teretes, graciles 0,6—1 m. alti, glaberrimi, nodis circ. 5, summo supra medium culmi sito, ex omnibus vel plurimis nodis ramosi, ramis floriferis, patulis, vaginas a culmo solventes. Hae subcompressae, internodia subaequantes, glaberrimae. Ligulae brevissimae, maginiformes, ciliolatae. Laminae anguste lineares sensim setaceo-acuminatae, ad 20 cm. lg., 2 mm. lt., planae v. siccando subconvolutae sed nunquam setiformes neque junceae, glabrae, subtus laeves, supra marginibusque scabrae, rigidulae, crassinerves, prope margines nervo crassissimo notatae, emortuae flexuosae. Panicula oblongo-elliptica laxa, patula, ad 24 cm. lg., rhachi scabra, ramis binis tenuissimis scabris patentibus in $\frac{1}{3}$ inferiore indivisis, primario inferiore paniculam dimidiam subaequante, secundarios subcompositos 2—6 spicatos gignente, spiculis subaequaliter dispositis vix contiguis, longiuscule v. (subterminales) breviter pedicellatae. Spiculae subulato-lineares, sine aristis circ. 12 mm. lg., violascentes. Gluma I subulato-linearis sensim in setam scabram abiens, 12 mm. longa, 3-costata, carina scabra; II quam I $\frac{1}{3}$ brevior (8 mm. lg.), lineari-lanceolata, apice obtusiusculo mucronata, 1-nervis, laevis; III lineari-tubulosa, 8—9 mm. longa, callo brevissime barbulata, livide viridis et nigro-maculata, in $\frac{1}{2}$ superiore aculeolis minutis albis scabra, sensim in aristae stipitem 3 mm. longum leviter (semigyris 2) tortam abiens; setae 3 subaequales scabrae 20—25 mm. longae, basi non tortae. Palea minuta.

In arenosis in regione cursus superioris fluminis Apa, Jan., n. 8346.

Species distinctissima nulli arctius affinis, habitu *A. setifoliam* Kunth et *A. tortam* Kunth monens, sed ab his et omnibus affinibus ratione glumarum sterilium distincta; nam in illis gluma I quam II

brevior v. ei subaequilonga, in *A. Hassleri* vero gluma I quam II dimidio longior est et insuper forma ab illa recedit, ut ex diagnosi elucet.



× 2 $\frac{1}{2}$

ARISTIDA HASSLERI Hackel.

From type specimen.

This species is known from Paraguay, collected by BALANSA and HASSLER and also from Bolivia, collected by HERZOG. In HACKEL's herbarium there are two sheets labeled by him, both are Hassler no. 8346. The sheet with the Vienna number 15597 bears a complete but not quite mature specimen, the other sheet with the Vienna number 15599 bears a plant, lacking the base but the panicle is well-developed. The description is made from both specimens. The plant on the sheet no. 15599 is taken as the type. The species is very distinct by the inverse position of the glumes, the strongly twisted well-developed column and the curious

tip of the upper glume. As to the spikelets the species resembles another species described by HACKEL as *Aristida macrophylla*, but the latter differs in the vegetative characters, in the shape of the panicle and in the lemma. See my observations under the variety *aculeolata* on pag. 223.

Aristida Hassleri Hackel.

var. aculeolata Hackel.

Ex herbario Hassleriano: Novitates paraguarienses. III, in F.

FEDDE, Repertorium novarum specierum regni vegetabilis. VII. [1909] p. 373!

Differt a typo gluma I. carina nervisque lateralibus aculeolis scaberrima, culmo simplici, vaginis internodia culmi superantibus, spiculis paullo majoribus (15 mm) aristae stipite longiore (6 mm longo).

Paraguay: Sierra de Amambay, in campis siccis Punta Porá, Hassler no. 9849, leg. Rojas.

Note: = *Aristida macrophylla* Hackel.

In HACKEL's herbarium at Vienna there is but a fragment of this variety, stamped 15598, bearing a label written by HACKEL. The specimen he probably returned to HASSLER. In the Vienna Herbarium there is however a good specimen from Hassler no. 9849, a specimen not seen by HACKEL. The spikelets of both plants resemble indeed very much those of the type of *A. Hassleri*, but HACKEL's statement that the first glume has lateral nerves is an optical delusion, on account of the stiff hairs placed in longitudinal rows on each side of the midnerve. An accurate examination has shown that both glumes have no trace of lateral nerves. Hassler no. 9849 in the Vienna Herbarium (stamped no. 959) agrees perfectly with Hassler no. 11323 in the Berlin Herbarium, the type of *Aristida endomelas* MEZ, which belongs as to the shape of the panicle and the texture of the blades and other vegetative characters to *A. macrophylla*. It may be that the number 9849 studied by HACKEL, was not complete enough and that therefore the plant was not at once to recognize as belonging to the *A. macrophylla* already described by HACKEL in the year 1906. To demonstrate an essential difference between the two species I will call attention to the lemmas of both; they have in general the same form with the same curious callus but in *A. Hassleri* the body of the lemma, scabrous and aculeolate in the upper part, regularly passes into the twisted column. In *A. macrophylla* the summit of the scaberulous not aculeolate lemma is suddenly and nearly rectangularly constricted at the place of the insertion of the column and at that place very distinctly hairy. This is so striking that one is inclined to think that there is an articulation between the lemma and the column. Prof. MEZ described Hackel's *A. macrophylla* as a new species he named *A. subarticulata* indicating the „articulatio subobscura". See afterwards the figure under *A. subarticulata*.

Aristida Havardii Vasey.

GEORGE VASEY; New American Grasses, in Bulletin of the Torrey Botanical Club, New York. Vol. XIII. [1886] p. 27!

Culms about 1 foot high, slender, leafy; leaves setaceous, erect, 3 to 5 inches long, the upper one enclosing or near the base of the panicle; panicle 5 to 6 inches long, somewhat pyramidal; branches mostly in twos, unequal, almost capillary, spreading and sometimes reflexed, the longest about 2 inches long, loosely flowered, the lower part ($\frac{1}{4}$ inch) naked; spikelets pedicelled; outer glumes nearly equal, 4 to 5 lines long, narrow, one-nerved, acuminate, the upper a little longer than the flowering glume, including the short obtuse hairy callus; the flowering glume smooth below, spotted, and tapering to the scabrous apex, awns erect-spreading, nearly equal, about 6 to 8 lines long.

This has somewhat the appearance of *A. divaricata*, but is much smaller, and without the long naked branches of that species. Collected in Western Texas by Dr. Havard.

Note: = *Aristida barbata* Fournier.

$\times 10$: $\times 3\frac{1}{8}$

ARISTIDA HAVARDII Vasey.

From duplicate type specimen.

The actual type, in the U. S. National Herbarium, was collected by Havard (no. 28), October, 1883, in W. Texas. A duplicate type in the Hackel Herbarium, bearing the Vienna number 15595, Havard no. 28, bears the name in VASEY'S handwriting. The species belongs to the group of the „divaricatae” and is allied to the true *A. divaricata* H. et B., but has a very distinct mode of growth, a different shape of the panicle and shorter glumes and column. I have identified VASEY'S species with *A. barbata*, after an accurate examination of FOURNIER'S type in the Paris Herbarium. See my observations under *A. divaricata* H. et B., on pag. 147 of this revision.

***Aristida Hermannii* Mez.**

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 153!

Perennis, parvula. Foliorum rosulae vaginae secus marginem breviter pilosae; ligulae in pilorum seriem barbellatam mutatae; laminae recurvae, complicatae, scaberrimae. Culmi toti invaginati, ad nodos breviter pilosi. Inflorescentia subpauciflora, dense subcorymbosa. Spiculae quam pedicelli omnes longiores, glabrae. Glumae lanceolatae, apicem versus sensim acutae demum obscure obtusiusculae, 3-nerviae, I. ad 10, II. ad 9 mm longa. Paleae unguis ad 1,25 mm longus; articulatio apicalis; rostrum breve (2,5 mm) paullo tortum; seta terminalis in parte superiore breviter plumosa ad 40, laterales nudaes ad 11 mm longae. — Südwest-Afrika, Angra Pequena (Hermann).

The species was described from a plant in the Berlin Herbarium. I have tried in vain to get the type for study, the plant was in Prof. MEZ's

hand and has not been returned to the Berlin Herb.; I have to thank Prof. PILGER who wrote to Prof. MEZ without result. I was however so fortunate to find specimens agreeing with the description, in the Zurich Herb. and in HACKEL's collection at Vienna, both from the type locality, Angra Pequena. The statement that *A. Hermannii* is a perennial, is according to the studied specimens very probably an error, the species is annual, like the allied *A. subacaulis* STEUD..



ARISTIDA HERMANNII Mez.
From Angra Pequena (Schenck 32).

From the characters given in the description we find that many of them agree with those of the *A. subacaulis*, especially as to the spikelet-characters, but in the vegetative parts they are distinctly different and I have taken up the species described by MEZ in my work. Both species, mentioned here, have a different habit and differ in some curious characters. *A. subacaulis* is a compactly tufted species, forming small and dense cushions about an inch high, the culms are very short, 1-noded, totally hidden by the radical leaves, the panicle is few-flowered, about half as long as the leaves and together with the glumes concealed by the leaves, but the long, plumose central awns are exerted; the margins of the sheaths are quite glabrous. The plants I have identified as *A. Hermanni* are not so compactly tufted, larger, more than 1 inch (up to 10 cm.) high, the culms are about 4-noded, the culm-leaves with rather long and very broad sheaths, the culms surpassing the radical leaves, the latter densely ciliate along the hyaline sheath-margins, the panicles are rather many-flowered, dense and distinctly spike-like. By all these characters the species has a very distinct habit and although growing together with the *A. subacaulis* (as seen in both collections mentioned above), it is at once to distinguish. On account of the observations given here it was impossible for me to unite the two species.

***Aristida Hermanni* Mez.**

var. *hereroensis* Henrard.

Glumae steriles acuminatae, conspicue inaequilongae, Ima 11,5—12 mm., II^{da} 9 mm. longa; columna elongata, 5—7 mm. longa, distincte torta; arista centralis circa 35 mm. longa in 1/2 inferiore nuda, aristae laterales ad 15 mm. longae.

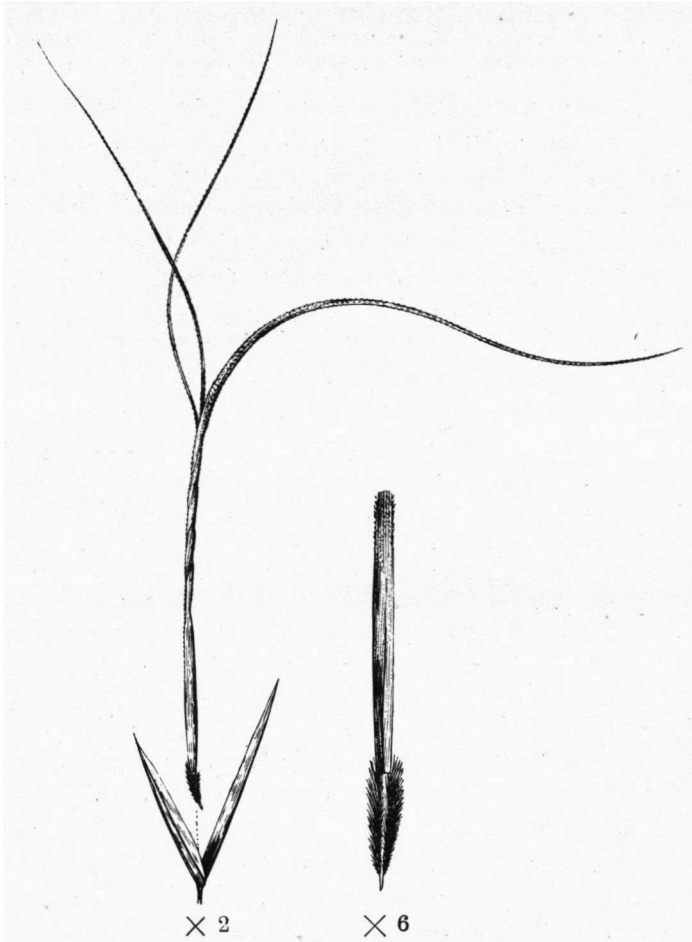
Hereroland: loco accurato non indicato; leg. Ref. LOUIS NELS no. 73, anno 1887. Typus in herb. Zürich. Dupl. in Herb. Hackel Vindobon. sub no. 22553.

***Aristida heterochaeta* Henrard**

nov. spec.

(Sect. *Chaetaria*). Perennis, caespitosa. *Culmi* stricte erecti, cum panicula circa 40 cm. alti, simplices vel inferne subramosi, teretes, vel subcompressi, glabri, leviter striati. *Vaginae* foliorum internodiis breviores, subcompressae, striatae, glabrae laevesque vel minutissime subscaberulae; *ligula* abbreviata, dense breviterque ciliolulata, auri-

culae brevē barbatae. *Laminae* angustae, lineares, longe acuminatae, complicatae, explicatae vix 1 mm. latae, circa 10 cm. longae, subtus laeves vel parce scaberulae, supra hirtellae. *Panicula* angusta, contracta sed haud densa, inferne interrupta, rhachi angulosa, scabra, ramis solitariis vel sub-binis, tenui-filiformibus, subrectis vel sub-



ARISTIDA HETEROCHAETA Henrard.

From type specimen.

patentibus, pauci- saepe unispiculatis, scaberulis, spiculis longe pedicellatis, terminalibus spiculam subaequantibus. *Glumae* purpurascens, inaequales, acutae, brevissime aristatae, glaberrimae laevesque, inferior 11 mm. longa, 3—sub-5-nervis, carina subscaberula, superior parum angustior, 15 mm. longa, 1-nervis, carina laevis, gluma III. *florifera* tubulosa, plus minusve 10 mm. longa, carina scabra, superne scaberrima, callus acutissimus, dense barbatus circa

2²/₃ mm. longus, gluma a columna haud articulata, columna rigida, valde torta, circa 12 mm. vel paulo plus longa, aristae valde inaequilongae, dissimiles, centralis in parte inferiore diametro columnae aequans, circa 35 mm. longa, curvatissima, recurvata, aristae laterales multo tenuiores, erectae, laxe curvatae, 25—28 mm. longae.

New South Wales: Hunters Hill, I. 1913 leg. W. F. BLAKELY, sub nom. *A. vagans* Cav.? var. *gracillima* Benth. ex Herb. Bot. Gard. Sydney. Typus speciei in Herb. Lugd. Bat. sub no. 926. 195—287.

A species somewhat allied to *Aristida novae-caledoniae* HENR., (see that species afterwards), but easy to recognize by the characters given above. The new species agrees somewhat in habit with the Australian species *A. hirta* and *A. superpendens*, described by DOMIN. These two species have however an articulation according to DOMIN's descriptions and figures. Heterogeneous awns, a rare phenomenon in the *Chaetaria* group, also occur in *A. hirta* and *A. superpendens* and less so in *A. novae-caledoniae*. The character of the central awn, reflexed by a semicircular bend, found in different American species, is rarely observed in species from the Old World. The African *A. denudata* PILG. and *A. macilenta* HENR., with homogeneous awns are not allied to our new species.

***Aristida Heymanni* Regel.**

E. REGEL; Enumeratio Graminearum centrasiaticarum in Acta Horti Petropolitani VII. 2. [1881] p. 649!

Annua, multicaulis, spithamaea, glaberrima. Culmi graciles, foliosi, basi geniculati ramosi, superne simplices recti, inclusa panicula 14—30 Cm. alti. Folia tereti-setacea, 3—6 Cm. longa; ligula truncata, brevissima, ciliolata. Paniculae exsertae erectae spiciformis laxae ramuli solitarii usque terni, usque ad basin v. paulo altius floriferi, erecti, sub lente vix conspicue scaberuli. Spiculae uniflorae. Callus breviter barbatus. Glumae inaequales, uninerviae, muticae, sublineares, a basi ad apicem sensim attenuatae; inferior minor, carinata, in carina sub lente scaberula; superior longior, dorso convexa, glabra. Paleae 2; inferior glumam superans, coriacea, involuto-teres, linearis, dorso convexa glabra, margine scaberula, apice aristata; arista basi exarticulata, ad basin in aristas tres subaequilongas scaberulas circiter 1 Cm. longas quam palea paulo longiores partita.

In valle fluvii Ili in angustiis Koibin. *)

*) Statio non procul ab urbe Borochudsir in valle fluvii Ili.

Species affinis *A. vulgaris* Trin. differt „radice perenni, ligula nulla, panicula laxiore apice saepe nutante, aristas duplo longioribus”.

Note: = *Aristida adscensionis* L.

The type in the Herbarium of the Botanical Garden at Leningrad, is labeled: „A. Regel, Iter Turkestanicum. 1876. Koibinschlucht (Ilithal). *Aristida Heimanni* Rgl.” In Hackel's Herbarium there is a duplicate stamped with the Vienna number 15809. All the plants are overmature annual specimens with narrow, contracted panicles. The first glume is acute, $5\frac{1}{2}$ mm. long, the second $7\frac{1}{2}$ mm. long, the tip slightly bifid with a mucro from the sinus. The lemma is $8\frac{1}{2}$ mm. long, the awns are subequal, the central about 14 mm., the lateral ones 12 mm. long.

Aristida hirta Domin.

K. Domin; Beiträge zur Flora und Pflanzengeographie Australiens, in *Bibl. Bot.* Heft 85.I [1915] p. 339!

Dense caespitosa, multiculmis, rigida glaucescensque; *culmi* graciles sed rigidiusculi, elati, sine paniculis saepe 4 dm et ultra alti, glabri, fere ad apicem foliati; *vaginae* sat arcte culmos amplectentes, internodiis vix vel paulo breviores, glaberrimae sed scaberulae; *laminae* elongatae, haud raro plus 3 dm longae, rigidae, glaucescentes, omnes anguste convolutae, subjuncea, glabrae sed manifeste scabrae, ad vaginae orificium parum ciliatae, patentes, flexuosae vel curvatae; *panicula* angusta, laxa, circa 25—30 cm longa, forma *A. superpendenti* persimilis sed multo gracilior; rhachis scaberrima; *spiculae* longe pedicellatae, pallidae; *glumae* inaequales, longe acuminatae sed haud aristatae; brevior circa 11 mm longa, trinervis, altera circa 17 mm longa, uninervis; *glumella* stipitata (stipite circa 2 mm longo, appresse villosa), anguste convoluta, glabra, circa 5—5.5 mm longa; *aristae columna* scaberrima, a *glumella* conspicue articulata, 14—15 mm longa; *aristae rami* scabri, medius rigidior et longior (7—8 cm longus), laterales conspicue graciliores et paulo breviores, omnes curvati.

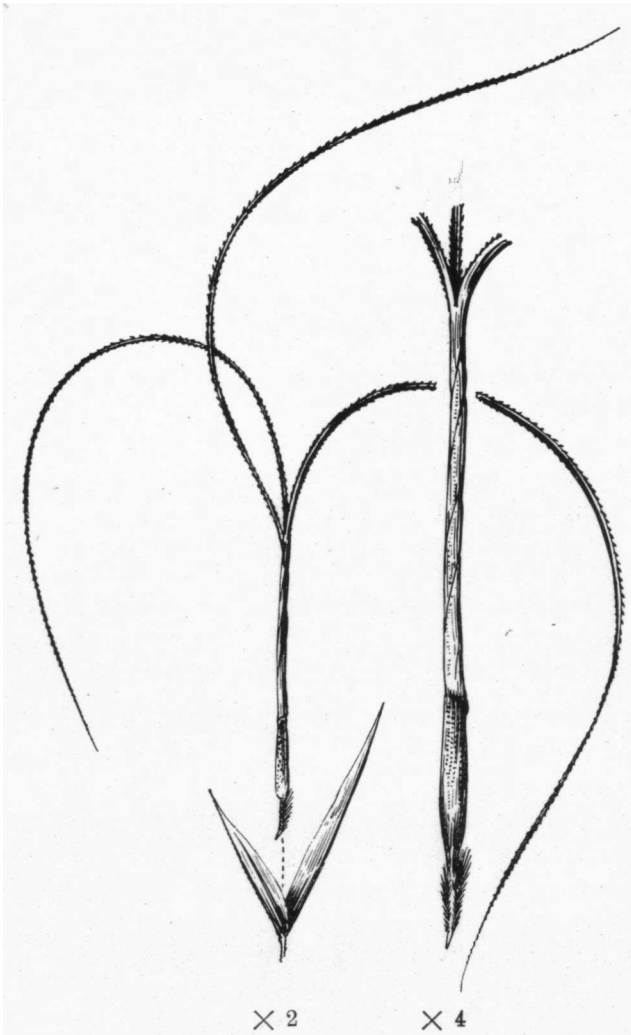
Abbildung: Tafel XV, Fig. 13, 14.

Nord-Queensland: bei Chillagoe (Domin, II. 1910).

Eine mit *A. stipoides* und *superpendens* verwandte Art. Von der ersteren unterscheidet sie sich bereits durch die kurze Grannensäule und die Form der Rispe, von letzterer durch die viel kleineren

Ahrchen und von beiden durch die starke Rauheit beinahe sämtlicher Teile.

This species, together with the *A. superpendens* DOMIN, belonging to the section *Arthratherum*, differs from all the other species of the section, in the difformity of the awns, the central is very rigid, as thick as the column and strongly curved, the lateral ones are much thinner, erect or curved. The characters of the awns are demonstrated in the figure.



ARISTIDA HIRTA Domin.

From type specimen.

***Aristida hirtigluma* Steudel.**

ERNEST THEOPH. STEUDEL; *Nomenclator Botanicus* Ed. II. [1841] p. 131! Arab. petr. nomen nudum.

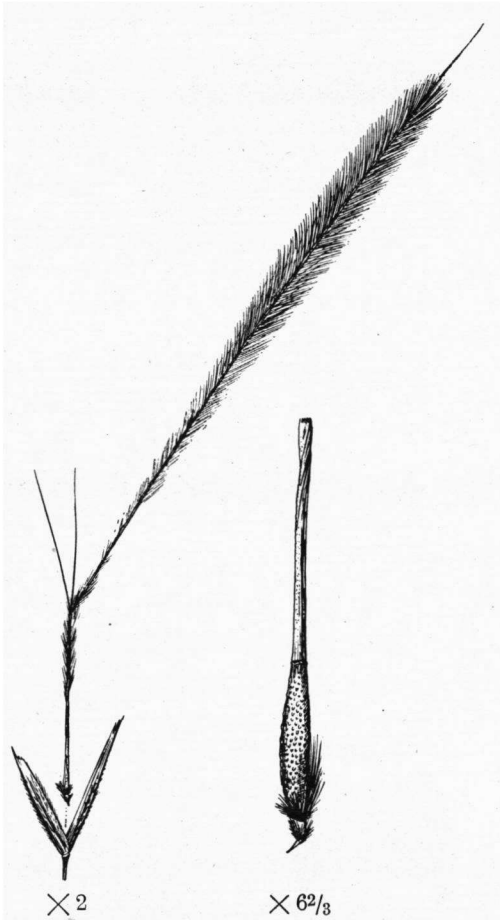
= *A. ciliata* STEUD. HOCHST. hrb: arab. un. it. nr. 165! non Desfont.

= *Arthratherum ciliatum* NEES ab E.; *Flor. Afric. austral.*, I. Gramineae. [1841] p. 182! (*exclus. synonym.*)

Paniculae contractae ramis fasciculatis a basi divisis (gracilibus), aristae lacinia media sesquipollicari apicem versus plumosa apice nuda, lateralibus bi-trilinealibus capillaribus, stipite ad divisuram barbato flosculum bilinealem aequante, glumis membranaeis parum attenuatis, inferiori $\frac{1}{4}$ breviori apice truncato-mucronulata pubescente, superiori obtusiuscula glabriuscula, foliis convolutosetaceis vaginisque glabris, his ore barbatis.

Crescit in Africa septentrionali, v. c. Aegypto; ad Wadi Habran Arabiae petrosae, (Schimper). ♀.

Differt ab *Arthrathero uniplumi* gracilitate quadam, spiculis paulo minoribus (gluma inferiori 4 lin. superiori 5 lin. longa), glumis inaequalibus pubescentibus, arista media longiori, lateralibus brevioribus.



ARISTIDA HIRTIGLUMA Steudel.
From type specimen.

TRINIUS et RUPRECHT; *Spec. Gram. Stipac.* loc. cit. [1842] pag. 171!

Culmo fertili cum nodis et vaginis glabro; ligulis dense ciliatis; paniculae linearis, contractae, $2\frac{1}{2}$ —5 pollicaris, basi exsertae radii

subquinis (l. paucioribus ad basin usque partitis) subsessilibus, 1—3 floris; glumis paullo inaequalibus, *pubescentibus*, apice obtuso emarginatis l. bidentatis: superiore 4—4½ lineali inferiorem lineam dimidiam superante; flosculo 1½—1¾ lineali, apice scabro; stipite aristae deciduae 4—7 *lineali*, torto, glabro l. superne piloso; setis lateraliibus erectis, 3—5 linealibus, nudis, media fere bipollicari, parum geniculata, inferne ad ⅓—¼ partem nuda, superne pennata; mucronulo apicali nudo, *bilineali*. — Variat:

α. stipite aristae glabro.

β. stipite aristae superne piloso. — *Arthratherum ciliatum* N. E. Gram. Afr. aust. (1841) p. 182. (non 1832)

In rupibus „Wadi Hebran” Arabiae petraeae m. April. (Schimper! Un. it. n. 165. var. α. et β.); Abyssinia. (Ehrenberg!)

Culmi ¾—1 pedales, basi quidpiam geniculati. *Gluma* inferior dense, superior dissite pubescens et interdum glabriuscula. *Aristae* stipes speciminis abyssinici in spiculis diversis paniculae ejusdem variat subglaber et densiuscule pilosus. Accedit ad *A. uniplumem*.

The species was edited in exsiccatae, collected by SCHIMPER (In rupibus „Wadi Hebran” Arabiae petr. Unio itiner. 1835. d. 24. Apr. no. 165, sub nom. *Aristida ciliata* Desf.). NEES has given for the first time a good description in the year 1841, under the name of *Arthratherum ciliatum*, but his synonymy is totally wrong, it is astonishing that NEES could cite DESFONTAINES' name, together with DELILE's good figure and accurate description of the true *Aristida ciliata*. See my observations on p. 93 of this revision.

STEUDEL recognized the Arabian plant as a distinct species, he named *A. hirtigluma*. His type is therefore the plant described by NEES (Schimper 165, in the Nees Herbarium), because STEUDEL has given no description in his Nomenclator Botanicus. In the year 1842, the species was more fully described by TRINIUS and RUPRECHT. They indicated two forms α and β, one with a glabrous column, the other with a column hairy upwards, they observed that both forms occur in the same panicle. The hairy column is however nearly always present, sometimes less distinct but always manifestly indicated.

***Aristida hirtigluma* Steudel.**

var. *patula* Hack.

ap. H. SCHINZ; *Plantae Menyharthianae*. Ein Beitrag zur Kenntnis der Flora des unteren Sambesi, in Denkschr., Kais. Ak. Wiss., Wien, Math.-Naturw. Kl., LXXVIII. [1906] p. 401!

Rispe mehr ausgebreitet als beim Typus, sonst ganz identisch; Menyharth no. 601.

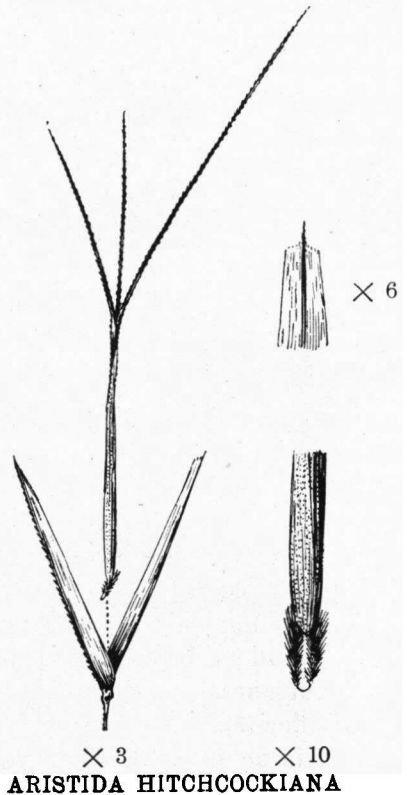
Note: = *Aristida gracillior* Pilger.

The type in HACKEL's hand in the Zurich Herbarium was kindly received from Prof. H. SCHINZ. The specimen is identical with the type of *A. gracillior* PILGER. See my observations and figure on p. 208—209 of this Revision. The most striking characters of the species are the open panicle with very long pedicels and the column and central awn, long-bearded equally all over, the tip naked.

Aristida Hitchcockiana Henrard

nov. spec.

(Sect. *Chaetaria*). Perennis, caespitosa. *Culmi* stricte erecti, simplices, cum panicula circa 70 cm. alti, teretes, striatuli, pubescentes vel scaberuli, paucinodes, infra nodos glabrescentes, annulo nitido quasi viscido interdum in nodis inferioribus parum conspicuo notati. *Vaginae* arctae, inferiores internodiis breviores, striatae, scaberulae. *Ligula* abbreviata, dense pubescens, pilis longis stipata, auriculae nigro-maculatae, longe barbatae, collo pubescente. *Laminae* anguste lineares, in parte inferiore planae, siccando convolutae, 1 mm. latae, explanatae circa 3 mm. latae, 15 cm. vel plus longae, stricte erectae vel subpatentes, pagina superior scaberula vel inferne hirsuta, subtus scabra, marginibus incrassatis. *Panicula* circa 25 cm. longa, angusta, circa 1 cm. lata, subinterrupta; rhachis scabra, ramis appressis brevibus, solitariis, 5—6 cm. longis, sensim decrescentibus, fere a basi spiculiferis, interdum ramo subbasilare praeditis, ramulis pedicellisque scabris. *Spiculae* purpurascens vel flavo-brunneae pedicellis brevioribus; glumae aequales, vel in-



ARISTIDA HITCHCOCKIANA
Henrard.

From type specimen.

ferior paullo longior, gluma I. glabra, interdum scaberula, 1-nervis, carina scaberrima, circa 11 mm. longa, acuta, gluma II. angustior, 1-nervis, carina laevis, circa 10 mm. longa, truncata, erosula vel subbifida, arista breviter exserta, gluma III. fertilis leviter punctata, in columnam scabram leviter vel distincte tortam, circa 3 mm. longam abiens, callo obtuso circa $\frac{3}{4}$ mm. longo, dense barbato, circa 12 mm. longa, aristae scabrae, inaequales, centralis erecto-patens, 16—18 mm. longa, laterales erectae tantum 9—10 mm. longae.

Mexico: Oaxaca, Las Sedas, leg. L. SMITH, anno 1894, no. 918. Typus speciei in U. S. Nat. Herbar. sub no. 991670.

On pag. 128 of this revision I observed already that Smith no. 918 from Las Sedas was a different plant with equal glumes. Since that time I received the specimen for study through the courtesy of Prof. HITCHCOCK and I found that the plant was also quite different in the vegetative parts. HITCHCOCK placed the plant under *A. barbata* FOURN., which is however a member of the *divaricata*-group. The new species is also allied to *A. arizonica* VASEY, a species of more northern distribution with longer spikelets, longer, equal awns and acute, awned glumes with a more pronounced inverse position. Sometimes in *A. arizonica* there occur bifid glumes in damaged spikelets but the tip is in that case quite different from the curious tip of the upper glume in our new species.

Aristida Hochstetteriana Beck.

E. HACKEL; in Beiträge zur Kenntnis der Flora von Deutsch-Südwest-Afrika und der angrenzenden Gebiete von Dr. HANS SCHINZ. II., in Verhandlungen des Botanischen Vereins der Provinz Brandenburg, Berlin, XXX. [1888] p. 144!

Differt ab omnibus *Arthratheris* spiculis subsessilibus in racemum spicam secalinam (si aristas plumosas exemeris) quam fidelissime referentem, gluma sterili inferiore breviter hirsuta.

Standort: Buschmannsland (leg. Wyley, durch die Novara-Expedition heimgebracht); Hereroland, nördlich vom Omuramba und Omaruru (Lüderitz).

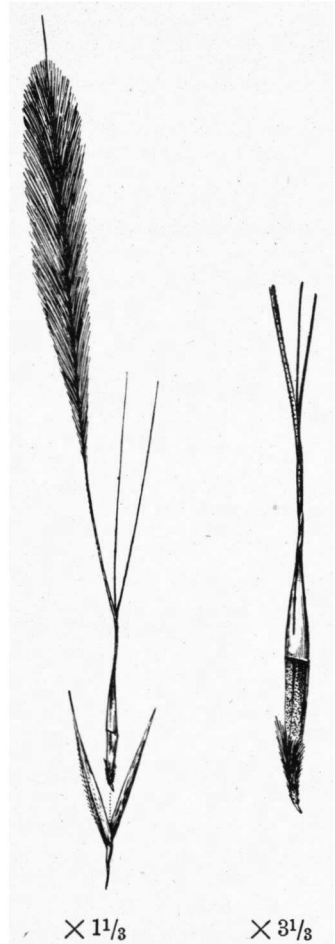
Die ausführliche Beschreibung dieser sehr charakteristischen Art wird Dr. Beck im letzten Teile der Botanik der Novara-Expedition geben. Hier seien nur noch folgende Merkmale erwähnt: Perennis; folia glauca, convoluta, scabra, glabra; spica 5—6 cm longa; glumae

steriles subaequales, 15—16 mm longae, longe acuminatae, florifera 7 mm longa barbata, supra medium articulatum rumpens; aristae stipes 9 mm longus, divisio media 6—7 cm longa in $\frac{1}{4}$ inferiore nuda, dein plumosa, apice glabra, laterales 2,5 cm longae, capillares, glabrae.

In the Vienna Herbarium, I have studied a beautiful series of this very characteristic species. In the Hackel Herbarium there is also a specimen in BECK's handwriting, labeled as given above. This is accepted as the type, because HACKEL published the species; the full description of the species by BECK as indicated by HACKEL was so far as is known to me never published and I wish to give here BECK's detailed description. The Lüderitz specimens mentioned by HACKEL are in the Zurich Herbarium. They are numbered 66 and were collected in the year 1885.

Aristida (Stipagrostis) Hochstetteriana
G. v. BECK.

Panicula simplici, coarctata, oblongo-cylindrica, spiciformi, radiis solitariis; glumis subaequalibus aut inferiore paulo longiore, acuminata, trinervia, nervo medio fortiore, scabra pilis longioribus intermixtis, superiore subhyalina, in apice paulo dissecta aut bidentata, flosculum et rudimentum flosculi secundi involvente. Flosculo pedicello incrassato, conico, dense piloso. Valvula exterior in medio articulata, trinervia, in aristam trifidam acuminata, parte superiore cum arista decidua. Arista longissima, glumis triplo et ultra longiore, in apice et in parte basali cum setis lateralibus multo brevioribus scabra, in medio parte gracillime plumosa. Valvula interior ovata, tenerrima, enervia. Lodiculis duabus, oblongis, longitudine valvulae interioris. Culmo bifolioso, foliis convolutis aut inferioribus planis, angustissimis, plerumque vaginis longioribus. Ligula brevissima, dense sed breviter pilosa, pilis deciduis.



ARISTIDA
HOCHSTETTERIANA Beck.
From type specimen.

Habitat in Africa australi in territorio „Buschmannsland”, 100 milliaria ad orientem versus ab sinu maris „Wallfischbay”. Legit cl. WYLEY, commisit Museo Palatino Vindob. cl. HOCHSTETTER.

Species honoris causa nomine clarissimi domini collectorisque FERDINANDI ab HOCHSTETTER a nobis notata est.

Radice.... Culmo simplice, tereti, usque 5 dm. longo, uti tota granulato-scabra, bifoliato. Foliis longe vaginatis, vaginis sulcato-striatis, lutescentibus, sub ligula maculo rubicundo, internodiis brevioribus. Ligulis brevissimis, dense pilosis, glabrescentibus. Folio inferiore, vagina sua multo longiore, plano, angustissimo (1—1,5 mm. latum) vel plus minusque apicem versus convolutum, infra praecipue in nervis denticulis scabro, superiore lamina setacea, vagina sua multo brevior. Panicula contracta, spiciformi, 4—7 cm. longa, setis in apice spiculae confertis non comprehensis, 6—10 mm. lata, sub ea saepius paleis pilosis aut floribus abortivis. Floribus singulis, pedunculis conicis, scabris, vix 1 mm. longis, confertis, rhachi adplicitis, 15 mm. longis, 1—1,5 mm. latis. Glumis lutescentibus aut pallidis, gluma inferiore superiore paulo longiore, scabra et plus minusque pilosa, acuminata, superiore membranacea, sybhyalina, in apice incisa aut bidentata, scabra, rudimento flosculi secundi. Flosculo a basi usque ad articulam aristae 3 mm. longo, pedicello 2 mm. longo, infra adpresse supra longe pilosa, pilis 1,5 mm. longis. Valvula exterior punctato-granulosa, trinervia, margine lato-membranaceo. Arista ab articulo usque ad divisionem contorta, scabra, 11—14 mm. longa, erecto-patente, in divisione cum setis lateralibus genuflexa. Seta media 7—8 cm. longa, gracillime plumosa, plumulis ad 7 mm. longis, in parte basali et in mucronulo brevi nuda, setis lateralibus multo brevioribus 24 mm. longis, nudis aut uti partes nudae setae mediae denticulis paucis obsitis. Valvula inferiore tenuissima, ovata, 1—1,5 mm. longa, obtusa, enervia. Lodiculis duabus, oblongis, tenerimis, longitudine valvulae interioris. Staminibus 3, uno paulo longiore, antheris fulvis, valvulae exteriori longioribus, filamentis tenerimis. Caryopside oblonga, stylis plumosis, antheris paulo brevioribus.

Affinis est *A. hirtiglumae* STEUDEL (Nom. ed. II. p. 131, Syn. Glumac. I. p. 144). Differt panicula simplici, spiciformi, minore, radiis solitariis, glumis acuminatis et inferiore superiorem superante. Flosculo majore, decolori. Setae laterales apud *A. Hochstetterianam* multo longiores non ex parte plumosa setae mediae prodeunt. Etiam *A. hirtigluma* est Arabiae incola. Ab *A. uniplumi* LICHTST. et *A. con-*

cinna SONDER (Stuedel Syn. Glumac. I. p. 144.) incolis Africae australis, differt etiam panicula simplici, stipite aristae multo longiore, ad divisionem glabro.

***Aristida Hocki* De Wildeman.**

E. DE WILDEMAN; Additions à la Flore du Congo, Bulletin du Jardin Botanique de l'État à Bruxelles, Vol. VI. [1919] p. 39! pl. XXXV. fig. 1—6!

Plante à souche fibreuse, glabre; chaumes fasciculés, dressés, simples, atteignant environ 30 cm. de long, lisses, sans noeuds depuis la base, feuilles toutes presque basilaires, à gaine courte, glabre, limbes étroits, lineaires, aigus, atteignant 15 cm. de long et environ 0,6 mm. de large, subtriangulaires, enroulés, glabres sur la face inférieure, comme sur la face supérieure; panicule ramifiée de 5 cm. environ de long, à rameaux solitaires ou géminés, simples ou ramifiés d'environ 2 cm. de long, à ramifications courtes, lisses ou légèrement scabres; épillets pédicellés, étroits, atteignant, sans les prolongements des valves, environ 5—7 mm. de long, glumes inégales uninerviées, étroites, l'extérieure de 3—4 mm. de long, aiguë, entière, légèrement scabre, l'intérieure de 7 mm. environ de long, valve lancéolée, linéaire, lisse ou presque lisse, fortement enroulée, d'environ 4 mm. de long, 3-nerviée, formant une sorte de stipe, s'étalant dans l'eau, terminée par trois soies scabres, de 5—8 mm. de long, la médiane plus longue, paraissant se désarticuler au sommet de la valve; étamines 3, de 3 mm. environ de long; ovaire ovoïde à stigmates plumeux divergents.

Élisabethville, 1911 (Ad. Hock).

Observations. — Cette espèce paraît devoir être classée dans le groupe des *Arthratherum*. Elle nous semble se caractériser par ses feuilles basilaires subtriangulaires, ses épillets relativement courts: 5—7 mm., la pâle trinerviée, à 3 soies scabres-ciliées, la médiane la plus longue.

Aristida Hocki; culmis fasciculatis, erectis, simplicibus, circ. 30 cm. longis, laevis; foliis vulgo basilaribus, vagina brevi, glabra, lamina angusta, lineari, acuta, usque 15 cm. longa et 0.6 mm. lata, subtriangulari, supra et infra glabra; panicula ramosa circ. 5 cm. longa, ramis solitaribus vel geminatis, simplicibus vel ramosis, circ. 2 cm.

longis; spiculis circ. 5—7 mm. longis, gluma externa 3—4 mm. longa, acuta, integra, subscabra, interna 7 mm. circ. longa, valva lanceolato-lineari, contorta, circ. 4 mm. longa, 3-nervia, triseta, setis 5—8 mm. longis, scabris; antheris 3, circ. 3 mm. longis, ovario ovoideo, stigmatis plumosis divergentibus.

Note: = *Aristida recta* Franchet.

The type in the Congo Herbarium at Brussels I could study through the courtesy of Prof. E. DEWILDEMAN. I compared the plant with FRANCHET's type received from the Paris Herbarium. See my observations under *A. Gossweileri* PILGER on pag. 206 of this revision.

Aristida hoggariensis Battandier et Trabut.

J. A. BATTANDIER et L. TRABUT; Plantes du Hoggar récoltées par M. Chudeau en 1905, Bulletin de la Société Botanique de France Tome LIII, Série IV, Tom. VI. [1906], Session extraordinaire tenue dans la province d'Oran, en avril 1906, p. XXXII!

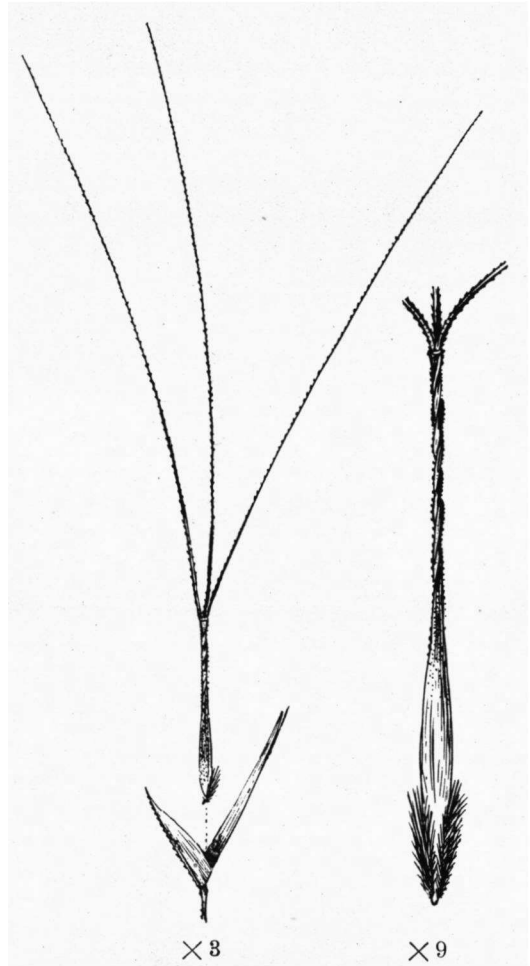
Annua, culmi radice fibrosa plures adscendentes 20 cm. longi; folia linearia convoluta sulcata saepius arcuato-patentia ad vaginae oras longe ciliata; panicula 4—6 cm. angustata, interrupta, laxa, rami solitarii vel geminati-inaequales stricti, ramuli pauci 4—5-spiculigeri; glumae inaequales, inf. 5 mm., sup. 8 mm., lanceolatae lineares, membranaceo-subscariosae, inf. lanceolato-subulata sub apice bifida, carina in aristam brevissimam vix producta, glumella inf. stipite brevissimo villosa insidens, in aristam laevem inferne simplicem tortam basi haud articulata circa 30—35 mm. longam.

L' *A. hoggariensis* se rapproche de l' *A. tunetana* Cosson, elle en diffère par la panicule interrompue lâche, la ligule très longuement ciliée et non constituée par une couronne de poils nombreux et très courts; la glume supérieure est à peine subulée, la subule ne dépasse pas les deux pointes situées au milieu desquelles elle est insérée, l'arête de la glumelle inférieure est deux fois plus longue que dans l' *A. tunetana*. Enfin cette espèce paraît annuelle d'après les nombreux échantillons reçus.

Trouvée par M. Chudeau le 6 et 7 août 1905 Oued Tit 23°.

Note: = *Aristida mutabilis* Trin. et Rupr. var. *hoggariensis* Henrard.

The plant collected by CHUDEAU in the year 1905 was sent to Prof. HACKEL by TRABUT. The sheet in Hackel's Herbarium, bearing the Vienna number 22165, is labeled by TRABUT „Ahoggar” with the number 812. On the label HACKEL has written: „nov. spec. ex. aff. remote *A. tunetana* Coss.”. This determination was communicated to TRABUT, who named the new species: *A. hoggariensis*. In the publication the differences with *A. tunetana* were indicated. HACKEL afterwards crossed out his determination and wrote on the label: „*A. mutabilis* Trin. et Rupr. var.”. On the sheet in Hackel's herb. there are 4 plants lacking the bases. TRABUT overlooked a striking character, the articulation just below the branching point of the awns, thus the plant belongs to the section *Pseudarthratherum* and cannot be compared with the *A. tunetana*, which is a true *Chaetaria*. HACKEL's idea of the plant is quite correct, the plant belongs indeed (already at first sight) to the *A. mutabilis* and differs only slightly in the very unequal glumes, the upper nearly twice as long as the lower. For these reasons I have taken up CHUDEAU's plant as a variety of *A. mutabilis* TRIN. et RUPR..



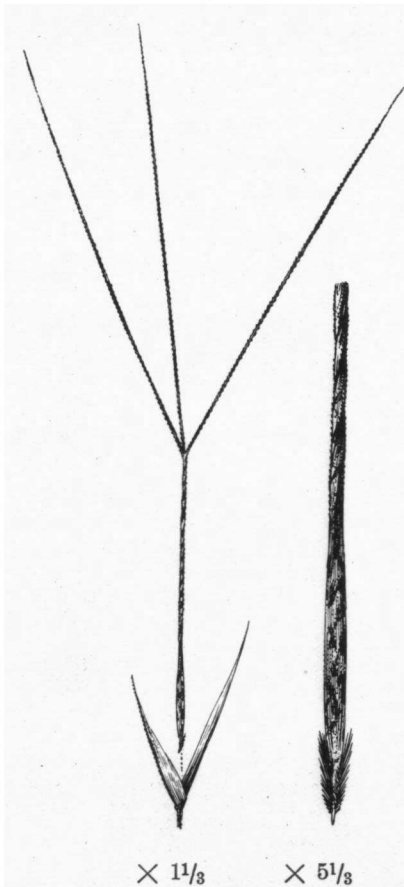
ARISTIDA HOGGARIENSIS Battandier et Trabut.

From type specimen.

Aristida holathera Domin.

K. DOMIN; Beiträge zur Flora und Pflanzengeographie Australiens in: Bibl. Bot. Heft 85¹ [1915] p. 340!

Dense caespitosa, dura rigidaque, multiculmis, subglaescescens, glabra; *culmi* simplices, rigidi, graciles, glabri, erecti, elati, sine paniculis circa 4 dm alti, supra medium foliati; *vaginae* culmos arcte amplectentes, internodiis breviores, glaberrimae laevesque; *laminae* rigidae, anguste convolutae, subjunceae, patentes curvataeve, glaberrimae laevesque, tantum ad vaginae orificium pauciciliatae; *ligula* brevissima, minutissime ciliata; *panicula* valde elongata, saepe plus 4 dm longa, pallida, laxa, interrupta, ramis paucispiculatis, i. e. ad fasciculos spicularum 3 vel 2 brevius et longius pedicellatarum redactis, interdum subsimplex; *glumae* conspicue inaequales, aristulatae, glabrae, subscariosae, praeter carinam enerves, longior circiter 17—19 mm, altera 12—14 mm longa; *glumella* anguste convoluta, glabra, 6—7 mm longa; *aristae columna* circa 15—20 mm longa, spiraliter contorta, haud conspicue articulata; *aristae rami* 3 subaequilongi, capillares, scaberuli, circa 35—40 mm longi.



ARISTIDA HOLATHERA Domin.
From type specimen.

Abbildung: Tafel XIII, Fig. 18, 19.

Nord-Queensland: Hügel und Savannenwälder bei Chillagoe (DOMIN, II. 1910).

Diese Art, bei der ebenfalls die Grannensäule von der Deckspelze nicht abgegliedert ist, ist von *A. latifolia* auf den ersten Blick

durch die Blätter und die verarmte Rispe, in den Ährchen dann durch die ungleich langen Hüllspelzen, die wenigstens dreifach längere Grannensäule und die längeren Grannen zu unterscheiden.

DOMIN based a section *Holatherum* upon a group of Australian species, having a well-developed column without articulation between lemma and column. There is however already a name for such a group, the name *Schoenatheron* given by DOELL with the description: „*Valvulae inferioris arista superne tenuis, pluribus vel plurimis gyris evidenter torta*”. DOMIN's species of his section *Holatherum* are easy to place in DOELL's *Schoenatheron* and therefore a new name was superflous. In DOELL's section there are members with a very long column, such as *A. implexa*, others have a very short column (*A. capillacea* and *A. gibbosa*), the section *Schoenatheron* is not equivalent with such sections as *Arthratherum*, *Pseudarthratherum* or *Stipagrostis* and it is therefore better to accept *Schoenatheron* as a subsection of the section *Chaetaria* or to neglect the whole section of *Schoenatheron*, because it is an unnatural one.

***Aristida hordeacea* Kunth.**

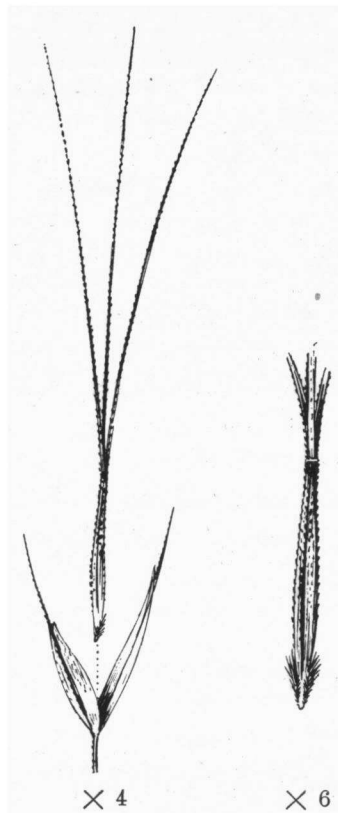
CHARLES SIGISMOND KUNTH; Révision des Graminées dans les Nova Genera et Species plantarum de Humboldt et Bonpland, Paris [1830] Tom. II. Tab. 173!

Culmo ramoso; ramis, vaginis foliisque scabriusculis; foliis glaucescentibus, anguste linearibus, convolutis; spicis compositis, densis, oblongis, spiculis subsessilibus, fasciculatis; glumis scabris, aristatis; superiore longiore, apice bidentata, florem scabrum, basi barbatum paulo superante; arista tripartita, articulata; laciniis scabris, subaequalibus.

Crescit in Senegambiae siccis. Floret et fructificat februario.

Culmus ramosus; ramis teretiusculis, striatulis, obsolete scabriusculis; nodis imberbibus? Folia anguste linearia, acutata, convoluta, rigida, glauco-viridia, striata, obsolete scabriuscula, subsesquipollicaria. Vaginae teretes, usque ad basim fissae, striatae, obsolete scabriusculae. Ligula brevis, membranacea, irregulariter fissa, ciliolata. Spicae solitariae, longe e summis vaginis exsertae, compositae, densae, oblongae, sesqui-vel bipollicares. Spiculae subsessiles, fasciculatae, densae, uniflorae, absque aristis $2\frac{1}{2}$ lineas longae; flore

pedicellato; pedicello barbato-sericeo. Glumae duae, laceolatae, uni-



× 4 × 6
ARISTIDA HORDEACEA Kunth.
From type specimen.

nerviae, canaliculatae, membranaceae, externe scabrae, pallidae, inaequales; inferior apice acutata et aristata; arista gluma sua dimidio brevior, recta, scabra; gluma superior longior, florem absque aristis paulo superans, apice bidentata, inter dentes acutatos aristata; arista recta, scabra, gluma sua triplo brevior. Paleae duae, valde inaequales; inferior apice tripartito-triaristata, sub apice articulata, trinervia, convoluta, membranacea, externe scabra, inferne laevis, pallide fuscescens; aristis inferne connatis, palea duplo triplove longioribus, rectis, scabris, patulis, media paulo longiore; palea superior minuta, obovata, acuta, marginibus genitalia inferne amplexens, hyalino-membranacea enervia, glabra, ovarium vix superans. Squamulae duae, laterales, sublanceolatae, obtusae, hyalinae, glabrae, paleam superiorem duplo superantes. Stamina tria, summo stipiti ovariifero inserta. Filamenta capillacea. Antherae lineares, utrinque bifidae, lobis acutiusculis, biloculares, croceae, glabrae, aequales.

Ovarium stipitatum, oblongum, apice in stylos desinens, glabrum. Styli glabri, inferne parum dilatati. Stigmata plumosa, fusca; pilis brevibus, simplicibus, crassiusculis, crenulatis. Caryopsis elongata, paleis arcte inclusa, linearis, semicylindracea, externe convexiuscula et laevis, interne planiuscula sulcoque longitudinali profundo exarata, fuscescens, glabra, opaca, duas lineas longa. Embryo scutelliformis, oblongus, albumini versus basim externe adnatus. Corculum cylindraceo-clavatum, in sulco cotyledonis receptum ipsoque $\frac{1}{3}$ brevius, dorso medio adnatum.

L'Aristida hordeacea, originaire de la Sénégambie et découvert par M. Leprieur, ressemble tellement par son port à l'Hordeum murinum, qu'on serait tenté, au premier abord, de le prendre pour une nouvelle espèce de ce genre. Ce caractère sert à distinguer facilement cette plante des autres Aristida à arêtes articulées.

The type in KUNTH's Herbarium at Berlin, was kindly received for study through the courtesy of Prof. PILGER. If we only study the long and accurate description given by KUNTH and if we compare this description with the well-known plant from Abyssinia, described as *Aristida Steudeliana* TRIN. et RUPR., we find indeed so many differences that we must accept them as two distinct species. In Annuario del R. Istituto Botanico di Roma, Anno VIII. (1899) p. 331, Prof. CHIOVENDA once more calls attention to the differences already pointed out by the Russian monographers. In a note, following *Aristida Steudeliana*, he says: „Contrariamente all'opinione espressa dal Richard che cioè l'*A. hordeacea* delle collezioni di Schimper debba essere riferita alla specie descritta dal Kunth con questo nome, faccio osservare che la dettagliata descrizione che questo botanico nel Tom. II della sua *Agrostographia* (*Suppl.*) l. c. dà differisce dalla nostra pianta in parecchi altri punti oltre quelli accennati dal Richard.” Prof. Chiovenda gives in a key the striking differences between the two species. KUNTH's plant is a meagre and very depauperate small specimen, the roots are wanting. Even if we have before us this plant, the differences, indicated by TRINIUS, are present, the culms are terete and together with the sheaths scabrous only (not pubescent), the blades are narrow, convolute, rigid and scabrous, not flat, broad and membranaceous as in *A. Steudeliana*. Typical *A. Steudeliana* (Kotschy 33, Schimper 804, 1412, 2277 and many other specimens from different localities I have examined) is at first sight quite different from the type of KUNTH. The latter is however only a fragment and it is remarkable how KUNTH has given such a long and accurate description from such a fragment.

Judging from the types only, many agrostologists were right in accepting both plants as distinct species and I was inclined to follow them, if I had not found in herbaria well-developed specimens of *A. Steudeliana* having lateral branches arising immediately from the roots, branches with the same characters as the specimen described by KUNTH and the type of KUNTH is therefore only such a lateral part of a whole and better developed plant; if we break off such branches from different herbarium specimens we have before us the same fragments KUNTH described. By this discovery, that the well-developed specimens agree with the *A. Steudeliana* and the less-developed ones, together with the branches that arise afterwards laterally from the roots agree with *A. hordeacea*, we cannot longer maintain the two species, not even as varieties and we have to accept the consequences of this fact. There is thus only one species,

bearing the name given in the year 1830 by Kunth. On the authentic sheet in the Berlin Herbarium, Prof. MEZ has written his determination: *Aristida elliptica* (Nees 1829) Kth = *A. hordeacea* Kth! 1833 (Typus!). On pag. 166 of this revision I have already explained that the opinion of MEZ is erroneous and that *A. elliptica* is a quite different American species.

***Aristida hordeacea* Kunth.**

var. *longiaristata* Henrard.

nov. var.

= *Aristida Steudeliana* TRIN. et RUPR. var. *longiaristata* HENRARD, olim. in Herb. Berol..

Differt ab *Aristida Steudeliana* a TRIN. et RUPR. descripta, culmo elato, ad 1 m. circa alto, foliis ad 9 mm. latis, multinervosis, panicula maiore, aristis computatis, plus 20 cm. longa et 5 cm. lata, valde interrupta, axi in parte inferiore visibili, floribus majoribus, glumis fertilibus ad 9 mm. longis, aristis longioribus, fere 6—7 cm. longis.

Africa austro-occ. Tsumeb, leg. DINTER no. 2515, Jan. anno 1912. Typus in Herb. Berol.; id. DINTER no. 1676 (cotypus).

A very beautiful annual grass, with a striking habit. There is however not a single character present to distinguish this variety, which is connected with the species by numerous intermediate specimens and it is very probable that this var. is only a product of local condition, because the plant was collected by DINTER in turfey meadows.

***Aristida huillensis* Rendle.**

ALFRED BARTON RENDLE; Catalogue of the African Plants collected by Dr. Friedrich Welwitsch in 1853—61. London. Vol. II. Part I. [1899] p. 203!

Perennial, widely caespitose, culms very slender, erect, fastigiatey branched, nodes glabrous; leaves short, narrow-linear, setaceous,

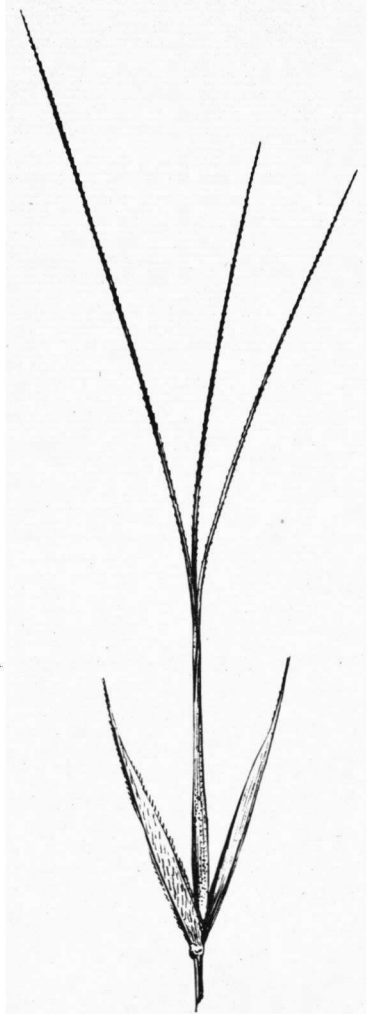
becoming convolute, scabridulous, sparsely hairy beneath, ligule obsolete; panicle lax, strict, meagre; pedicels not exceeding the blue-purple spikelet; gl. I. linear-lanceolate, acuminate or tapering to a strongly cuspidate apex, with one strong median nerve, back hispidulous; gl. II. slightly exceeding gl. I., linear-tapering to linear-lanceolate, strongly cuspidate, with a strong median nerve, glabrous; gl. III. oblong, tapering above without articulation into the awn-stipe, 3-nerved, scabridulous, awnstipe several times twisted, panicles generally 3 subequal or the median slightly longer, sometimes with one or two small additional branches.

Plants about 15 in. high; leaves 4 in. long or less, $\frac{1}{2}$ line or less in width. Panicle $2\frac{1}{2}$ to 4 in. long, branches few, generally appressed, not exceeding $1\frac{1}{2}$ to $1\frac{3}{4}$ in. Gl. I. $3\frac{1}{2}$ to 4 lines long; gl. II. $3\frac{2}{3}$ to $4\frac{1}{2}$ lines; gl. III. about $2\frac{1}{2}$ lines, including the shortly bearded callus ($\frac{1}{2}$ line), awnstipe $2\frac{1}{2}$ to $3\frac{1}{2}$ lines, branches 6 to 8 lines.

A distinct species of this section (*Chaetaria*) characterised by its strongly cuspidate subequal barren glumes, and strict meagre panicle.

HULLA. — A barley-like grass, culms suberect, widely caespitose. Stony precipices at the cataract near Lopollo; 1 Nov. 1859. On the drier rocks at the cataract of Lopollo; April 1860. No. 2691.

A portion of the type in the British Museum was kindly received from Dr. RENDLE. The spikelets are not quite mature, the glumes are very characteristic, the lower is pubescent all over with ciliate margins.



× 4
ARISTIDA HULLENSIS
Rendle.

From type specimen.

Aristida Humboldtiana Trin. et Ruprecht.

Species Graminum Stipaceorum loc. cit. [1842] pag. 118!

Paniculae pedalis basi vaginatae, firmulae radiis geminis ternisve, ultra medium floriferis; inferioribus erectis, superioribus patentibus l. divaricatis; glumis *subaequalibus*, 5 linealibus, purpurascentibus; flosculo glumas aequante vel parum excedente, pallido, angustissimo, versus apicem scabriusculo et pluries leviter torto; setis erecto-patentibus, *subaequalibus*, *media* 6—7 *lineali*.

Aristida divaricata H. et B. ex Willd. Enum. (1809) nomen (sed vix descriptio, quae potius ad *A. Jacquinianam*). Willd. hb. n. 1802! HBK. Nov. Gen. 1. p. 100. (123)

Chaetaria divaricata R. S. Syst. 2. (1817) p. 392 et Mantiss. 2. p. 211. est mixta species, hanc et sequentem nisi adhuc tertiam comprehendens.

In regione subfrigida regni Mexicani inter Salamanca, Guanajuato et Ovexeras, altitud. 5400—6600 ped. Septemb. (Humb!)

Radix fibrosa, perennis. *Culmi* caespitiosi, erecti, cum panicula 1—2 pedales, simplices, striati, compressiusculi, cum nodis glabri. *Vaginae* internodiis longiores, striatae, glabriusculae, ore barbatae. *Ligula* brevissima, ciliaris. *Folia* convoluto-subulata, spithamea et longiora, striata, glabra, margine scabra. *Radix* inferiores sesquipalmares.

Note: = *Aristida divaricata* Humb. et Bonpl.

See my critical observations on pag. 146—147 of this revision.

Aristida humilis Humb. Bonpl. et Kunth.

A. DE HUMBOLDT, A. BONPLAND et C. S. KUNTH; Nova Genera et Species Plantarum. Tom. I. [1815] p. 121!

A. culmo simplici; foliis convoluto-subulatis, glabriusculis; panicula simplici, subverticillata, coarctata; glumis subulatis; aristis aequalibus.

Crescit in exustis aridis Cumanae. ♀ Floret Septembri.

RADIX fibrosa. CULMI caespitiosi, simplices, erecti, tri-aut sexpollicares, striati, glabri. NODI glabri. FOLIA convoluto-subulata striata, glabriuscula, culmum subaequantia. VAGINAE striatae, scabriusculae.

LIGULA brevis, glabra, laciniato-fimbriata. PANICULA simplex, bi-aut tripollicaris, ramis abbreviatis, subverticillatis, adpressis, scabris. GLUMAE lineares, acuminato-subulatae, glabrae, dorso scabrae, albidae, inferior minor, longitudine paleae inferioris. PALEAE inaequales, convolutae, basi brevissime pilosae, inferior triaristata, aristis subaequalibus, palea duplo longioribus.

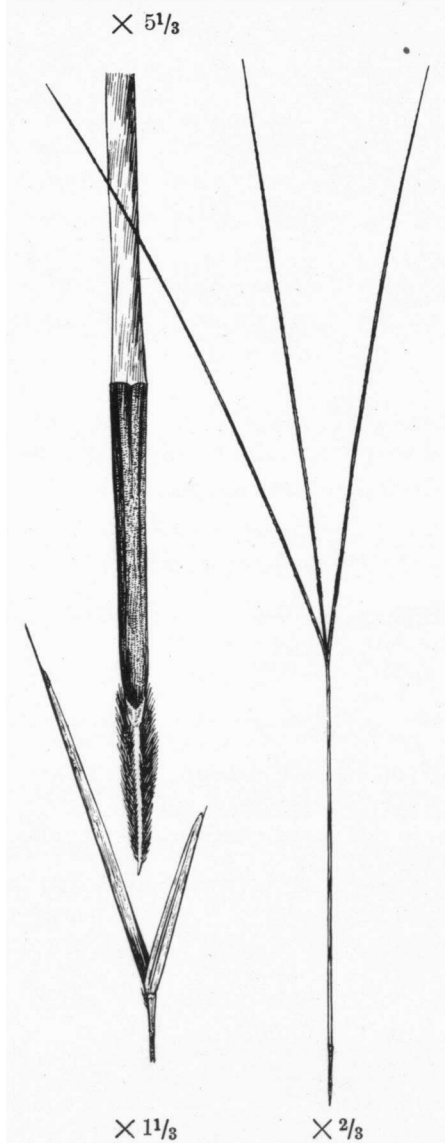
Note: = *Aristida adscensionis* L. var. *humilis* (H.B.K.) Henr.

Prof. LECOMTE informed me that the specimen, indicated by the authors of the *Nova Genera*, is wanting in the Paris Herbarium. TRINIUS however has seen a specimen and he placed *A. humilis* together with *A. bromoides* and others in his *A. dispersa* (see this revision pag. 144). We know that WILLDENOW received many plants from HUMBOLDT ¹⁾, there is indeed in the Willdenow Herbarium at Berlin a cover with WILLDENOW's label: „*Aristida humilis*, panicula conferta, secunda, aristis aequalibus patentibus vaginis foliorum ore pilosis”. The sheet is however labeled by TRINIUS: „*A. bromoides* Hb. Kth. (teste catalogo Kthii)” and bears the number 3220. The plant agrees perfectly with the type of *A. bromoides* I received from the Paris Herbarium, this specimen is also numbered 3220 and the locality is Guamote in Chili. The true *A. humilis* as described in the *Nova Genera* was from Cumana in Venezuela, it belongs as to the description to *A. adscensionis* and is different from *A. bromoides*, which is a very distinct subspecies or variety from the high Andes. In the Schlechtendal Herbarium at Halle there is a specimen (in a handwriting unknown to me) bearing the data: „*Aristida humilis* Humb. & B. Cumana e plantis ab Humboldt lectis dedit Willdenow”. This specimen although from the locality Cumana given in the publication is a part of the specimen in the Willdenow Herbarium, it has the same manifestly awned glumes and belongs to *A. bromoides*. If we compare the two descriptions given in the *Nova Genera*, we find that the essential differences are rather few, *A. bromoides* has acuminate and aristate glumes, *A. humilis* has acute, subulate, but unawned glumes. In all other characters they agree with the common *A. adscensionis*, a very variable species, but the many varieties I have studied have always a second glume, mucronate from the bifid apex. Both species treated here are exceptions and it is probably better to accept them as distinct species. Because no other distin-

¹⁾ E. FOURNIER; *Mexicanas Plantas. Pars secunda. Gramineae. Considérations générales*, (1886) p. II.

guishing characters were observed, I am obliged to bring the two species under *A. adscensionis*. *Aristida bromoides* is however the most

characteristic one, very beautiful plants belonging to *A. bromoides* were collected by HERZOG at Cochabamba in Bolivia (no. 2066).



ARISTIDA HYGROMETRICA
Rob. Brown.
From type specimen.

***Aristida hygrometrica*
Rob. Brown.**

Prodromus Florae Novae Hollandiae et Insulae Van-Diemen, Vol. I. [1810] p. 174!

Arista trifida cum valvulâ articulata.

5. *A. hygrometrica*, racemis subsimplicibus: pedunculis inferioribus 1—2-floris, aristis 5-pollicaribus infra divisuram perianthio longioribus. (T.) v. v.

Description given by BENTHAM; Flora Australiensis, Vol. VII. [1878] p. 561!

A glabrous, slender, rigid but brittle grass, branching at the base, 1 to 2 ft. high. Leaves subulate, rigid, with closely appressed sheaths minutely ciliate at the orifice. Panicle narrow, scarcely branched, 6 to 10 in. long without the awns. Spikelets few, on short erect pedicels. Outer glume obtuse, 8 to 9 lines long, prominently 3-

nerved or sometimes 4-nerved by the doubling of the outer one; 2nd glume hard and convolute, nearly $1\frac{1}{2}$ in. long, acute, 1-nerved; flowering glume narrow, convolute, glabrous, about 3 lines long on

a hairy stipes of 1 to $1\frac{1}{2}$ lines. Awn articulate on the glume, at least 2 in. long below the branches, the middle branch $2\frac{1}{2}$ to 4 in., the lateral ones as long or shorter. Palea a little more than 1 line long. Lodicules at least as long, finely striate at the base. — Beauv. *Agrost.* t. 8, f. 8; Trin. and Rupr. *Gram. Stip.* 162.

N. Australia. Arnhem N. Bay, *R. Brown*; Upper Victoria River, *F. Mueller*.

The type in the Kew Herbarium has been studied through the courtesy of Dr. A. W. HILL. The sheet bears a blue label: „R. Brown, *Iter Australiense*, 1802—5. (Presented by direction of J. J. Bennett, 1876)”. On this label is written: „No. 6196. *Aristida hygrometrica*”. The Victoria River plants from Mueller are also in the Kew Herbarium. One sheet bears two well-developed specimens, the other some panicles only. I give here a description of the spikelets, a description which is taken only from the type specimen.

Lower glume 15—18 mm., generally 16 mm. long, 3-nerved, (nerves prominent, side nerves nearly as long as middle nerve), glabrous throughout, encircling the upper glume at the base, lanceolate, obtuse, bilobed at the apex, the middle nerve projecting, upper glume 31—34 mm., generally 32 mm. long, about twice as long as glume I., hard, linear convolute, acute to acuminate, awned, 1-nerved, nerve prominent, fertile valve about 6—7 mm. long, linear, convolute, glabrous, minutely punctulate under a strong lens, callus about 5 mm. long, pungent, densely hairy, column of awns straight, twisted upwards, 5—6 cm. long, glabrous, articulate on the valve, branches of awn scabrid, equal in length, brittle, 10—11 cm. long, or the lateral ones a little shorter, palea about 3 mm. long as long as the minutely striate lodicules.

***Aristida hypomegas* Mez.**

CARL MEZ; in FEDDE, *Rep. spec. nov. loc. cit.* XVII. [1921] p. 146!

Perennis, semimetralis. Vaginae culmi quam internodia breviores; ligulae brevissimae, truncatae, pilis paucis longis emergentibus stipatae; laminae convolutae vel basin versus planae, glabrae vel supra basin versus pilosae, scabridae. Culmi cum nodis glabri. Inflorescentia pauciflora, laxe effuseque 3-pinnatim paniculata, sub-

pyramidalis; ramis e basi egregie pulvinata singulatis. Spiculae pedicellis lateralibus usque ad 12 mm longis, stricte erectae, glabrae. Glumae sublineares, 1-nerviae, apice nervo medio vix excurrente laciniato-truncatellae et ciliatae, inferior 12—13, superior 8—9 mm longa. Paleae unguis brevissimus; setae nudae articulatio nulla; rostrum optime tortum; aristae laterales nullae vel in rudimenta minuta reductae; arista terminalis cum palea ad 18 mm longa. — Neu-Mexiko, Cooks Spring und Copper Mines (Bigelow).

Note: = *Aristida Orcuttiana* Vasey.

In the Berlin Herbarium there are three sheets labeled by Prof. Mez: *Aristida hypomegas* ad int.. One sheet is Blumer no. 3452 from Arizona, another sheet is Neally no. 135 from Southern Texas (Rio Limpia, Presidio County, Apache mountains). Both specimens belong to *A. Orcuttiana* VASEY, but they are not mentioned by MEZ. There is a third sheet from New Mexico, bearing two plants, each with a label ex herb. G. Thurber, *Aristida Scheideana* Trin. et Rupr., leg. Bigelow. The left-hand specimen numbered 34, Cooks Springs, is a panicle only and belongs to *A. Orcuttiana* (inverse position of the glumes!). The right-hand specimen, numbered 45, Copper Mines, is a complete plant but all the spikelets are affected with a black fungus. On the label the collector has written: „flowers ergotized”. This specimen also belongs to *A. Orcuttiana*. Bigelow 34 although a fragment only is the best developed specimen and accepted therefore as the type. *Aristida Orcuttiana*, included by HITCHCOCK in *Aristida Schiedeana* TRIN. et RUPR., is however a distinct species, with a different geographical distribution. See afterwards this revision under *A. Orcuttiana* VASEY.

Aristida Hystriacula Edgeworth.

M. P. EDGEWORTH; Florula Mallica, in Journal of the Proceedings of the Linnean Society of London. Vol. VI. [1862] p. 208!

Sect. CHAETARIA. Pusilla, glabra, gluma superiore acutata inferiorem ovulatam mucronulatam subduplo superante.

Sindh and Multan. (*Stocks*, No. 187 partim.)

Spithamaea, pallescens. Culmi graciles, glabri, striati. Vaginae breves, ore pilis albis, longe ciliatae. Folia glabra, convoluta, pollicaria. Paniculae breves, pauciflorae. Gluma inferior ovata, acuta, carina serrulata in mucronem abeunte (2-linealis); superior sub-

laevis, linearis, in mucronem hispidulum acutata (3—3½-linealis), quandoque fissa. Flosculus hispidulus, arista non articulata, stipite 8—10-lineali, setis subaequalibus 1—1½-pollicaribus hispido-scabris.

The habit is very unlike *Hystrix* (Linn. fil.; Steud. Gram. no. 99, p. 141), though the technical description is too much like.

A very curious dwarf annual plant, one of the species with the rare character of the hispidulous lemma; the column is very fragile, but there is no articulation. The most striking character, a character neglected by all the authors who studied the species, is the densely hairy bifid callus, (see my figure). HOOKER says in Fl. British India Vol. VII. p. 227: „callus minute, glabrous”, this statement is an error, hitherto there is no species found in India with a naked callus. This rare character is only observed in a few African species. The type is not in Europaean herbaria and is probably in the Calcutta Herbarium.

Aristida Hystrix L. f.

Supplementum Plantarum systematis vegetabilium Ed. XIII, Generum Plantarum Ed. VI, et Specierum Plantarum Ed. II. Editum a CAROLO A LINNÉ, Brunsvigae, [1781] p. 143!

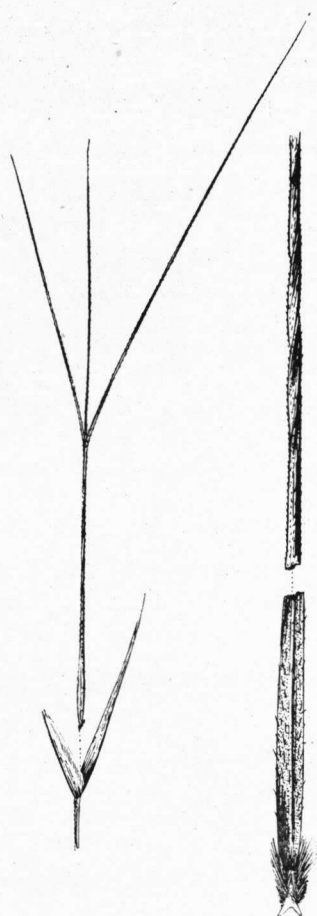
ARISTIDA panicula divaricata patentissima, flosculis simplicissimis glabris, aristis rectis divaricatis.

Habitat in Malabar. König.

Gramen repens, stoloniferum, glaberrimum.

Culmi tenacissimi, foliati, breves: foliis gramineis, convolutis.

Panicula terminalis, magna: pedunculis pedicellisque binatis, divaricatis.



× 2²/₃

× 10

ARISTIDA HYSTRICULA
Edgeworth.

From Duthie no. 6770.

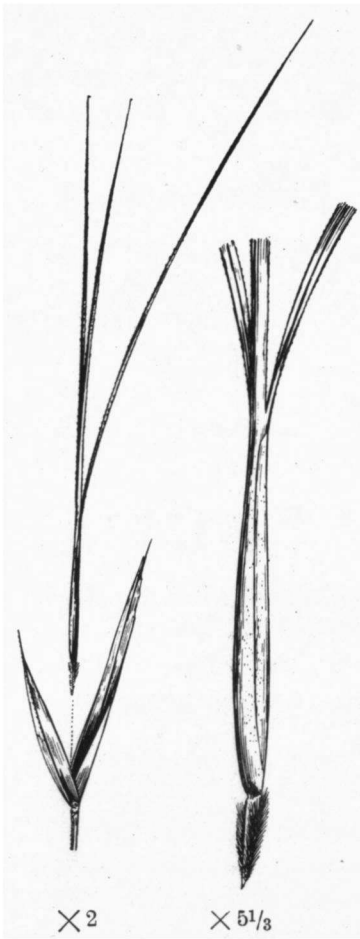
Rachis angulata.

Flosculi filiformes, glabri, longi.

Calyx uniflorus, bivalvis: valvulis inaequalibus: longiori subulata.

Corolla calyce longior, convoluta, terminata aristis tribus, aequalibus, rectis, patentibus, retroscabris, flosculo duplo longioribus.

Variat vaginis foliorum radicalibus albido-tomentosis.



ARISTIDA HYSTRIX L. f.

From duplicate type specimen.

The type in the Linnean Herbarium, duplicates in some European collections. I studied a good specimen in the Swartz Herbarium at Stockholm. There is also an authentic specimen in the Munich Herbarium. The species was accurately described by TRINIUS and RUPRECHT and is easy to recognize. HOOKER's statement that the callus is naked is once more an error.

Aristida Hystrix Thunberg.

CAROL. PET. THUNBERG; Prodrum plantarum Capensium, quas, in promontorio Bonae spei Africes annis 1772—1775, collegit. Upsaliae, Pars I. [1794] p. 19!

A. panicula trichotoma patenti, aristis aequalibus glabris, calyce aequali.

CAROL. PET. THUNBERG; Flora Capensis, sistens Plantae Promontorii Bonae Spei Africes, secundum Systema Sexuale emendatum etc. Volum. I. Upsaliae [1813] ¹⁾ p. 394!

A. (hystrix.) panicula trichotoma patenti, aristis aequalibus glabris, calyce aequali.

Aristida hystrix. LINN. Syst. Veg. XIV. p. 124. WILDEN. Spec. I: 1. p. 459.

¹⁾ See note on pag. 75 of this Revision.

PLUK. Phytog. tab. 193. f. 3. bona.

Culmi aggregati e radice caespitosa, teretes, glabri, erecti, simplices pedales. *Folia* radicalia longiora & culmi breviora, convolutoteretia, striata, curvata, glabra, breviora. *Panicula* trichotoma, patens. *Pedunculi* capillares, glabri. *Calycis* glumae aequales, lanceolatae, glabrae, corolla breviores. *Corolla* glabra, triaristata: *Aristae* basi tortae, subaequales, divaricatae, glabrae, pollicares.

Note: = *Aristida diffusa* Trinius.

The type in the Thunberg Herbarium at Upsala has glabrous internodes. The lower glume is split into two equal halves and the upper glume is tightly rolled round the lemma. (See also Dr. STAFF's observations in *Flora Capensis* Vol. VII. p. 562). This is the reason why THUNBERG described the glumes as equal and shorter than the corolla. The type perfectly agrees with TRINIUS' *A. diffusa* and has the same shortly bifid callus. (See the figure on pag. 142 of this Revision).

It is noteworthy that this species was introduced in the year 1870 in France but it was not recognized. (Séchoir à laine de Montplaisir près Lodève, leg. AUBOUY).¹⁾ I saw an authentic specimen in Dr. THELLUNG's Herbarium at Zurich, this specimen exactly agrees with THUNBERG's specimen.

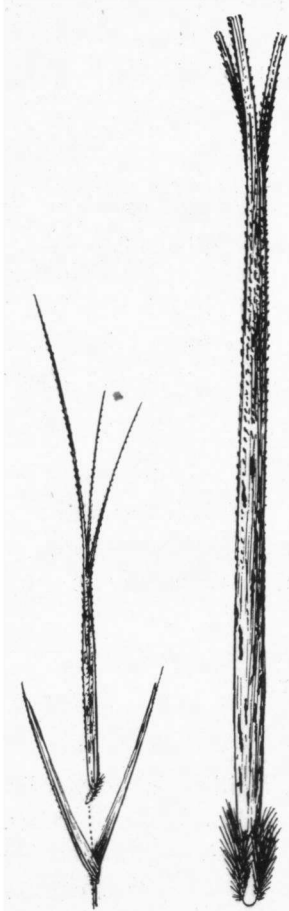
Aristida imbricata Henrard

nov. spec.

(Sect. *Chaetaria*). Perennis, dense caespitosa, rigida, glauco-viridis. *Culmi* stricte erecti, simplices, cum panicula 50—60 cm. alti, teretes, glaberrimi, substriati. *Vaginae* subcompressae, striatae, puberulae vel hirtellae, internodiis longiores. *Laminae* stricte erectae, convolutae vel in parte inferiore subplanae, subtus scaberulae vel subhirtellae, supra hirtellae, basi in pagina superiore praesertim pilis longis albis conspersae, $\pm 1\frac{1}{2}$ mm. latae, ± 10 cm. longae, longe acuminatae, subpungentes; *ligula* brevissima, dense breviterque ciliata, pilis longis stipata, auriculae dense ciliatae, pilis longis albis intermixtae. *Panicula* demum longe exserta, ambitu lanceolato-vel ovali-oblonga, effusa, divaricata, ± 20 cm. longa et 10—12 cm. lata, rhachi inferne laevi, superne angulata, subscaberula, ramis binis

¹⁾ Dr. A. THELLUNG; La Flore adventice de Montpellier, [1912] p. 92 sub *Aristida angustata* STAFF.

vel subternis, in axillis puberulis incrassatis, angulo recto patentibus, altero 6—8 cm. longo, altero brevior, 4—6 cm. longo, omnibus in parte inferiore nudis. *Spiculae* bruneo- vel flavo-violascentes, breve pedicellatae in paniculae ramis subspicatae, aequaliter dispositae, imbricatae, appressae, pedicellis angulosis scaberulis. *Glumae* lineari-lanceolatae, acutae, glaberrimae, laeves, 1-nerves, inferior circa 9 mm. longa breviter aristata, carina tantum superne subscaberula, superior circa 10 mm. longa, carina laevis, apice bidenticulata, breviter aristata; gluma III. fertilis linearis, tubulosa, callo circa 1 mm. longo, obtuso, dense barbato, circa 10 mm. longa, infra apicem scaberula, ceterum laevis, haud articulata neque torta, aristae divisiones scaberulae, media circa 13 mm. laterales 8—9 mm. longae.



■ × 3 × 10
ARISTIDA IMBRICATA
Henrard.

From type specimen.

America borealis: Texas, prope El Paso, 10. XII. 1904 leg. D. GRIFFITHS no. 7433. Typus speciei in Herb. Lugd. Batav. sub no. 926. 195—257.

Beautiful specimens of this species were received from the United States National Herbarium under the name of *Aristida divaricata* HUMB. et BONPL.. The plants are however at once to distinguish from *A. divaricata* and its allies by the totally wanting column; the stiff, rigidly spreading branches with the closely imbricate spikelets, forming at the end of the branchlets small panicles, with regularly placed spikelets, give the plants a distinct habit. In some respects the species approaches *A. gentilis*¹⁾ and *A. hamulosa*, both have not only a different habit, but the former has an inverse position of

the glumes, the latter a characteristic lemma with aculeate hairs. Another somewhat allied species is *Aristida pansa* WOOT. et STAND.,

1) While the first part of my revision was in press, I found that the widely distributed *Aristida gentilis* HENR. is rather variable as to the length of the lateral awns and that we can distinguish a variety with very short lateral awns. This variety is described here:

which has a scabrous, slightly twisted beak, about 2 mm. long, very unequal glumes and the branches of the panicle are stiffly ascending and much shorter. *Aristida Parishii* Hitchc. differs in the narrow panicle, with stout, appressed, stiffly ascending branches, 2—4 cm. long, longer lemmas and glumes, a distinct but slightly twisted beak and longer awns.

***Aristida implexa* Trinius.**

C. B. TRINIUS; Graminum Supplementa, in Mém. Ac. Imp. des sc. de St.-Pét. loc. cit. [1836] p. 48!

Paniculae subcontorto-coarctatae radiis 2—3nis, fere a basi flori-feris; Glumis acuminatis: inferiore, superiore circiter $\frac{1}{4}$ — $\frac{1}{3}$ l. paulo tantum longiori, flosculo ad divisionem usque torto et 14—24-lineali duplo breviori; setis pl. min. patentibus, flosculo, ubi brevior, $\frac{1}{4}$ longioribus, ubi longior, ipso brevioribus: media parum majori; Foliis plerumque convolutis, pl. min. laevibus.

V. spp. Bras.

Culmus cum panicula 2—3-pedalis, simplex. *Vaginae* internodio longiores, glabrae, interdum fauce barbatae. *Ligula* margo angustissimus, prominulus. *Folia* saltem laeviuscula, complanata, circ. lineam lata, inferiora sesquipedalia. *Panicula* cylindraceo-compacta, subtorta, densissima, spithamaea aut longior, pallida. *Glumae* 1-nerves.

***Aristida gentilis* Henrard**

var. *breviaristata* Henrard

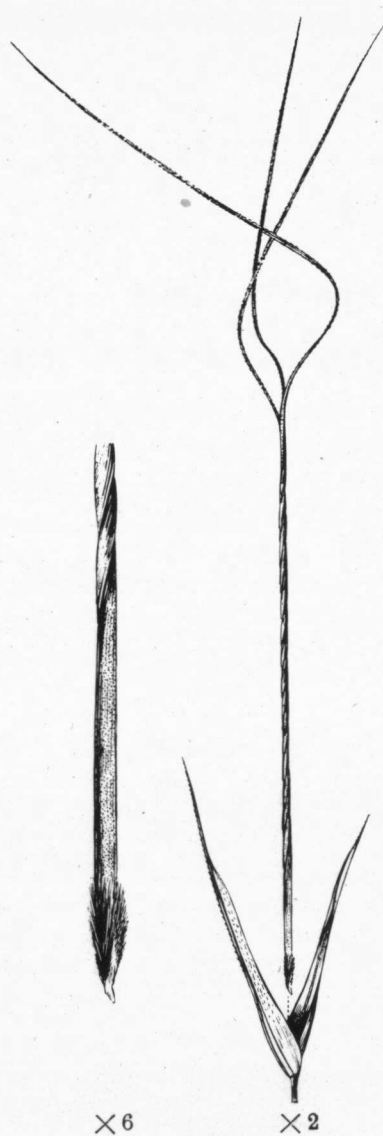
nov. var.

Agreeing with the typical *A. gentilis* in all the essential characters, the central awn 15—16 mm. long, but the lateral awns much shorter, about 4—6 mm. long, or sometimes in young specimens 1—2 mm. long. This variety much resembles the *Aristida Schiedeana* TRIN. et RUPR., which is however at once to distinguish by the long, twisted column.

Arizona: North slope of Santa Rita Mountains, 18 Sept. 1904, leg. D. GRIFFITHS no. 7270. Type in Herb. Lugd. Bat. sub no. 922. 320—4161.

Another specimen was collected in Arizona: Chiricahua Mountains, Sandy Plateau between Turkey and Cottonwood Creeks, 5500 feet, 30 Aug. 1907, by J. C. BLUMER, no. 1633, together with the typical *A. gentilis*, and distributed as *A. Schiedeana*.

The species was more fully described in the year 1842 by the Russian monographers. The type in the Trinius Herbarium was



ARISTIDA IMPLEXA Trinius.
From type specimen.

collected by RIEDEL in Brazil, in the state of São Paulo at Itapetininga in campis siccis. The species is very characteristic by the contorted, dense and spike-like panicle, the inverse position of the long-awned glumes, the long column and by the very curious shape of the callus, unique in the whole genus. The callus is long, densely hairy, with a naked oblique point developed only at one side, so that it appears as if the point is refracted, (see my figure!). Some authors have used the name *A. megapotamica* SPRENGEL for the species. TRINIUS observed already that SPRENGEL's diagnosis was very bad. „*Arthratherum megapotamicum* Nees ab Esenb. mss. in Hb. Bras. Mus. Berol., cui fortasse: *Aristida megapotamica* Sprengel Cur. post. (1827) p. 31. a Sellowio circa fl. Rio Grande lecta et huic innixa: *Chaetaria megapotamica* Schult. Mant. 3. (1827) p. 578. accensenda, ab *A. implexa* solummodo diversa videtur: flosculo pallido, 20—21 lineas longo. *Aristida megapotamica* Sprengelii in *Agrostographia Brasiliensi* non memorata, quid certe sit, ex diagnosi pessima vix divina-bis.” The specimen named by NEES, *Arthratherum megapotamicum* in the Berlin Herbarium is *A. implexa*. In SPRENGEL's Herb. (Herb. Müller, formerly at Halle, now at Berlin), there is a specimen of *Aristida megapota-*

mica in SPRENGEL's handwriting. This specimen is very different from *A. implexa*. See afterwards my critical observations under *A. megapotamica*. TRINIUS and RUPRECHT observed in the year 1842: „*Flosculi* triplicis occurrunt speciei: valde hebetati, quorum aristae

facillime secedunt; *fertiles* (?) colorati et maculati, sine stipite 3 lineas longi, basi barbati, qui cum aristis a glumis articulatum solvuntur et *effoeti* (?), valvula 4 lineas longa, inflata, straminea, basi eberbi et cum glumis tenaciter cohaerente." DOELL and others could not give the right interpretation of the very accurate observations of the Russian authors and therefore we find in the literature that there are two kinds of spikelets (DOELL, EKMAN). The spikelets with inflated, pale-coloured lemmas, without a bearded callus and firmly attached to the glumes are indeed affected by smut (ab ustilagine deformata). We know at present that such spikelets have a quite glabrous callus and that the lemmas become inflated, with a pseudocolumn. See also my observations afterwards under *A. inversa macrantha*. As to TRINIUS' observations I must remark that there is no trace of an articulation between lemma and column, although it is a fact that the column breaks off easily. HITCHCOCK observes in his Revision on p. 554 that the species is closely related to *A. chapadensis* TRIN. This species is however a totally different one, see the figure and callus on pag. 88 of my revision.

***Aristida implexa* Trinius.**

var. *aequa* Trin. et Rupr.

Spec. Graminum Stipac. loc. cit. pag. 124!

Panicula latiore, cuneata, colorata, minus implexa; flosculo vix sesquipollicari (13—16 lineali); setis subaequalibus, basi non retortis, bipollicaribus l. parum longioribus. — In graminosis siccis Serra da Chapada. Majo. (Riedel!) Specimen flosculo tantum 13 lineali et setis basi non retortis, bipollicaribus inter speciem genuinam prope Ypanema lectum ante oculos fuit.

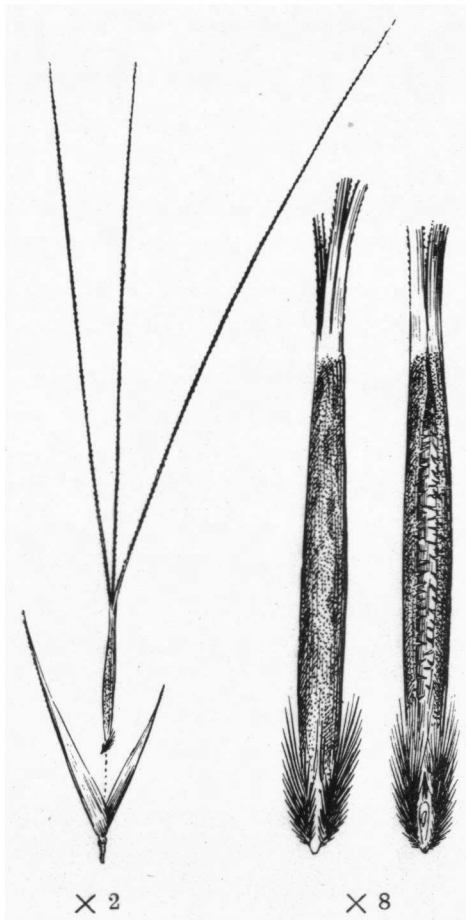
Note: = *Aristida riparia* Trinius.

The type in the Trinius Herbarium was also from Brazil, collected by Riedel in the Serra da Chapada. I had at my disposal only a fragment of the specimen. This fragment is however quite sufficient to recognize the plant at once. The column is thinner, 2,5 cm. long or slightly longer, the awns are thin, not contorted at the base, the central one 5,5 cm., the lateral ones 5 cm. long. The callus is bifid and has quite the same form as the callus of the type of *Aristida riparia*. Because *A. riparia* is the only American species having such a bifid callus, the species is to recognize

immediately if we have spikelets at our disposal. See my observations already given under *A. Ekmaniana* on pag. 160 of this revision, and afterwards my observations and my figure of *Aristida riparia* TRIN..

Aristida inaequiglumis Domin.

K. DOMIN; Beiträge zur Flora und Pflanzengeographie Australiens, in Bibl. Bot. Heft 85^t [1915] p. 347!



ARISTIDA INAEQUIGLUMIS Domin.

From type specimen.

Densiuscule caespitosa, valde elata, robusta, glaucescens; *culmi* valde robusti, cum paniculis saepe plus 10 dm alti, glaberrimi, supra medium vel fere ad apicem foliati; *vaginae* totae glaberrimae; *laminae* valde elongatae, glaucae, rigidae, plurimae planae et circa 2.5 mm latae, prominule nervosae, glaberrimae sed in panicula superiore scaberulae; ligula in ciliis breves dissoluta; *panicula* maxima, usque fere 7 dm longa, pallida, subinterrupta, angusta sed haud stricte contracta, apice saepe subnutans; paniculae *rami* 10—15 cm longi, superiores breviores, capillares, multispiculati (spiculis subdensis), erecti vel arcuato-vel flexuoso-erecti; *glumae* glabrae, valde inaequales, scariosae, uninerves; gluma brevior c. 8—8.25 mm longa, altera circa 15 mm longa, tenuiter mucronatula; *glumella* inclusa, brevis, cum stipite tantum 5 mm longa; *aristae* a

glumella conspicue articulatae, capillares, media circa 4.5—5 cm, laterales circa 3.5—4 cm longae.

Queensland: Savannenwälder bei Pentland (DOMIN, III, 1910). Eine ausgezeichnete Art, von den vorigen durch die sehr ungleichen Hüllspelzen, die sehr kurze Deckspelze und langen Grannen leicht zu unterscheiden.

Prof. K. DOMIN has placed his beautiful collection of Australian *Aristidas* at my disposal. I wish to express my sincere thanks to Dr. H. P. MULLER, Her Majesty's Ambassador of the Netherlands at Prague. By his personal influence the collection has been sent directly to the Department of Foreign Affairs, so I could use the plants for the second part of this revision.

In DOMIN's work there is a section *Arthrochaetaria*, characterized by a lemma, having an articulation between the body and the awns. If we study however this Australian group, we find that a true articulation is not present, at maturity it is possible to break off the awns, but there is no special tissue. Such a pseudo-articulation is even better developed in *Aristida calycina* (see my figure on pag. 71 of this revision), a species placed by DOMIN in the section *Chaetaria*. *Aristida inaequiglumis* belongs to the same section and is a very characteristic species. The true position of the glumes was overlooked by DOMIN; in his description DOMIN says „gluma brevior” and „gluma altera” and from his figures it is in many cases impossible to find out which glume is the shorter one, the lower or the upper. Such denominations as „gluma longior” or „gluma brevior” in a description are mistakable. The species has a very distinct inverse position of the glumes, the lower one is much longer than the upper. This beautiful species has moreover another very striking character, the margins of the lemma are not overlapping, they are inrolled so that in transmitted light we see a portion of the inner side of the lemma, the inrolled margins are provided with a row of rather stout spines. This character is demonstrated in my figure.

***Aristida ingrata* Domin.**

Bibl. Bot. Heft 85^I [1915] loc. cit. p. 3461

Caespites densos durosque efformans, elata, subglaucescens; *culmi* duri, robusti, sine paniculis circa 5 dm alti, glaberrimi, pauciramosi, ad medium vel fere ad paniculam foliati; *folia* culmea rigida, distantia, haud numerosa; vaginae internodiis breviores, glabrae et tantum ad orificium manifeste patentim barbatae, laminae elongatae, planae (vel tantum nonnullae convolutae) circa 2—2.5 mm latae,

crassiuscule rigidae, prominule costato-nervosae, in pagina superiore dense minute pilosulae subtus glabrae; laminae foliorum infimorum diu persistentes et si emortuae, tunc plus minusve laceratae curvataeque et caespites protegentes; *panicula* perangusta, elongata, haud raro 4 dm longa, subdensa, ramosa, ramis multispiculatis (infimis circa 1 dm longis), distantibus, sed omnibus stricte erectis vel imo rhachi laevi appressis; *spiculae* longiuscule pedicellatae, erectae, glabrae; *glumae* fere totae scariosae, perangustae, uninerves, brevissime mucronatulae (gluma brevior ex apice brevissime bidentatulo, gluma longior ex apice integro), subaequales, circa 8—9 mm longae; *glumella* cum stipite circa 1 mm longo 5.5—6 mm longa, iuclosa, i. e. glumis conspicue brevior; *aristae* a glumella articulatae, capillares, media circa 15—20 mm, laterales 14—15 mm longae.

Queensland: bei Barcaldine (DOMIN, III. 1910).

Diese Art ähnelt im Habitus am meisten der *A. pruinosa*, mit der sie besonders in der Ausbildung der Rispe übereinstimmt; doch ist sie nicht bereift, besitzt eine stark abstehend behaarte Scheidenmündung, fast gleichlange Hüllspelzen und abgegliederte Grannen.

This species, allied to *Aristida calycina* R. BR., is characterized by the very short lemma, much shorter than the glumes. According to DOMIN a member of his section *Arthrochaetaria*, but I found that there was no true articulation, caused by a special tissue. See the observations under *A. inaequiglumis*.

***Aristida ingrata* Domin.**

var. *jerichoensis* Domin.

Bibl. Bot. Heft 85^f [1915] loc. cit. p. 346!

Vorläufig stelle ich zur *A. ingrata* die folgende Pflanze:

var. *jerichoensis* v.n.

Multo gracilior, glauco-pruinosa; *folia* fere omnia anguste convoluta; *panicula* parte inferiore laxior, ramis subpatentibus; *spiculae* minores; *arista* tantum obscure articulata.

Queensland: Dividing Range bei Jericho (DOMIN, III. 1910).

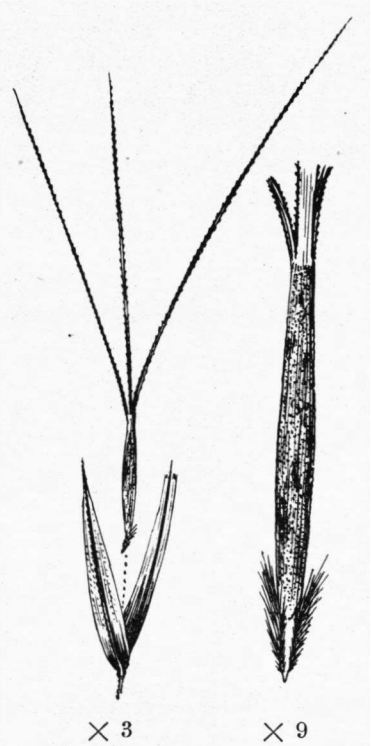
Diese Pflanze gehört vielleicht als eine selbständige Art (*A. jerichoensis*) in die Sektion *Chaetaria* und zwar in die Verwandtschaft

von *A. pruinosa*. Sie hat jedoch denselben Ährchenbau wie *A. ingrata*, nur sind die Ährchen kleiner (was allerdings nebensächlich wäre) und die Abgliederung der Granne ist eigentlich eher durch Färbung angedeutet, als in der Tat durchgeführt. Die charakteristische Behaarung der Scheidenmündung sowie die Härchen auf der Blattoberseite sind bei dieser Form genau so wie bei *A. ingrata*.

Note: = *Aristida jerichoensis* Domin.

Although described as a variety, DOMIN at the same time indicated that it is perhaps a distinct species. In the description the awn is given as „*obscure articulata*“, in his note we find the curious observation that the articulation is not present in reality but indicated by the colour. I must observe that an articulation is caused always by a special tissue, if we study accurately this articulation under the microscope.

The variety is an elegant plant with simple culms, very narrow leaves and short spikelets. The lemmas have no trace of an articulation and the glumes are very different from those of the *A. ingrata*. I have accepted the variety as a distinct species as was already supposed by DOMIN. See afterwards my description of the species and the figure of the spikelet-characters under *A. jerichoensis*.



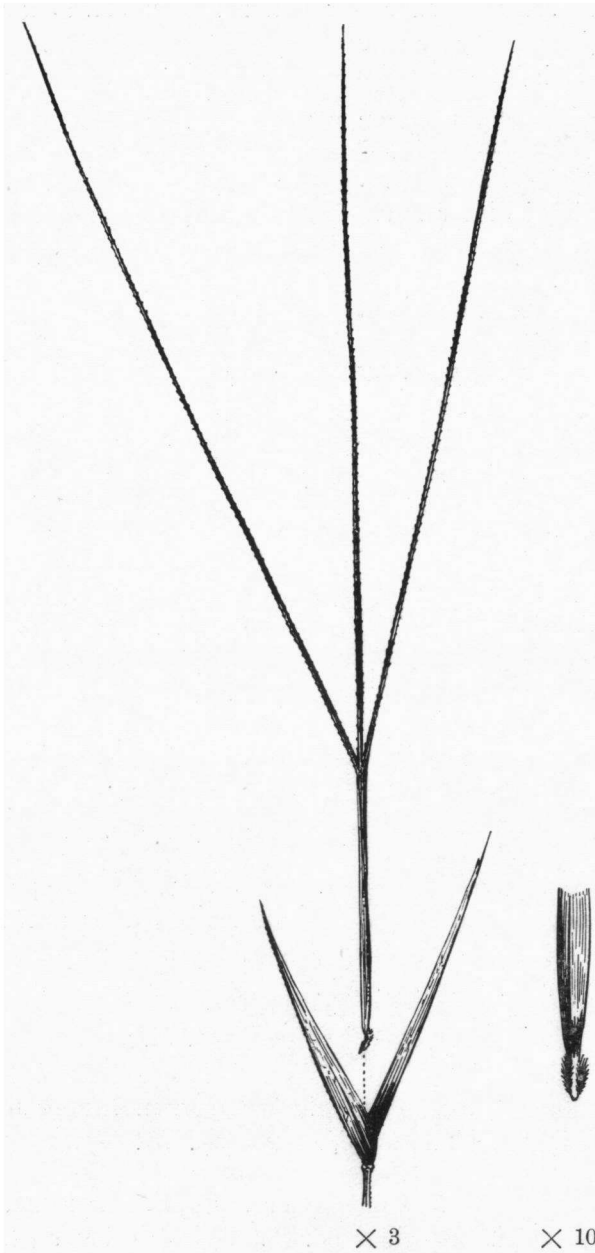
ARISTIDA INGRATA Domin.
From type specimen.

Aristida intermedia Arechavaleta.

J. ARECHAVALETA; Nuevas Aristidas del Uruguay, in *Anales del Museo Nacional de Montevideo*. Tomo IV. [1903] p. 78!

Rizomas prolíferos, encorvados, con numerosas pajas apretadas un poco arqueadas en su base, vestidas por las vainas de hojas desvanecidas, láminas subplanas. Vainas fuertemente estriadas cerradas ó poco abiertas en su ápice, lígula pestañosa, láminas convolutadas estrechas, más cortas que las pajas de la panoja, estriadas y más ó ménos arqueadas algunas y otras rectas.

Panojas erectas de 8 cm \pm de largo, eje poco anguloso, ente-



ARISTIDA INTERMEDIA Arechavaleta.
From type specimen.

ramente liso, ramas breves, erectas, las primeras ó las inferiores, comprendiendo sus espiguillas, tan largas como el espacio que las separa de las segundas. Glumas desiguales violadas, la I^{ra} de 9 mm \pm , 1-nerviada, puntiaguda, nervio medio sin escabrosidad ó apenas un poco áspero en su ápice; II^{da} de 15 mm \pm , 1-nerviada, lisa; III^{ra} de 10 mm \pm , comprimida, pálida, lisa; arista de 3—4 cm de largo, ramas subiguales, finas, rectas, poco extendidas.

Tiene parecido con la *A. Spegazzinii* y la *A. Hackeli*, de las que difiere: de la primera por su gluma inferior menor y de la segunda por la gluma florífera recta, á parte de otros detalles.

Vive en campos gramínicos, terrenos pedregosos preferentemente. Florece en noviembre.

Note: = *Aristida Arechavaletae* Henrard.

Through the courtesy of Dr. L. A. PARODI at Buenos Aires, I received a fragment of the type in the Herb. Mus. Nac. at Montevideo, labeled: „campos del Uruguay” and from this portion I will give here the accurate characters of the spikelets. „Glumae glabrae, inaequales, acuminatae vel aristatae, gluma I circa 12 mm. longa, acuta, distincte 3-nervis, carina scabra; II 1-nervis, carina laevis, aristata, sine arista circa 14 mm. longa, apice manifeste bidentata, inter dentes aristata, arista circa 1,5 mm. longa; gluma III fertilis, laevis, callo acuto breviter barbato, $\frac{1}{2}$ mm. longo, circa 12 mm. longa, superne leviter angustata sed haud stipitata neque torta, aristae parum inaequilongae, scabrae, erectae vel subpatentes, centralis ad 37 mm. longa, laterales ad 33 mm. longae.”

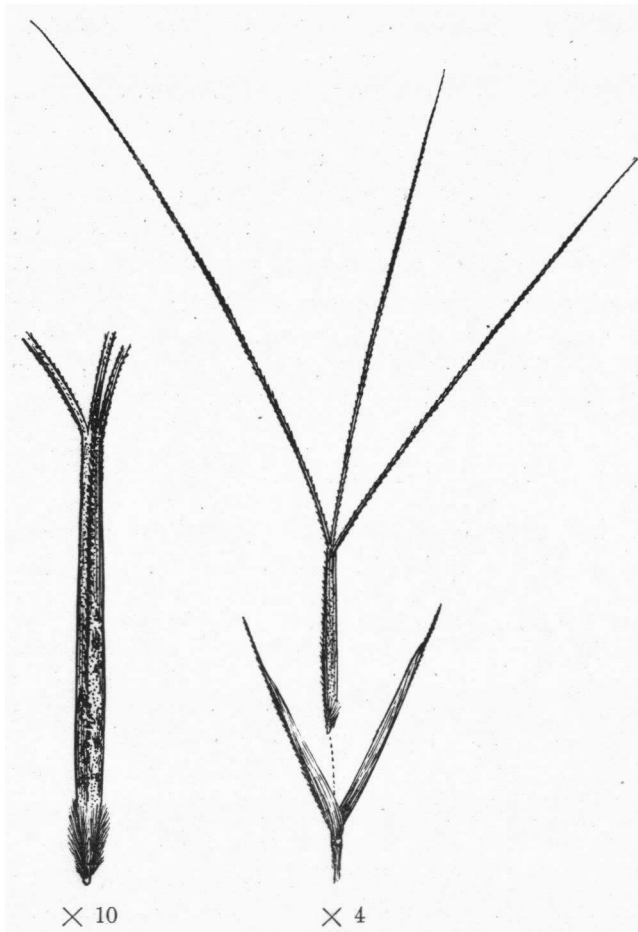
***Aristida intermedia* Scribner et Ball.**

F. LAMSON-SCRIBNER and CARLETON R. BALL; Studies on American Grasses, in U. S. Department of Agriculture, Bull. No. 24 [1901] p. 44! (Fig. 18).

A slender, somewhat geniculate, branching annual, 3 to 7 dm. high, with involute leaves and long, slender panicles. Culms smooth, freely branching, purplish, the outer branches geniculate, ascending; sheaths usually shorter than the internodes, smooth or the lower sparsely hirsute, especially on the margins, and purplish; ligule a very short ring, 0.4 mm. long or less, fringed with short hairs; blades 5 to 15 cm. long, 2 mm. wide, erect, rigid, involute, sometimes sparsely hirsute near the base. Panicle 2 to 4 dm. long, slender, often flexuose; branches short, 2 to 4 cm. long, appressed. Spikelets 8 to 10 mm. long; empty glumes narrowly lanceolate, attenuate into a rather long awn, nearly equal or the upper longer, 7 to 9 mm. long, 1-nerved, scabrous, purplish; flowering glume 7 to 9 mm. long, strongly scabrous above the middle, equaling or exceeding the empty glumes, sometimes regularly spotted as in *A. gracilis*; awns all spreading, the middle one 18 to 22 mm. long, the lateral ones 14 to 17 mm. long, all variable.

This species is most closely allied to *A. gracilis*, but differs in its larger size and especially in the much longer florets and awns. It is nearly intermediate between *A. gracilis* and *A. purpurascens*, with the habit of the former and spikelets more like those of the latter.

Type collected by T. H. Kearney, jr., No. 204, near Biloxi, Mississippi, October 5, 1896.



ARISTIDA INTERMEDIA Scribner et Ball.
From type specimen.

GENERAL DISTRIBUTION. — Open, dry, sandy soil, Iowa to Texas and Mississippi.

The type is in the U. S. Nat. Herbarium. Beautiful specimens were received through the courtesy of Mrs. A. CHASE; the plants are mostly very slender, often simple or sometimes branched at base. There are forms somewhat approaching *A. longespica* POIR. (= *A. gracilis* ELL.), forms having shorter lateral awns and a central one more spreading and curved as usually, but the longer glumes and lemmas and the looser panicles distin-

guish these plants sufficiently from *A. longespica*. Compare my figure of the latter afterwards in this revision.

Aristida interrupta Cavanilles.

ANT. JOSEPHUS CAVANILLES; Icones et Descriptiones Plantarum, quae aut sponte in Hispania crescunt, aut in hortis hospitantur. Matritum, Vol. V. [1799] p. 45! Tab. 471. Fig. 2!

ARISTIDA paniculae ramis virgatis: florum fasciculis interruptis: corolla calicibus longiore. Culmus tripedalis et amplius: nodi incrassati rubentes. Folia vaginantia, vaginis internodiis subaequalibus,

apice solutis in folium subulatum bipedale. Flores longe paniculati: rami erecti virgati, quorum florum fasciculi interrupti. Calicis valvulae acutissimae, interiore longiore. Corolla calice paulo longior, basi dumtaxat villosa, apice triaristata, aristis barbatis intermedia productiore. Reliqua ut in praecedentibus.

Habitat prope oppidum Chalma Regni mexicani. Floret Augusto. Vidi siccam in laudato herbario.

Explic. tab. b Flos auctus.

Note: = *Aristida adscensionis* L.

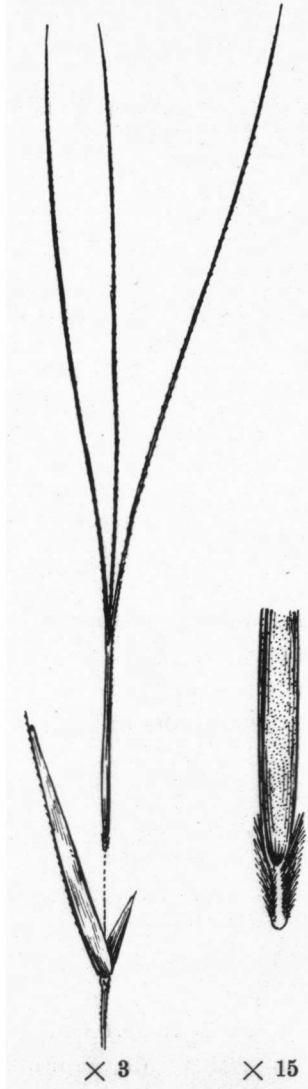
Aristida interrupta is, from the description and plate given by CAVANILLES, only a very robust open-paniced form of the common *A. adscensionis*. In the description we cannot find a character that points to another species. The glumes are given as very acute, in Mexican specimens both glumes are indeed very acute, but the upper glume is awned from a distinctly bifid apex. In the description the lemma is described as „exceeding the glumes”, which is often the case in *A. adscensionis*, the awns are described as „barbatae”, an unusual denotation of the scabredity of the awns. The localities of the *Aristidas* given by CAVANILLES are generally erroneous but in this case we may accept that the locality of *Aristida interrupta* given as Mexico is correct. Such large plants of *A. adscensionis* with interrupted open panicles are not uncommon in Mexico, they are found in fertile soil. Good specimens agreeing with *A. interrupta* are collected by BROTHER ARSÈNE in 1909 in Morelia (distributed as *A. adscensionis* var. *mexicana* HACK. ined.) and by PROF. HITCHCOCK (Guadalajara, Jalisco, 27–28 Sept. 1910 no. 7266 and Oaxaca in 1910, HITCHCOCK, Am. Gr. Nat. Herb. no. 755).

***Aristida inversa* Hackel,**

ap. ROB. E. FRIES; Zur Kenntniss der Phanerogamenflora der Grenzgebiete zwischen Bolivia und Argentinien, in Arkiv för Botanik Band 8. [1908] No. 8, pag. 37!

Perennis, caespitosa. Culmi erecti, ad 7 dm. alti, graciles, teretes, glaberrimi, multinodes, simplices, apice breviter nudi. Vaginae teretes, arctae, internodiis breviores, glaberrimae; ligula brevissima, truncata, ciliata; laminae anguste lineares, complicatae vel basi planae, longissime tenuiterque acuminatae, ad 30 cm. longae, statu complicato circ. 0,8 mm. latae, erectae, rigidulae, extus laeves, intus

glabrae et crassinerves, marginibus scaberulae, glaucescentes. Panícula lineari-oblonga, ad 25 cm. longa, contracta, subdensiflora, ramis



× 3 × 15
ARISTIDA INVERSA
Hackel.
From type specimen.

binis ternisve suberectis brevibus (ad 8 cm. lg.) scaberulis, primario basi breviter nudo multispiculato, secundariis a basi spiculiferis 1—3-spiculatis, tertiariis basilaribus brevissimis auctis, spiculis subaequaliter dispositis subterminalibus pedicellis eis circ. 3-plo brevioribus fultis. Spiculae lineares, sine aristas circ. 9 mm. longae, pallide viridulae: gluma I. spiculam longitudine aequans, lineari-lanceolata, bidenticulata, inter dentes mucronulata, rigidule membranacea, 1-nervis, carina scabra; II. spicula 3-plo brevior (3 mm. lg.), lanceolata, acutiuscula v. obtusiuscula, tenuiter membranacea, 1-nervis, haud carinata, laevis. Gluma III. (fertilis) quam I. paullo brevior (7—8 mm. lg.), linearis, tubulosa, callo obtuso brevissime barbulata, ceterum scaberula, superne haud torta, aristae divisionibus florendi tempore porrectis subaequalibus, intermedia circ. 2 cm. longa. Palea oblonga, 1,5—2 mm. lg., enervis. Antherae 1,5 mm. longae.

Bolivia: Gran Chaco, Fortin Crevaux ad Rio Pilcomayo, in campo sicco aprico [Apr. 1902; Fr. 1589].

Im Habitus der *A. mendocina* R. A. PHIL. sehr ähnlich, aber durch das Längenverhältnis der Hüllspelzen (glumae steriles) gänzlich verschieden; bei *A. mendocina* ist die I. gluma 3 mal kürzer als die II., bei *A. inversa* findet gerade das Gegenteil statt. Es giebt überhaupt nur wenige Arten von *Aristida* bei welchen die gl. I. länger ist als die II., z. B. *Ar. Spegazzinii* ARECH.,

bei welcher sie aber nur um $\frac{1}{3}$ die II. überragt; übrigens weicht diese Art durch niedrigen Wuchs, 2-knotigen Halm (die Knoten dem Grunde genähert) und etwa 6 cm lange Grannen sehr von unserer ab.

The type in HACKEL's Herbarium at Vienna is stamped No. 15583. It is a distinct species with a striking inverse position of the glumes. HACKEL compared his plant with *Aristida mendocina* PHIL. and indicates that the latter has an other position of the glumes. HACKEL however overlooked the true position of the glumes in *A. mendocina*, a species with quite the same curious very short inner glume, totally hidden by the very long outer one. See my observations on pag. 118 under *A. cordobensis* HACK..

Aristida inversa is most allied to *A. mendocina* but it is a much stouter species with a different habit and generally longer awns. The species is to distinguish in the spikelet-characters by the bidentate apex of the lower glume with an awn from the sinus.

***Aristida inversa* Hackel.**

forma *macrantha* Parodi.

LORENZO R. PARODI; Notas sobre Gramíneas de la Flora Argentina, in *Physis*, Revista de la Sociedad Argentina de Ciencias Naturales, t. VIII. [1925] p. 76!

Difiere del tipo por las dimensiones mayores de las espiguillas y de los órganos vegetativos. La gluma inferior alcanza a 11—12 mm., el flósculo a 8—9 mm. y la arista mediana a 30—38 mm.

BOLIVIA: Santa Cruz, Buena Vista, 500 m. s. m., leg. J. STEINBACH, 22-II-1921 (Herb. OSTEN n° 16.781).

Note: = *Aristida mendocina* Philippi. var. *macrantha* (Parodi) Henr..

Through the courtesy of Dr. PARODI, I received the specimen, which is labeled as given in the description, it bears in PARODI's hand the indication: Ejempl. typo! The specimen is deposited in Herb. Lugd. Batav. sub no. 926. 286—188. Glume I = 12—13 mm., acute not bifid at the apex, glume II = 4 mm., glume III = 7—8 mm. long (in normal spikelets); the central awn is 35 mm., the lateral ones are 30 mm. long. The plant described by Dr. PARODI therefore does not belong to *A. inversa* HACK., but is a robust variety of *A. mendocina* with longer glumes and awns. The type is affected by a smut and most of the spikelets are deformed. We know in such a case that the lemma is often swollen in the lower part and that the upper sterile part becomes very long, forming a pseudo-column, moreover the callus disappears or is much reduced, and becomes

glabrous. This is f. i. observed in the common South-American *A. pallens* CAV., a species without a column. Being affected by smut *A. pallens* produces a very long column, with shorter awns and it may be that the awns are connate in the lower part. PARODI's type has the same character, many spikelets have a more than 1 cm. long column and a glabrous scarcely developed callus.

Aristida Jacquiniana Tausch.

J. F. TAUSCH; Botanische Beobachtungen über einige Aristidae, in Flora oder allgemeine botanische Zeitung, Regensburg, Jahrgang XIX. Bd. II. [1836] p. 508!

Aristida canariensis Willd., die in Gärten nicht selten gezogen wird, ist einerlei mit *Aristida coerulescens* Desf. atl. 1. t. 21. fig. 2; aber *A. divaricata* Jacq. eclog. 1, t. 6., die in Kunth's Agrost. fälschlich dazu gezogen wird, ist eine sehr verschiedene Art, und ich nenne sie: *A. Jacquiniana*: panicula effusa, ramis elongatis remotis subsecundis patentissimis, glumis aristato-mucronatis, arista nuda trifida, lacinia media lateralibus fere duplo longiore foliis angustissimis convolutis laevibus ore barbatis.

Description given by Trinius and Ruprecht, loc. cit. p. 119!

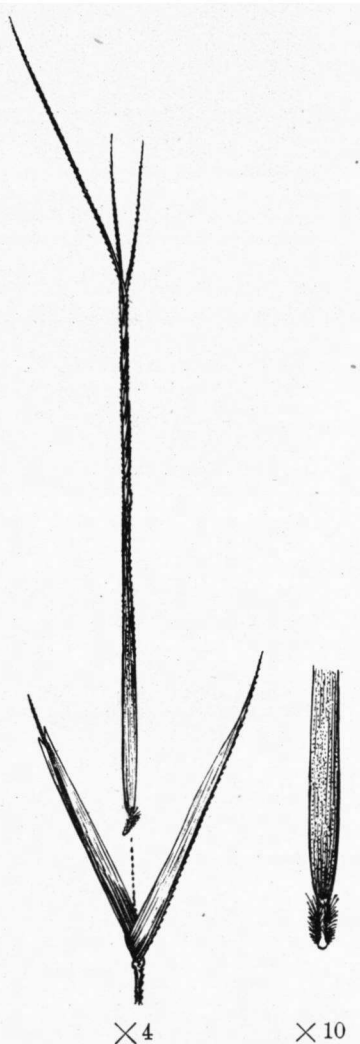
Paniculae pedalis valde depauperatae, demum longe exsertae et firmulae radiis solitariis geminisve, divaricatis, remotis, subsecundis, a medio circiter floriferis; glumis inaequalibus, pallidis, superiore brevior! subquiquelineali, inferiore 6—7 lineali flosculum pallidum glabriusculum, apice attenuatum et tortum subaequante; setis lateralibus erectis, mediâ 4—6 lineali, erecto-patente, duplo l. triplo brevioribus.

Aristida divaricata Jacq. Eclog. Gram. p. 7. tab. 6 et vix cum dubio etiam Willd. Enum. (1809) p. 99, qui etiam semina s. n. A. pallentis accepit, sed excl. patria et syn. Humb. et Bonpl; quae numquam in hortis culta fuisse videtur. Link. Enum. alt. 1. (1821) p. 73 et ejusd. H. Berol. (1827) p. 95.

Chaeturus divaricatus DC. Cat. Hort. Monsp. (1813) p. 93? (ex Hort. Madrit. acc.) idem ac: *Agrostis divaricata* et *Mühlenbergia divaricata* Hortul. ex DC. l. c.

Patria latet. Anno 1811 ex horto Taurinensi s. n. Aristidae pallentis Horto Vindobonensi missa et e seminibus educata; etiam ex H. Berol. plantam juvenilem flaccidam panicula debili nutante vidimus, in qua pariter gluma inferior longior erat.

If we accept, that the name *Aristida Jacquiniana* given by TAUSCH is based on the *A. divaricata* JACQ., which is *A. adscensionis* L. (see my revision p. 149—150), we have to place TAUSCH's name as a synonym under *A. adscensionis* L.. But TAUSCH, who has not seen the specimen of JACQUIN, (JACQUIN described his species from a living plant, cultivated in the botanical garden at Vienna, a plant not preserved in his herbarium) described a plant he erroneously identified with JACQUIN's description and plate. TAUSCH has not copied JACQUIN's description, but he has given a rather short but good diagnosis of his own, a diagnosis demonstrating that he had quite a different plant before him. From this description it is at once clear that he described a member of the true „*divaricata* group”. The effuse panicle with long spreading remote branches, the aristate glumes, the „trifid” awns with very unequal branches and the blades bearded at the mouth, are characters widely different from those of the *A. adscensionis* L.. TAUSCH described the plant called at that time *Aristida pallens* in different botanical gardens and we find his species in old herbaria (Herb. PERSOON, Herb. SCHRADER). The description given by TRINIUS and RUPRECHT in the year 1842 perfectly agrees with the diagnosis from the year 1836 but the notes following the description of the monographers are incorrect on account of the wrong interpretation of WILLDENOW's and HUMBOLDT's *Aristida divaricata*. Because the „description” given by TAUSCH prevails, we have to accept the name of *Aristida Jacquiniana* for the species, allied to *Aristida laxa* CAV. (= *A. spadicea* H. B. K.), having an inverse position of the glumes, a long, twisted column etc., see the characters given in my figure.



ARISTIDA JACQUINIANA
Tausch.

From a cultivated specimen in
the Persoon Herbarium.

Aristida Jacquiniiana is a rare species, observed from Mexico to Ecuador. I received some recently collected specimens from the U. S. Nat. Herbarium, through the kindness of Mrs. AGNES CHASE; the specimens are labeled *Aristida spadicea* H. B. K. collected by D. GRIFFITHS; Jalisco, Guadalajara, 9. 12. 05 n° 8132. The specimens perfectly agree with the type of *A. Jacquiniiana*, they are not mentioned in HITCHCOCK's Revision of the genus *Aristida*.

***Aristida Jacquiniiana* Tausch.**

var. *Durandii* Trin. et Rupr.

TRINIUS et RUPRECHT; Spec. Gram. Stipac. loc. cit. pag. 120!

β. *Durandii* (*A. pallescens* Durand in Hb. Mertens!) gluma superior tantum 4—5 linealis inferiorem subaequans et radii densius floriferi.

The type is in the Mertens Herbarium (Herbarium of the Botanical Garden at Leningrad). The description is too short for identification, although the densely flowered branches and the less pronounced inverse position of the glumes point to *A. Lagascae*. The upper glume is given as 10—12 mm. long, this is in accordance with LAGASCA's plant. I hope to give additional notes afterwards, when I have seen the other *Aristidas* from the Leningrad Herbarium.

***Aristida Jacquiniiana* Tausch.**

var. *subaequilonga* Henrard

nov. var.

Differt a typo aristae setis subaequilongis; intermedia 17—22 mm. circa longa, laterales paulo (circa 5 mm.) breviores, vulgo 12—16 mm. longae, columna (in planta juvenili!) brevior. In planta typica arista centralis circa 10 mm. tantum longa, laterales 5—6 mm. longae, columna si bene evoluta (adulte) 8—9 mm. longa.

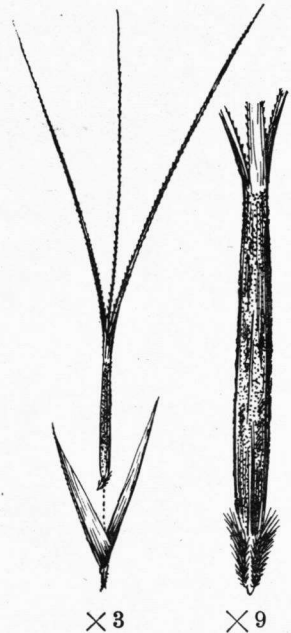
Mexico: Jalisco, Zapotlán, alt. 5000 ped. Sept. 1910, leg. A. S. HITCHCOCK n°. 7112. Typus in Herb. Lugd. Batav. sub. no. 922. 342—356.

***Aristida jerichoensis* Domin**

nov. spec.

(Sect. *Chaetaria*.) Perennis, dense caespitosa. *Culmi* simplices, stricte erecti, interdum e nodis inferioribus ramosi, cum paniculis circa

60 cm. alti, paucinodes, teretes, substriati, scaberuli, infra nodos glabros subpruinosi; *vaginae* internodiis breviores, carinato-striatae, arctae vel interdum apice hiantes, laeves; *ligula* abbreviata, breviter ciliolulata, auriculae praesertim foliorum innovationum longe barbatae; *laminae* inferne subplanae, 1—1½ mm. latae, 10—15 cm. longae, superne convolutae, sensim longe setaceo-acuminatae, subtus laeves, supra scaberulae; *panicula* longe exserta, circa 20 cm. longa, contracta sed haud spiciformis, subinterrupta, subdensiflora, rhachi inferne laevi, teretiuscula, superne subangulosa, scaberula, ramis binis vel in parte supremo solitariis, stricte erectis, appressis, inferne longe nudis, altero brevior, 4—5 cm. longo, altero interdum 9—10 cm. longo, vulgo 5—6 cm. longo, spiculis arcte appressis imbricatis breviter pedicellatis, pedicellis subclavatis; *spiculae* stramineo-fuscae vel flavo-brunneae, *glumae* inaequales, uninerves, integrae, acuminatae, aristulatae, gluma I. 6,5 mm. longa, carina scabra, gluma II. 8 mm. longa, carina laevis, *gluma* III. *fertilis* trinervis, dorso subcarinata, leviter punctata, nigro-maculata, ventre sulcata, marginibus involutis, callo acuto, dense barbato, circa 1 mm. longo, 5,5 mm. longa, articulatio deest; aristae inferne applanatae, scaberrimae, suberectae, subaequilongae, centralis circa 16 mm. longa, laterales ad 14 mm. longae. Palea minuta.



× 3 × 9
ARISTIDA
JERICHOENSIS Domin.
From type specimen.

Queensland: Dividing Range prope Jericho, leg. Dr. K. DOMIN, III. 1910. Typus speciei in Herb. Domin, Praga.

Aristida jorullensis Kunth.

CHARLES SIGISMOND KUNTH; Révision des Graminées dans les Nova Genera et Species plantarum de Humboldt et Bonpland, Paris. [1829] Tom. I. p. 62!

= *Streptachne pilosa* HUMBOLDT, BONPLAND et KUNTH, Nova Genera et Species Plantarum. Tom. I. [1815] p. 124!

S. panicula subsecunda, ramis geminis, scabris, pilisque raris ob-
 sitis; rhachi glabriuscula.

Crescit cum praecedente (i. e. *S. scabra*); *item in planitie calidissima Mexicana, Playas de Jorullo, alt. 400 hexap.* ♀ Floret Septembri.

RADIX fibrosa, fibrillis crassis, glabris. CULMI caespitosi, erecti, pedales aut bipedales, simplices, compressiusculi, glabri, inferne purpurascentes. NODI glabri. FOLIA lineari-setacea, convoluta, rigida, glabra, apice scabriuscula, interne pilis sparsis obsita. VAGINAE striatae, glabrae, margine subciliatae.

LIGULA brevissima, ciliato-fimbriata. PANICULA simplex, subsecunda, tri- aut quadripollicaris, ramis geminis, distantibus, subsecundis, scabris, pilisque obsitis. RHACHIS triquetra, glabriuscula. GLUMAE lineares, membranaceae, carinatae, brevissime aristatae, glabrae, dorso scabrae, apiceque pilis sparsis obsitae, purpurascentes. PALEAE ut in praecedente.



ARISTIDA JORULLENSIS Kunth.

From type specimen.

The type in the Jardin des Plantes at Paris, was received for study from Prof. H. LECOMTE. The sheet is labeled: „*Streptachne pilosa* H B K. Jorullo. Bonpland.” The 4 specimens on the sheet are well-developed annual plants, characterized by the spreading hairs on the branchlets and pedicels. In the description the glumes are given as „apice pilis sparsis obsitae”, this is indeed the case, but some of the plants on the sheet have pubescent glumes without the long hairs at the tip. So far

as I have seen specimens, I observed, that plants with long hairs on the glumes are rare and I have therefore figured a group of spikelets from a specimen on the sheet, without the hairs. It is noteworthy that *Aristida jorullensis* is a species with very distinct inverse position of the glumes, with exception of the less-developed lateral spikelets, where the glumes are nearly equal. This striking

difference I found in all the specimens I could examine, it is an essential character of the species.

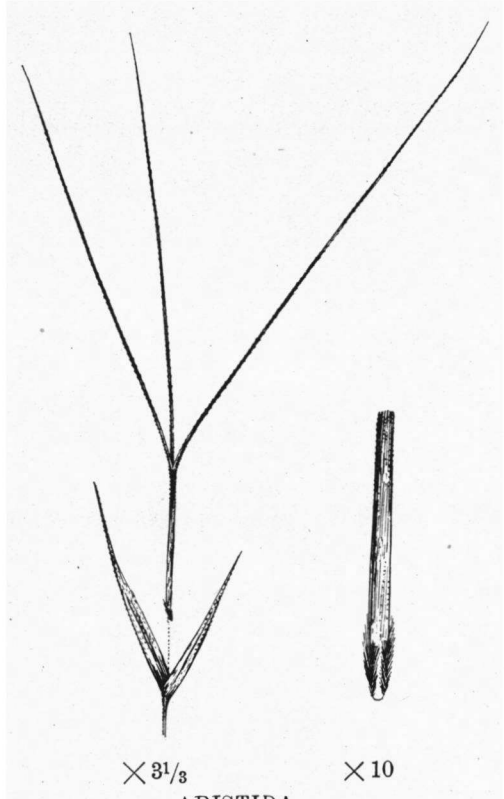
***Aristida junciformis* Trin. et Ruprecht.**

Species Graminum Stipaceorum, loc. cit. [1842] pag. 143!

Paniculae 5 pollicaris, *lucidulae, subeffusae, pyramidatae*, basi demum exsertae radiis pluribus superne floriferis: inferiorum longioribus 1—2 pollicaribus, patentibus l. erectis; glumis inaequalibus, scabris, pallidis: superiore $3\frac{1}{2}$ lineali, acuminatissima, inferiorem longe cuspidatam lineâ superante; flosculo *bilineali*, minutissime scabro, apice non torto neque articulato; setis parum inaequalibus, patentibus, media 8 lineali.

Africa australis. (N. E.!)

Culmus sesquipedalis, stricte erectus, simplex, infra nodos valde compressus, uti tota planta stramineo-flavescens. *Vaginae* internodiis longiores, infimae dorso sparse pilosae et in folium vix productae; ore glabrae. *Ligula* nulla. *Folia* longissima (etiam subradicalia) paniculam aequantia, filiformi-convoluta, rigida, erecta, apice pungentia. *Panicula* junior e medio vaginae erumpens, adultior ad interstitium tripollicare exserta. Cum nulla nisi A. Adscensionis fors comparanda.



ARISTIDA
JUNCIFORMIS Trin. et Ruprecht.
From type specimen.

The type specimen in the Trinius Herbarium was received from NEES; DRÈGE, the collector, has not indicated the locality. The Russian monographers compare the species with *A. adscensionis*, which however abundantly differs. The culms are compressed below

the nodes, the glumes are very unequal and acute, awned, 1-nerved, generally with faint lateral nerves and scaberulous upwards, the lemma is glabrous and not beaked or twisted. The species is allied to *A. Welwitschii* RENDLE, which differs in the different shape of the panicle, in the well-developed twisted column, exserted lemma and in the culm which is not compressed below the nodes.

***Aristida Karwinskiana* Trin. et Ruprecht.**

Spec. Graminum Stipaceorum, loc. cit. pag. 121!

Paniculae circiter pedalis, longe exsertae, lucidae radiis pluribus



ARISTIDA KARWINSKIANA
Trin. et Ruprecht.

From duplicate type specimen.

l. solitariis jam a basi divisis, patentibus, secundis, 4 pollicaribus, a basi l. paullo supra basin flori-feris; glumis subaequalibus, breve cuspidatis, purpurascens, 3—3½ linealibus; flosculo glabro, maculato, apice in stipitem longum *subgeniculatum et tortum* attenuato; subsexlineali; setis lateralibus erectis, media 5—6 lineali *plus duplo* brevioribus.

Mexico. (L. B. Karwinsky!)

Culmi pars suppetens panícula non computata sesquipedalis, stricte erecta, nodis glabris circumcirca sulcatis. *Vaginae* internodiis quidpiam breviores, glabrae, ore pilosiusculae, penultima nodum superans. *Ligula* subnulla. *Folia* erecta, superiora adhuc pedalia et longiora, planiuscula et basi lineam lata, superne complicata, ceterum intus versus ligulam sparse pilosa. *Paniculae* fasciculi per spatia 1½—2 pollicaria inter se distantes. Ab *A. spadicea* HBK. diversa videtur: panícula longiore, glumis subaequalibus, flosculo glabro et seta intermedia flosculum aequante.

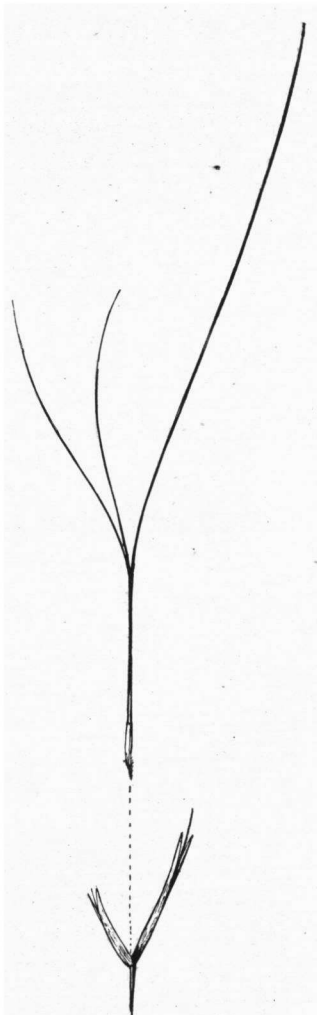
Note: = *Aristida laxa* Cav. var. *Karwinskiana* (Trin. et Rupr.) Henrard.

The type in the Trinius Herbarium is labeled: „in imperio Mexicano, Karwinski”, TRINIUS received the plant from ZUCCARINI. The specimen is imperfect, lacking the base. There is a duplicate in the Vienna Herbarium labeled by RUPRECHT. The specimens have a rather long panicle, the glumes are somewhat unequal, acuminate, the lower 7—8, the upper about 9 mm. long, the lemma is shorter than the upper glume, about 6—7 mm. long, extending upwards into a strongly twisted about 6 mm. long column, the awns are very unequal, the central is about 1,5 cm. long, the lateral ones are much shorter, about 3 mm. long, or very short. TRINIUS compared the species with *A. spadicea* H. B. K., a species he has not seen. In *A. spadicea* the lateral awns are about half as long as the central one, sometimes still shorter and the central awn is as long as the lemma including the column. We cannot find other differences between this species and the species previously described by CAVANILLES, we must accept this plant as a short-awned variety of *A. laxa*. See afterwards my critical observations under *A. laxa*.

Aristida Kelleri Hackel.

ED. HACKEL, ap. H. SCHINZ; Beiträge zur Kenntnis der Afrikanischen Flora (Neue Folge) XII, in Mémoires de l'Herbier Boissier no. 20. [1900] p. 8!

Perennis. Culmus erectus filiformis simplex v. e. nodo summo ramum floriferum edens, ad apicem usque foliatus, glaberimus, 20—30 cm altus. Foliorum vaginæ internodiis breviores, ligula brevissima, ciliolata, laminæ convoluto-setaceæ sensim



× 2

ARISTIDA
KELLERI Hackel.

From type specimen.

acutatae, praeter marginem scabrum glaberrimae. Panicula spiciformis, ovali-oblonga, 1,5:3 cm, densissima rhachi glabra, ramis brevissimis, appressis, 3—5nis; spiculæ in ramulis dense fasciculatae breviter pedicellatae, lineari-lanceolatae, pallidæ: glumæ steriles inæquales, I 6 mm, II 10 mm lg, lineares, breviter bidentatae, interdentes mucronem v. (II^{da}) setam brevem exserentes, uninerves, scabrae. Gluma fertilis lanceolata, 3 mm lg., basi in callum acutum curvulum contracta, in $\frac{1}{3}$ inferiore dense sericeo-barbata, pilis sursum accrescentibus, ceterum glabra, laevis, apice cum aristæ stipite tubuloso articulata, aristæ tenuissimæ stipes 1 cm longus laxè tortus scaber, rami capillares erecti, scabri, medius circ. 4 cm, laterales 2 cm longi.

Somal-Land: Ogadeensteppe, Keller.

Affinis *A. hordeaceæ* Kunth, quæ differt aristæ stipite haud torto, ramis subæqualibus circ. 1,5 cm longis. *A. Steudeliana* Hochst. differt insuper foliis planis.

This very remarkable species belongs to the section *Arthratherum* REICHB.. The type specimen in the Zurich Herbarium, I could examine through the courtesy of Prof. SCHINZ. There is a duplicate in HACKEL's Herbarium at Vienna, the sheet is stamped with the number 15572.

Aristida Kerstingii Pilger.

ROB. PILGER; Gramineae africanae. IV, in ENGLER, Botanische Jahrbücher etc. XXXIV. [1904] pag. 127!

Annua, culmis tenuibus, modice elatis; foliis ad culmum circ. 5, apicem culmi versus circ. ad mediam longitudinem decrescentibus, lamina angustissime filiformi-involuta erecta, extus glabra, laevi, intus et margine scaberula, basin versus pilis nonnullis longis instructa, ligula brevissima, fere nulla, vagina angusta, glabra, laevi; panicula angusta, dense spiciformi; spiculis ad rhachin scabram brevissime pedicellatis, plerumque geminis, spiculis paniculae inferioribus haud evolutis; glumis vacuis anguste subulatis, longe setoso-attenuatis, 1-nerviis, inferiore brevior, ad nervum scabra; gluma florifera convoluta, leviter asperula, cum arista articulata, callo parce albido-barbato, aristae tripartitae columna elongata, torta, sparse hirsuta, subulis elongatis, scabris, media laterales parum superante:

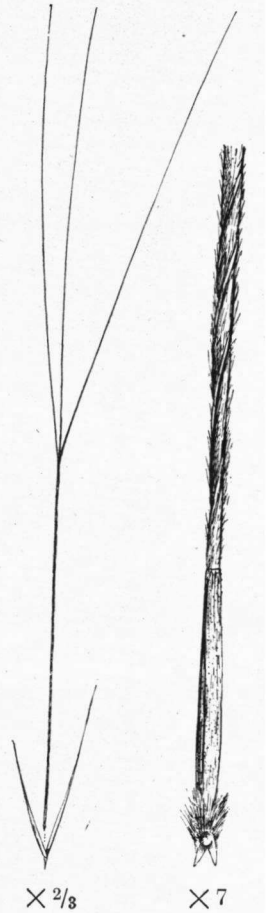
Der zierliche Halm ist 50—70 cm. hoch; die unteren Blattspreiten sind bis

circa 20 cm lang, die dichte, ährenförmige Rispe ist mit den Grannen circa 20 cm lang; die Ährchen stehen meist zu zweit an einem äußerst kurzen gemeinsamen Stiele an der Rhachis; die Hüllspelzen sind 2,5 und 3,5—3,7 cm lang, in eine feine grannenartige Spitze verschmälert; die Deckspelze ist 5—6 mm lang, ihr Callus 1 mm; an gut ausgebildeten Ährchen ist der Fusz der Granne, der in engen Spiralwindungen gedreht ist, 6—6½ cm lang, meist sind aber bei den vorliegenden Exemplaren die Ährchen nicht gut ausgebildet, in allen Teilen kleiner; die mittlere Granne ist 11 cm lang, die seitlichen, die auch etwas ungleich sind, 9—9½ cm.

Westafrika: Togo; Sokodo-Basari, 250 m. ü. M. bei Koukomba in einzelnen Büschen (KERSTING n. 541. — Blühend im September 1902); Benue (FLEGEL).

Die neue Art gehört in die Verwandtschaft von *A. longiflora* Schum. et Thonn. (*A. leiocalycina* Trin.), ist aber ausgezeichnet durch sehr lange Grannen mit stark gedrehtem, behaartem Fusz und durch lange, lang gespitze Hüllspelzen.

One of the most striking species of our genus, accurately described by Prof. PILGER. This delicate annual plant is at once to recognize by the long, densely hairy column and the extraordinary shape of the callus, having a deeply bifid prolongation, the long lobes acute and glabrous throughout, the true callus densely bearded. This character was not mentioned by PILGER in his description because the type specimens are somewhat immature and if we try to open a spikelet the lower part of the callus easily breaks off and the callus is overlooked. In quite mature specimens (f. i. those collected by CHEVALIER in French Sudan) the curious shape of the callus is visible with the naked eye. I observed this character as I studied CHEVALIER's specimens, but an accurate examination of the type in the Berlin Herbarium (dissection of a spikelet under the binocular) demonstrated quite the same character.



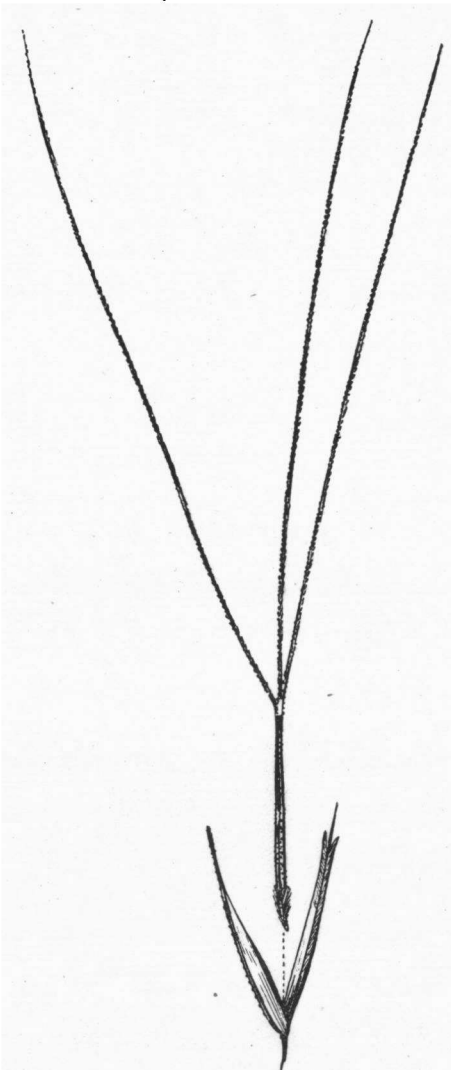
× 2/3 × 7
ARISTIDA
KERSTINGII Pilger.
From type specimen.

***Aristida kordofana* Mez.**

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 150!

Perennis, valida. Vaginae culmi quam internodia multo breviores,

glabrae; ligulae in pilorum longiusculorum comam mutatae nec margine barbatae; laminae crasse setaceae, glabrae. Culmi glabri. Inflorescentia submultiflora, dense spiciformis, tenuiter cylindrica; ramulis stricte erectis, vix ultra 20 mm longis, a basi paucispiculatis; pedicellis lateralibus vix ultra 6 mm longis. Glumae lanceolatae, juxta setam terminalem longiusculam optime auriculatae, 1-nerviae, inferior ad 17, superior ad 26 mm longa. Paleae non nisi perjuvenilis cognitae setae nudae, ad 50 mm longae. — Kordofan (Pfund).



× 4

ARISTIDA KUNTHIANA Trin. et Rupr.
From type locality (Perrottet no. 72).

Because the species was described from an immature specimen, we cannot recognize it, I tried in vain to get the plant for study, Prof. MEZ has not yet returned the plant to the Berlin Herbarium. From the locality and from the characters given by MEZ, I suppose however that the plant is a young specimen of *A. pallida* STEUD. (= *A. Sieberiana* β *nubica* TRIN. et RUPR.) or belongs to *A. longiflora* SCHUM. (= *A. leiocalycina*.)

Aristida Kunthiana
Trin. et Rupr.

Species Graminum Stipaceorum, loc. cit. pag. 151!

Paniculae 2—3 pollicaris, fasciculiflorae, basi demum exsertae radiis solitariis, patulis, sesquipollicaribus, basi nudis, a medio l. infra medium dense floriferis; glumis aequalibus, (2—)3 linealibus, apice bidentatis, superiore glabra, apice breve mucronata, inferiore (subulo apicali non computato) brevior, longius cuspidato, scabro; flosculo $2\frac{1}{2}$ lineali, glumis brevior, angu-

stissime cylindraco, minutissime scabro, apice *non torto*, sed cum basi aristae *facile solubilis* articulatum conjuncto; setis subaequalibus, erecto-patentibus, 5—6 linealibus.

Senegal: prope Richard-Tol. (Lelievre in Hb. Kunth!)

Culmus decumbens, fere pedalis, tenuis, filiformis, ad nodos fasciculato- et contracto-ramosus, ramis iterum fasciculato- et florifero-ramosis. *Vaginae* glabrae. *Ligula* brevissima, ciliaris. *Folia* 1—2 pollicaria et breviora, compresso-convoluta, glabra, angustissima. Habitus plane idem ac *A. mutabilis*.

A very rare species; from the description given by TRINIUS and RUPRECHT, we find already that we have here a very distinct species before us, the characters are accurately indicated by the monographers. The true articulation between lemma and awns and the absence of a column, are together with the equal glumes and the vegetative characters of the species very striking. As already observed by TRINIUS and RUPRECHT, the species has quite the habit of *A. mutabilis*, which belongs to the section *Pseudarthratherum*. The type is indicated as Lelievre in Herb. Kunth. I have not seen the plant in the Kunth Herb. at Berlin, I have hitherto studied only a single specimen in the Berlin Herbarium from the type locality Senegal, collected by PERROTTET no. 72.

Aristida laevis (Nees) Kunth.

CARL. SIGISMUND KUNTH; Enumeratio Plantarum, Agrostographia Synoptica, Tom. I. [1833] p. 192!

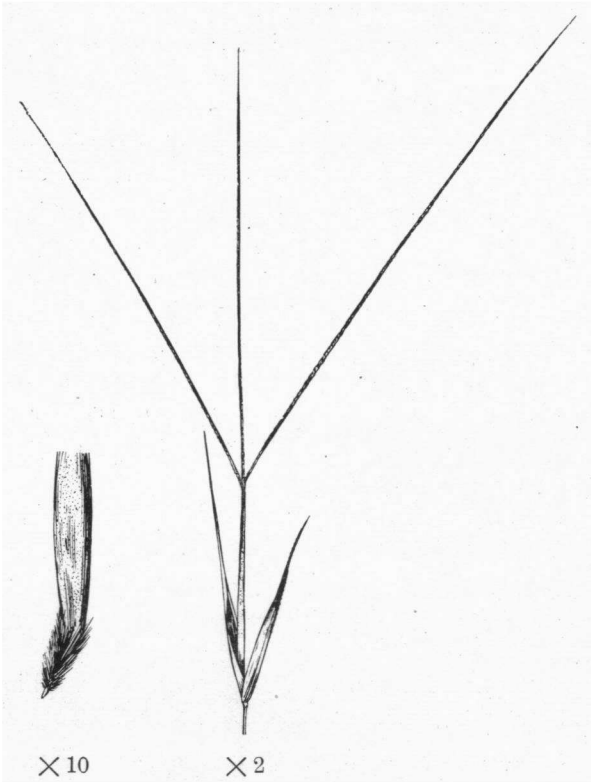
= *Chaetaria laevis* NEES AB ESENBECK; Agrostologia Brasiliensis etc. l.c. [1829] p. 384!

Description given by Nees:

Ch. culmo simplici foliisque linearibus, elongatis laevissimis, vaginarum collo subciliato, paniculae erectae contractae ramis solitariis racemoso-compositis, glumis subulatis inaequalibus, superiore flosculum parum superante, setis subaequalibus divergentibus, media flosculum triplo superante.

Caudex aliquot unciarum, crassitie pennae anserinae, subcompressus, confertim annulatus, vaginarum residuis exasperatus, lutescens, abiens in culmorum fasciculum; fibrae radicales firmae, flexuosae, albae.

Culmus (in nostris) simplex, 2—2½ pedes altus, gracilis, in juventute vaginis tectus, demum apice longo spatio nudus, inferne convexo-planus et saepe amethystinus, superne teres, striatus, glaucescens, totus laevis. Vaginae internodiis longiores, arctae, striatae, glabrae, apice truncatae et paucis ciliis erectis annuloque infra folii insertionem subcalloso praeditae e glauco coerulescentes. Ligula brevissima, lineari-transversa, integra, glabra. Folia inferiora elongata,



ARISTIDA LAEVIS (Nees) Kunth.
From type specimen.

bipedalia fere, lineam lata, linearia, plana, firma, neque vero stricta, subtilissime striata, glaberrima et laevia; superiora angustiora, breviora, hemicylindrica. Panícula 5—6 pollices longa, erecta, contracta, aequalis. Rachis communis inferne teres, superne compressiuscula atque scabriuscula. Rami biunciales, alterni, compressi, scabri, culmo appressi, basi nudi, superne dense racematim divisi: inferior basi squamula suffultus. Ramuli breves, alterni, solitarii, approximati, appressi, compressi et scabri, subfasciculatim di-

visi. Pedicelli lineam circiter longi, compressi, scabri, saepe amethystini. Spiculae lanceolatae. Glumae lanceolato-subulatae, apice convolutae, purpurascens, uninerves: inferior 4—4¼ lineas longa, carinata, carina scabra; superior 6—6½ lineas longa, convexa, laevissima. Flosculus 5¼—5½ lineas longus, subulatus, laeviusculus, basi strigosus, pallidus rariusve apice purpurascens. Setae recta divergentes, scabrae, basi coerulescentes, apice lutescentes: media 15 lineas longa, lateralibus una alterave linea brevioribus.

Habitat inter Monte-Video et flumen Rio grande do Sul dictum, circa fines regni Paraguayan. ♀. (Sellow. — Vidi in *Herb. Reg. Berol.*)

Observ. Media quasi haec est inter *Chaetariam pallentem*, et *Ch. spadiceam*, attamen species habenda optime distincta.

On pag. 110 of this revision I have already observed that *A. laevis* Kunth, based on *Chaetaria laevis* NEES, described in the year 1829, is the same species as *A. complanata* TRINIUS¹⁾. Because the species was published by NEES some months earlier, we have to accept the name *Chaetaria laevis*, which becomes *Aristida laevis* KUNTH.

The type in the Berlin Herbarium kindly received from Prof. R. PILGER, bears the name in NEES' hand, without indication of the locality, an accompanying small label bears the number 1638. Duplicates of the type I have seen in different other herbaria, generally bearing a label with the locality: Brasilia meridionalis, and the collector Sellow.

The species is hitherto known from Rio Grande do Sul, Misiones and Paraguay.

Aristida Lagascae Henrard.

nov. spec.

(Sect. *Chaetaria*). Perennis, caespitosa. *Culmi* erecti, cum panicula 70 cm. vel plus alti, teretes, striati, praesertim infra paniculam hirtelli vel subpubescentes; *vaginae* arctae, striatae, scaberulae, internodiis longiores; *laminae* planae saltem in parte inferiore, superne subconvolutae, longe acuminatae, 30 cm. vel plus longae, 1—3 mm. latae, utrinque subpubescentes vel hirtellae vel subtus glabrescentes, marginibus subincrassatis; *ligula* minima, minutissime ciliolata, auriculae et collum barbatae; *panicula* magna, 40 cm. vel plus longa, subcontracta vel subeffusa, demum patentissima, rhachi teretiuscula, pubescente saltem in parte inferiore ad nodos incrassata hirtella, ramis binis vel superne singulis vel subsingulis, subpatentibus vel suberectis, demum divaricatis, 20—25 cm. longis, superioribus sensim decrescentibus, basi longe nudis; *spiculae* fasciculatae in apice ramorum ramulorumque dense congestae, brevissime pedicellatae vel fere sessiles, pedicellis apice leviter incrassatis; *glumae* inaequales,

¹⁾ Mém. Acad. St. Pétersb. VI. Math. Phys. Nat. 1: 1830. January is given on the original wrapper as the month of publication (A. CHASE, communication by letter 23. June, 1926).

acutae vel inferior brevissime aristata, gluma I. lanceolata, in spiculis bene evolutis 3-nervis, nervis lateralibus haud excurrentibus, carina scabra, tota superficie minutissime scaberula, circa 13 mm. longa, gluma II. angustior et brevior, carina laevis, tantum 10 mm. longa, gluma III. *fertilis* fusiformis, inferne laevis vel minutissime punctulata, superne scaberrima, callo obtuso dense et longe barbato, circa 1 mm. longo, 7—8 mm. longa, sensim in columnam scaberrimam valde tortam, circa 4 mm. longam abiens; aristae scaberrimae, valde inaequales, centralis erecto-patens, circa 10—12 mm. longa, laterales multo minores, suberectae, circa 3—4 mm. longae.

Mexico: loco non indicato. Typus speciei in Herb. Monacense no. 4756, e Nova Hispania attulit SÈSSÈ, sub nom. *Aristida divaricata* LAGASCA, communicavit LAGASCA.

• Huc pertinet: PRINGLE. PLANTAE MEXICANAE no. 6544, Federal District, Valley of Mexico, Pedrigal, 7500 ft. 2. Octob. 1896.

A figure of the spikelet, illustrating the characters is already given on pag. 151 of this revision, see also my observations under *Aristida divaricata* LAGASCA. The species is most allied to *Aristida laxa* CAV. (= *A. spadicea* H. B. K.) but quite distinct by the different characters given in my description. Another allied species is *Aristida Jacquiniana* TAUSCH, a species with the same inverse position of the glumes. The latter has however a different habit, constantly 1-nerved glumes, the upper with a bifid apex and an awn from the sinus, a much longer column and a central awn half as long as the total length of lemma and column.

Aristida Lamarekii Steudel.

ERNEST THEOPH. STEUDEL; Nomenclator Botanicus. Ed. 1. [1821] p. 69!

= *Chaetaria Lamarekii* ROEMER et SCHULTES; Systema Vegetabilium, Vol. II. [1817] p. 393!

Paniculâ compositâ effusâ capillaceâ; calycibus unifloris, aristâ trifidâ praelongâ laevi. *ARISTIDA stipiformis* Lam. *Illustr.* n. 781. *Poir. Enc. meth. Suppl.* l. p. 452.

Similis *STIPAE junceae*. Culmi alti glabri cylindrici ad articulos nigri, paniculâ amplâ longissimâ, ramis fere verticillatis geminis ternis glabris laevibus longissimis, unifloris. Flosculi subulati angusti elongati saturate fusci; valvula calycis exterior angusta subulata, interior obtusa duplo brevior; corolla univalvis, (et *CHAETARIA*?) calyce brevior, basi villosa, aristis tribus tripollicaribus aequalibus caducis. Semina fusca. *Ad. Senegalium. Dupuis.*

Note: = *Aristida stipoides* Lamark.

The name *Aristida stipiformis* as given by POIRET, was not used by LAMARK. In the „Illustration des Genres” LAMARK has given a French text with the name *Aristide stipiforme*, but in the latin diagnosis he named the species *Aristida stipoides*. A new name, given by ROEMER and SCHULTES probably on account of BROWN's *A. stipoides* (from the year 1810), was not necessary because the name given by LAMARK from the year 1791 has priority.

The type of *Aristida Lamarckii* is the Dupuis specimen from Senegal, the actual type was not studied, but there is an authentic specimen in the Vahl Herbarium at Copenhagen. The type of *A. stipoides* in the Herb. of Lamark at Paris has the same bifid callus and agrees with the Dupuis specimen. TRINIUS and RUPRECHT described the species once more as *A. amplissima*, because they accepted LAMARK's plant as a doubtful and uncertain species. See my revision on p. 25—26.

Aristida lanata Forskål.

Flora Aegyptiaco-Arabica sive Descriptiones Plantarum, quas per Aegyptum inferiorem et Arabiam felicem detexit, illustravit Petrus Forskål. Hauniae. [1775] Centuria prima pag. 25!

87. ARISTIDA LANATA; *panicula ramosa; corollae arista media lanata.*

DESCR. *Folia* convoluta ad suturam rectam, figura filiformi; basi rima longe dehiscente in foliis antiquis; in junioribus tantum ad basin. *Aristae* laterales in medio villosae; in defloratis patentes; media arista valde lanata, basi nuda. *Culmi* ad genicula infima supra folium villosissimi.

Rosetae in arena mobili circa turrim Canope. In desertis quoque *Káhirinis* habitat. Arab. *Dhraeirae* vel *Sjaefsjuf*. Initio Martii floret.

Quum *Aristidae adscension.* arista est glabra, (quantum ego scio;) haec nostra distincta ab illa erit species; quamvis forma conveniat.

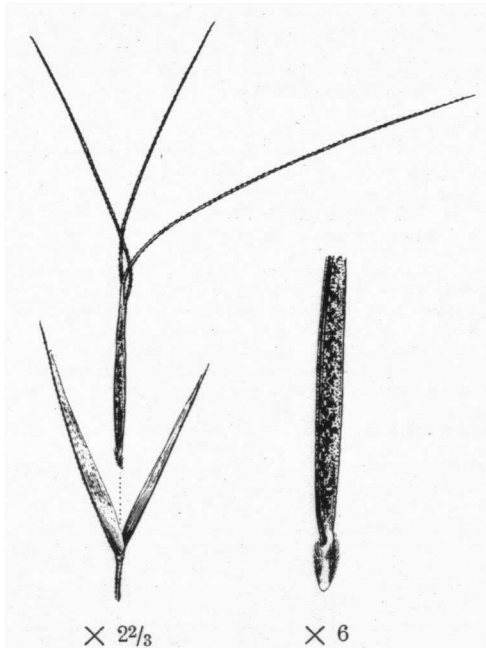
As already stated on pag. 186 of this revision, the species described by FORSKÅL is to recognize by some striking characters, accurately indicated in his description. A figure of the species is already given on pag. 185 of this revision. The actual type was not found in herbaria.

Aristida lanata Poiret.

J. L. M. POIRET; Encyclopédie Méthodique. Botanique par M. LAMARCK, de l'Institut de France; Supplément, Tome I. [1810] p. 453!

13. ARISTIDE laineuse. *Aristida lanata*.

Aristida foliis longissimis, scabris; vaginis lanatis; ramis paniculae elongatis, subverticillatis; pedunculis basi pilosis, aristis subaequalibus. (N.)



ARISTIDA LANATA Poiret.
From duplicate type specimen.

Ses tiges sont cylindriques, élevées, garnies de feuilles roides, très-longues, rudes sur leurs bords, étalées; leurs gaines striées, laineuses; la panicule allongée, médiocrement étalée; ses ramifications réunies deux par deux en verticille, médiocrement rameuses, resserrées en épi; le rachis, les pédoncules & les pédicelles très-rudes, accompagnés à leur base d'une petite touffe de poils blancs & laineux. Les fleurs sont étroites, subulées; les valves calicinales uniflores, glabres, très aiguës; l'extérieure plus longue, un peu purpurine; la valve de la corolle étroite, roulée à ses bords, plus courte que le calice, terminée par trois arêtes presque égales,

divergentes, presque deux fois aussi longues que la fleur; les semences grêles, allongées.

Cette plante à été recueillie par M. Bosc dans la Caroline. (*V. s. Comm. Bosc.*)

Note: = *Aristida lanosa* Muhlenberg.

The plant collected in South Carolina by Bosc, I have seen in many herbaria. A specimen in the Paris Herb. agrees perfectly with the duplicate type in the Vahl Herb. at Copenhagen. The

species is well-known and to recognize by the curious tuft of wool in the axils of the panicle-branches and by the inverse position of the glumes. On account of the earlier *A. lanata* FORSK., the name given by MUHLENBERG must be accepted for the species.

***Aristida lanipes* Mez.**

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 153!

Perennis, pulvinata, minuta. Vaginae foliorum rosulae densissime albo-lanatae; ligulae in pilorum brevium lanuginosorum comam mutatae; laminae recurvae, tenuiter subulatae. Culmi glabri. Inflorescentia ad 4-flora, laxe subspicata. Spiculae laterales fere sessiles, glaberrimae. Glumae apice acutiusculae et irregulariter denticulatae, 3-nerviae, subaequaliter ad 9 mm longae. Paleae unguis ad 2 mm longus; articulatio apicalis; rostrum ad 2 mm longum, tortum; seta media ad 15 mm longa, in parte superiore dense sed breviter albo-plumosa; setae laterales nudaе, ad 9 mm longae. — Südwest-Afrika Kuibis (Range).

Probably a distinct species of the section *Stipagrostis*, allied to *A. subacaulis* STEUD. and *A. Hermannii* MEZ. Although some striking characters are indicated (woolly sheaths, 4-flowered inflorescence) the description is too imperfect to recognize the plant. Through the unwillingness of Prof MEZ, I could not study the type. See my remarks on pag. 225 of this revision.

***Aristida lanosa* Muhlenberg.**

HENRICUS MUHLENBERG; Descriptio uberior Graminum et Plantarum Calamariarum Americae Septentrionalis indigenarum et cicurum. Philadelphiae, [1817] p. 174!

Culmo tripedali, compresso, nodis glabris. Foliis lineari-lanceolatis glaucis asperis, apice filamentosis nervosis. Ligula obsoleta. Vagina superne lanosa. Panicula contracta. Ramis paniculae solitariis remotis basi villosopilosis, pedicellis angulatis sub calice articulatis. Cal. 2-valvis inaequalis linearis carinatus mucronatus corolla paulo major. Cor. 1-valvis basi pubescens pedicellata atro-maculata scabra, aristis 3 terminalibus patulis inaequalibus scabris vel hispidis. Stam. Pist. Semen.

Habitat in Carolina.

Aristida lanosa was also published by ELLIOTT in his: A sketch of the botany of South-Carolina and Georgia, a work published in parts. The second part (pag. 97—222) was issued in February, 1817; the species was mentioned on pag. 143 of the work. No mention of this species is made by SCRIBNER and MERRILL (The grasses in the Herbarium of Dr. H. Muhlenberg, U. S. Dep Agr., Circular no. 27, Dec. 1900). ELLIOTT's plant in the Charleston Museum is accepted as the type. MUHLENBERG's description leaves no doubt as to the identity, as he mentions the villous axils of the panicle and the lanate sheaths. The glumes have an inverse position. See my figure under *Aristida lanata* POIRET.

***Aristida lanuginosa* Battandier et Trabut.**

Excursion botanique dans le Sud de la Province d'Oran, Bulletin de la Société Botanique de France, XXXV. [1888] p. 341! et 346!
Nomen nudum.

Flore de l'Algérie, Monocotylédones [1895] p. 159! (Descriptio).

Plante plus humble; chaumes de 15 cent.; feuilles, gaines et entre-noeuds inférieurs revêtus d'un indumentum régulier, blanc, laineux; arête grande, 45 millim.

Sud oranais: entre Aïn-Sefra et Si-Sliman.

Note: = *Aristida oranensis* Henrard.

TRABUT described in the year 1887 in Bull. Soc. Bot. France, XXXIV. p. 393 a variety *lanuginosa* of *Aristida plumosa* L., from Oran (Herb. Pomel). In the following year the plant was mentioned in the same Bulletin in a list of plants from Oran, without reference to the earlier valid publication of the variety. In the year 1895 *Aristida lanuginosa* was published with a very short description, not much differing from the description given in the year 1887.

In HACKEL's herbarium at Vienna there are beautiful specimens of this species. The sheet stamped no 22116 is accepted as the type, the label in TRABUT's handwriting bears a latin diagnosis: „*Aristida lanuginosa* sp. nov. foliis lanuginosis, glum. inf. ciliata, aristae parte indivisa 7 mm. longa, lacinia media vix a basi plumosa etc. no. 260, juin 1888. Aïn Sefra.” I found in HACKEL's herbarium a sheet stamped 22118 with a label by TRABUT: „*Aristida floccosa* Cosson Aïn Sefra avec l'*A. lanuginosa* sans aucun intermédiaire, alt. 1000 m. juin 1888 no. 261.” *Aristida floccosa* is only a slight variety

of *A. plumosa* as already indicated on pag. 183 of this revision. DURAND and SCHINZ, in their *Conspectus Florae Africae* Vol. V. [1894] p. 807, already placed COSSON's plant under *A. plumosa*. The variety mentioned in my revision on pag. 183 therefore bears the name: *A. plumosa* L. var. *floccosa* (COSS. et DUR.) DURAND et SCHINZ. *Aristida lanuginosa* TRAB. is a very distinct and characteristic species and TRABUT's observations given on the labels are very important. See afterwards my full description of the species under *A. oranensis*. The plant was edited also in Battandier and Trabut's *exsiccatae* under the number 489.

***Aristida lanuginosa* Burchell.**

WILLIAM J. BURCHELL; Travels in the interior of Southern Africa. London. Vol. II. [1824] p. 226!

Aristida (Arthratherum) lanuginosa. C. G. 1917.

Culmus solidus (perennans?). Folia linearia striata, (apice saepius pungente) vaginis extus lanuginosis. Panicula composita.

Note: = *Aristida vestita* Thunberg.

There is some uncertainty as to the question of the technical publication of the species in BURCHELL's account of travels. In his book, BURCHELL has given many names of new species, some of them are *nomina nuda*, but on pag. 226 we find a note with the data as given above. From the few characters the species is not to recognize. BURCHELL however indicated the section of the genus and the number of his *Catalogus Geographicus*, I have therefore accepted the publication as a valid one. The type was studied through the courtesy of Dr. A. W. HILL, Director of the Kew Herbarium.

On the sheet there are three specimens, the first plant (left-hand one) is the type, it bears a label with the number 1917, at Griqua Town Griqualand West, Hay Div. Dec. 1811. This plant has tomentose internodes, it agrees perfectly with the plant described as *Aristida flocciculmis* MEZ, both specimens are however not quite mature, but they agree also with the type of THUNBERG's *Aristida vestita*, which is a mature plant. The second plant on the sheet in the Kew Herb. has a printed label „Burchell. *Catalogus Geographicus Plantarum Africae Australis Extratropicae*. No. 1842, on which is written: „At Griqua Town Dec. 1. 1811“, this plant is the same species. The third specimen (right-hand one) has a written label

with the number 2038, Asbestos Mts. at the Kloof Village Griqualand West, Hay Div. Feb. 16. 1812, the internodes, obstructed by the sheaths, are woolly, the old ones have lost their tomentum. BURCHELL's statement that the sheaths are lanuginose is right, but the old sheaths become glabrous afterwards and the tomentum is to rub off easily.

***Aristida lanuginosa* Clarion,**

apud TRINIUS et RUPRECHT; Species Graminum Stipaceorum in Act. Academ. Imp. scient. Petrop. Ser. VI. Tom. V. [1842] p. 103!

ab *A. stricta* non diversa videtur. Vaginae glabrae; folia convoluta, sericeo-hirsuta, versus apicem glabra; panicula 8-pollicaris, radii pseudogemini: longiore 3-floro, versus insertionem sparse piloso; in reliquis specimini Michauxii simillima. (V. spec. Clar. ex Am. bor. in Hb Mertens. s. n. *A. lanuginosae* Bosc.)

Note: = *Aristida lanosa* Muhlenberg.

In the year 1836 TRINIUS mentioned the plant in a note following the description of *Aristida stricta* MICHX., in Graminum Supplementa (Mem. Acad. Imp. Pétersb. Tom. IV p. 46) as follows:

Obs. Planta foliis convolutis pubescentibus cl^o Bosc (in herb. Mertensii) dicitur *Ar. lanuginosa*. — Mühlenbergii gramen (Schult. Mant. 2, p. 210), cujus glumae flosculo multo breviores, seta intermedia longissima et panicula densa dicuntur, neutiquam huc referendum videtur.

Aristida lanuginosa Bosc was only a herbarium name and although mentioned already in 1836 it is not technically published, whereas the publication in the year 1842 is a valid one. It is however of no importance to discuss these questions, because the species was previously described as *A. lanosa* MUHL. in the year 1817; moreover there is also an *A. lanuginosa* published by BURCHELL in the year 1824. It is very curious that TRINIUS has placed the plant under *A. stricta* MICHX., because BOSC's plant is easy to recognize by the peculiar tuft of wool in the axils of the panicle-branches and by the inverse position of the glumes.

***Aristida lanuginosa* Scribner,**

ap. A. S. HITCHCOCK; Mexican Grasses in the United States National Herbarium, Contributions from the U. S. Nat. Herbarium, Vol. XVII. [1913] p. 278!

Perennial; culms caespitose, about 1 meter high, erect, lanate-pubescent except in the region of the nodes, scabrous below the panicle; leaves mostly basal, the sheaths lanate-pubescent except above the nodes, this portion glabrous; ligule a ciliate-lanate ring; blades 10 to 25 cm. long, 1 to 2 mm. wide, ending in a long fine point, sparsely lanate-pubescent, the older culm blades flat and curled, the upper culm blades and those of the innovations involute; panicle 10 to 25 cm. long, narrow, the branches appressed, the lowermost as much as 10 cm. long, naked below, a short branchlet at base; spikelets on short appressed pedicels; glumes 1-nerved, acuminate or short-awned, sparsely lanate, scabrous on the keels, the lower 6 to 7 mm. long, the upper about 1 mm. longer; lemma smooth below except the short-pilose callus, scabrous above, tapering into a scabrous, slightly twisted neck, the entire length, including the neck, about 11 mm.; awns subequal, somewhat spreading, the central one about 15 mm. long, the lateral about 12 mm. long.

Type in the U. S. National Herbarium, no. 691230, collected on „Hills near Guadalajara, Jalisco,” Mexico, October 28, 1889, by C. G. Pringle (no. 2375). This species was distributed under this name but it had not been described.

RANGE: Pacific slope of Mexico. (DURANGO, JALISCO, MICHOACÁN).

Note: = *Aristida Scribneriana* Hitchcock.

The name of this characteristic species was changed by HITCHCOCK afterwards on account of the valid publication of *Aristida lanuginosa* CLARION. HITCHCOCK gives as the date of this publication: Steudel, Syn. Pl. Glum. I. (1854) p. 133, but *Aristida lanuginosa* CLARION was already published by TRINIUS and RUPRECHT in the year 1842 (Spec. Gram. l. c. p. 103!). There is however an earlier publication of an *Aristida lanuginosa* by BURCHELL in the year 1824. See this revision on pag. 287.

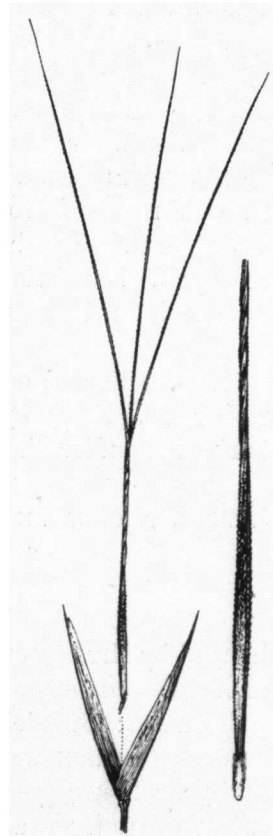
Aristida latifolia Domin.

Bibl. Bot. Heft 85I [1915] loc. cit. p. 339!

Dense caespitosa, multiculmis, robusta et valde elata, glabra et eximie glauca; *culmi* erecti, robusti, simplices, glabri, supra medium foliati, sine paniculis circa 5 dm alti; *folia* rigida, eximie glauca, glaberrima et tantum orificio ciliata; *laminae* longissimae, saepe plus

4 dm longae, planae et tantum apice setaceo-convolutae, prominule nervosae, glaberrimae, supra scabrae subtus laeves, 2—3 mm latae, primo erectae, postremo saepe curvato-contortae; *ligula* in ciliis densas, paulo plus 1 mm longas dissoluta; *panicula* angusta sed longissima (usque fere 5 dm longa), haud densa, pallida, ramosa, ramis inferioribus elongatis et ramulosis, multispiculatis sed erectis; *spiculae* pallidae, pro dimensionibus parvae; *glumae* subaequales, glabrae, praeter carinam enerves, scariosae, angustae, acuminatae et subaristulatae aristulataeve, circa 11—15 mm longae; *glumella* anguste convoluta, glabra, apice minutissime pilosula, circa 6 mm longa, breviter stipitata, stipite dense sericeo-villoso circa 0.75 mm longo; *aristae columna* spiraliter contorta sed cum *glumella* continua (haud distincte articulata), perbrevis, tantum circa 5 mm longa; *aristae rami* 3 subaequales, capillares, scaberuli, circa 2.5—3 cm longi.

Abbildung: Tafel XIII, Fig. 13, 14.



× $\frac{2}{3}$ × $\frac{6}{3}$
ARISTIDA LATIFOLIA
Domin.

From type specimen.

Queensland: bei Hughenden (DOMIN, III. 1910); Savannenwälder am Walsh River nördlich von Chillagoe (DOMIN, II. 1910); Grasflächen der Rolling Downs bei Winton (DOMIN, III. 1910).

Eine höchst charakteristische Art, die schon habituell von allen übrigen australischen *Aristida*-Spezies ganz verschieden ist. Im Aufbau der Ährchen steht sie der *A. arenaria* näher als der *A. stipoides*; ihre Granne löst sich zwar leicht von der Spitze der Deckspelze los und bricht auch daselbst ab, äusserlich ist aber auf dieser Stelle keine Gliederung wahrzunehmen.

The fact that a column breaks off at maturity is no argument for the presence of an articulation and otherwise, if there is a true articulation it may be that the awns are tardily disarticulating. DOMIN indicates that the column is continuous with the lemma but says moreover „not distinctly articulated”. See his observations in the German text. *A. latifolia* is a member of the subsection *Schoenatheron*. See *A. holathera* on pag. 240 of this revision.

The nearly equal glumes, the lemma, scabrous in the upper part and the flat glaucous leaves, are distinct characters to distinguish the plants. The specimens I found in the Australian collections I had at my disposal, agree in all the characters given by DOMIN; none of them have a true articulation and the column was always continuous with the lemma.

***Aristida laxa* Cavanilles.**

ANT. JOSEPHUS CAVANILLES; *Icones et Descriptiones Plantarum, quae aut sponte in Hispania crescunt, aut in hortis hospitantur. Matritum, Vol. V. [1799] p. 44! Tab. 470. Fig. 1!*

ARISTIDA panicula laxa; pedicellis nudis, elongatis, bifidis: spiculis terminalibus: aristis inferne contortis. Radices filiformes, fibrillis aliquot. Culmi fasciculati, simplices, bipedales, foliis duobus aut tribus. Folia convoluta subulata; radicalia fere pedem longa; reliqua culmum arcte vaginantia: vagina striata, glabra, sesquipollicaris, in folium soluta. Panicula pedem et amplius longa: ramuli distantes compressi, tenues, nudi, bifidi, spiculis pollicem et amplius longis terminati. Nutantibus?

Calicis valvulae fuscae, subulato-carinatae, subaequales. Corolla calice paulo brevior, basi dumtaxat villosa, apice terminata aristis tribus, inferiore parte in funiculum contortis, quarum intermedia duplo longior. Semina solitaria, teretia, oblonga, basi sulcata, rufa, nitida, valvula corollina arcte involuta tecta. Reliqua ut in praecedentibus.

Habitat prope Montevideo, et in insulis Philippicis, floretque Septembri. Vidi siccam ibidem.

Explic. tab. a Flos auctus. *b* Semen. *c* Idem auctum.

The species although accurately described and figured by CAVANILLES, was not recognized by agrostologists. TRINIUS and RUPRECHT mentioned the species in their *Species Graminum Stipaceorum* on pag. 143, but their diagnosis was taken from the figure and the description of CAVANILLES. They observe in a note: „Species Montevicensis vix eadem ac Philippinica; inter americanas *A. Jacquini* et *A. longiramea* iconi plantae Cavanillesianae proxime accedunt.” The localities given by CAVANILLES are certainly erroneous. A species agreeing with the description and with the plate was never found on the Philippine Islands or near Montevideo and NÉE collected the plant probably in Northern South America.

In this region the species is often collected, f. i. in Ecuador near Guayaquil and in the Andes of Quito by HUMBOLDT, SPRUCE and JAMESON. From CAVANILLES' description we learn that the panicle is long with distant, naked, very long branches, the spikelets (including the awns) are given as about $2\frac{1}{2}$ cm. long, hence the figure 1. on Tab. 470 is the natural size and the fig. a. is thrice enlarged. The glumes are described as subulate-acuminate, about equal, from the figure they are 10—11 mm. long, the lemma is shorter than the glumes, about 9 mm. long, the column of the awns is strongly twisted, about 7 mm. long, the awns are unequal, the central twice as long as the lateral ones, from the figure the central awn is about 12 mm. long and the lateral ones are scarcely 4 mm. long. All these characters are in accordance with *A. spadicea* H. B. K., described in the year 1816. The species is a Central American one, extending from Mexico to Columbia and Ecuador. With scarcely room for doubt, *A. spadicea* H. B. K. is the same plant, as indicated by CAVANILLES' detailed description and figure. See afterwards under *A. spadicea*.

***Aristida laxa* Trinius.**

C. B. TRINIUS; Graminum Genera in Mém. Acad. Imp. des sciences de St. Petersb. Série VI. Tom. I. [1829] p. 85! non CAVANILLES.

Panicula (demum) laxa; Glumis acutissimis: superiore duplo longiori, perianthio 5-lineali parum breviori; Aristae laciniis lateralibus brevissimis, media valvulae longitudinem paulo excedente.

V. spp. Bras.

Culmus perbrevis sustinet paniculam compositam e radiis aequissimis, tenuissimis et subcapillaribus, erectis, levissimo impulsu vacillantibus.

Note: = *Aristida flaccida* Trin. et Ruprecht.

The type is Riedel from Capanéma in the Trinius Herbarium. The species is at once to recognize by the very distinct habit and the extraordinarily long pedicels. For the characters of the spikelet, see this Revision on pag. 179.

***Aristida Leichhardtiana* Domin.**

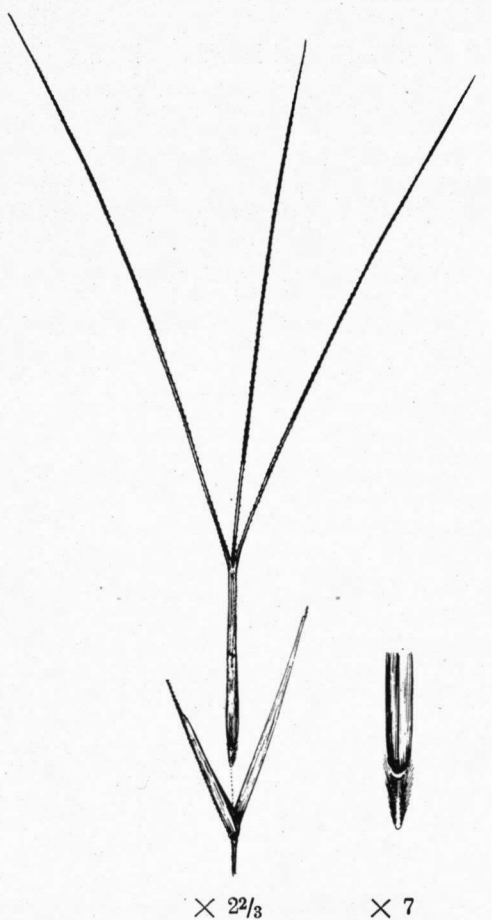
K. DOMIN; First Contribution to the Flora of Australia, in FEDDE; Repertorium specierum novarum regni vegetabilis, IX [1911] p. 551!

Perennis caespitosaque, culmis cum panicula ca. 4 dm altis supra medium foliatis, foliis perangustis apice subulatis convolutis vel subplanis unacum vaginis glabris. Panicula laxa brevi lataque cum aristis in circuitu orbiculari-ovoidea ca. 10 cm longa et basi 9 cm lata. Ramis paniculae spiculas haud numerosas gerentibus subflexuoso-divaricatis (horizontaliter patentibus). Spiculis sine aristis ca. 1 cm longis, glumis coloratis membranaceis linearibus glabris valde inaequalibus, longiore aristato-acuminata ca. 10–10½ mm longa altera tantum ca. 5½–6½ mm longa, glumella laevi glabra ca. 10 mm longa, aristis capillaribus ca. 2½–3 cm longis.

Queensland: Dry-beef Creek, coll. Leichhardt.

BENTHAM (Fl. Austral., VII, 563) placed this plant as a doubtful variety of *Ar. ramosa* R. BR. (var.? *leptathera* Benth.), but it has not only a quite different panicle and much smaller spikelets and shorter awns, but also nearly equal outer glumes.

This new species appears to me to be closely allied with *Ar. Behriana* F. von Muell., which, of course, is easily distinguished by dense panicle nearly as broad as it is long. *Ar. Behriana* was recorded for Queensland by MUELLER, but neither F. M. BAILEY nor I saw a single Queensland specimen of this remarkable plant.



ARISTIDA LEICHHARDTIANA Domin.

From type specimen.

The type in the Kew Herbarium, kindly received for study through the courtesy of Dr. A. W. HILL, is labeled: „Herb. F. MUELLER, 1877. *Aristida ramosa* Br.? var. *leptathera*. Drybeef Creek. Leichhardt.’

On this specimen DOMIN based his description, there is however no label in his handwriting.

***Aristida leiocalycina* Trinius et Ruprecht.**

Species Graminum Stipaceorum, loc. cit. [1842] p. 161!

Paniculae 5 pollicaris, pallidae, flaccidae, contractae, sublinearis, pauci- et confertiflorae, basi exsertae radiis inferioribus solitariis, a medio vel infra medium floriferis, patentibus, superioribus a basi mox divisis et floriferis, erectis l. adpressis; glumis inaequalibus *glabris*: superiore 10—11 *lineali* ex l. sub apice bidentato longe setosa; inferiore 6—7 *lineali* apice subulata; flosculo 5 *lineali*, apice scabriusculo, non torto, sed cum stipite aristae (demum) deciduae, solubili, 7—8 *lineali*, laxe contorto articulatim conjuncto; setis patentibus, aequalibus, bipollicaribus.

Guinea. (Thonning in Hb. Schumacher! com. ill. Fischer et Meyer.)

Aristidam Sieberianam *Nubicam* quoad habitum exacte refert.

Note: = *Aristida longiflora* Schumacher.

The species described by TRINIUS and RUPRECHT was based on a duplicate of the Guinean plant collected by THONNING and already described in 1827 as *A. longiflora*. Through the courtesy of Prof. B. FEDTSCHENKO I could examine the type in the Leningrad Herbarium. On the sheet there is a good specimen labeled by RUPRECHT. On the back of the sheet is written: „*Aristida* e Guinea Thonning”.

***Aristida Lemmoni* Scribner.**

F. LAMSON-SCRIBNER in N. L. BRITTON and T. H. KEARNEY, Jr. An Enumeration of the Plants collected by Dr. Timothy E. Wilcox, U.S.A., and others in Southeastern Arizona during the years 1892—1894, in Transactions of the New York Academy of Sciences late Lyceum of Natural History, Vol. XIV. [1895] p. 23!

Slender, densely caespitose, 3—5 dm. high; culms simple, smooth; sheaths smooth, barbate on the sides at the throat with white flocculent hairs; ligule very short, minutely ciliate; leaf-blades involute-filiform or flat near the base and scarcely 1 mm. wide, those of the culm 10—20 cm. long. Panicles 20—25 cm. long, the branches slender, almost capillary, in pairs, ascending or finally spreading, naked below; the lower branches 7—12 cm. long. Flowe-

ring glumes 10—12 mm. long, slender, twisted above, scarcely longer than the long-attenuate-pointed, smooth and nearly equal empty glumes. Callus nearly 1 mm. long, short-barbate. Awns 10—12 mm. long, nearly equal, becoming divergent.

= 388 Lemmon, Arizona, 1882, in Nat. Herb.

Note: = *Aristida divaricata* Humb. et Bonpland.

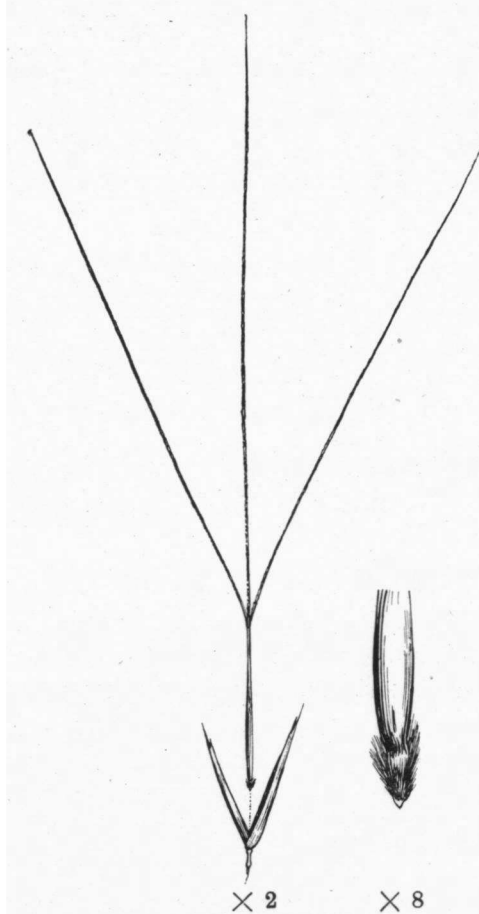
The type in the U. S. Nat. Herbarium was collected by Dr. T. E. WILCOX in the year 1894 near Ft. Huachuca. The plant is a small tuft with culms 32—45 cm. tall, the panicles are immature, the branches are spreading, the sheet bears descriptive notes in SCRIBNER'S writing.

From the characters given in the description there is nothing to find to distinguish this species from the true *Aristida divaricata* H. et B. I will call attention to the 10—12 mm. long lemma, twisted above and scarcely longer than the long-pointed attenuate nearly equal glumes. So far as I have seen specimens agreeing perfectly with all the characters mentioned, I must observe that the species differs from *A. divaricata* only in the slightly shorter branches of the panicle, although this character is also somewhat variable in *A. divaricata*. The species described by LAMSON-SCRIBNER was earlier described by VASEY as *Aristida Palmeri*. See my observations afterwards under that species. In the publication, Lemmon 388, collected in the year 1882 is given as belonging to the species. In the U. S. Nat. Herb. there are two sheets of Lemmon. From both I had portions at my disposal through the kindness of Mrs. A. CHASE. One of the sheets: „*Aristida divaricata*, Arizona, J. G. LEMMON 1882”, in VASEY'S script, bears a few notes in VASEY'S hand, but the specimen was identified as „*Aristida Havardii*?” This plant is 30—33 cm. high and is indeed *Aristida barbata* FOURN. (= *A. Havardii* VASEY). A second collection is a single culm, 65 cm. high, named: „*Aristida divaricata*?” Arizona, J. G. Lemmon”. The spikelets have equal glumes and the lemma has no trace of a twisted column or beak. The specimen belongs to *Aristida imbricata* HENR. as to the spikelet-characters. There is no writing of SCRIBNER, nor name „Lemmoni” on either sheet. In both the panicle branches are spreading.

Aristida leptochaeta Hackel.

Ex herbario Hassleriano: Novitates paraguarienses. I. in F. FEDDE; Repertorium novarum specierum regni vegetabilis. VI. [1909] p. 344!

Perennis. Culmi erecti, 50—80 cm alti, graciles, teretiusculi, glaberrimi, 3-nodes, nodis vix prominulis, superne breviter nudi, simplices. Vaginae teretiusculae, arctae, internodia superantes, glaberrimae. Ligula series ciliorum brevium. Laminae lineares, in acumen setaceum sensim attenuatae, plerumque convolutae rarius planae, ad 30 cm lg., 2 mm lt., subtus glaberrimae supra marginibusque scaberulae, nervis crassis subcontiguis supra parum prominulis percursae, glauco-virides. Panicula lineari-oblonga erecta, ad 25 cm lg. 4—5 cm lt. contracta densiuscula, rhachi scaberula, ramis circ. 5nis suberectis subcapillaribus scabris, primariis a medio divisus plurispiculatis, secundariis fere a basi spiculiferis paucispiculatis, spiculis subimbricatis, subterminalibus brevissime pedicellatis. Spiculae lineares, sine aristis 11—12 mm lg., viridulae et leviter purpureo suffusae. Gluma I. linearis, 10—11 mm lg., apice acute bidentula interdenticulos aristulam 1,5 mm longam exserens, 1-nervis haud vel obsolete carinata, nervo medio superne scabra, ceterum laevis; II. quam I. paulo brevior (circ. 9 mm lg.), illae simillima, laevis; gluma florifera (III.) 11—12 mm lg., lineari-tubulosa, callo breviter barbulata, ceterum glaberrima, sine articulatione sensim in aristam abiens, apice



ARISTIDA LEPTOCHAETA Hackel.

From type specimen.

haud torta, aristae ramis subaequalibus capillaribus patulis rectis scabris circ. 3 cm longis. Palea pusilla. Antherae 1,5 mm lg.

Paraguay: In campis prope Villarica, flor. mens. Jan. Hassler no. 8640.

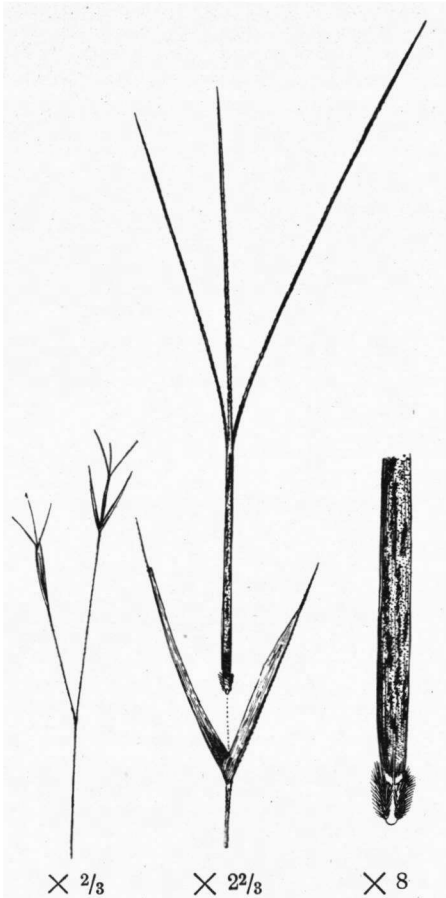
Affinis *A. complanatae* Trin., quae differt praesertim gluma I. quam II. brevior, utraque in aristulam vel subulam sensim abeunte.

The type is in Hackel's Herbarium at Vienna. The sheet is stamped with the number 15568. The species has the habit of *A. acuminata* HACK. and *A. circinalis* LINDM., it agrees with both species in the inverse position of the glumes, both glumes are however distinctly awned with lateral setae (the awn from a distinctly bifid apex). The awns are very thin, up to 3 cm. long and not contorted at the base. In *A. leptochaeta* the lemma is narrowed upwards into a short straight beak. *Aristida circinalis* has acute glumes only and the awns are contorted at the base, there is no beak. *Aristida acuminata* has no beak and the glumes are as in *A. circinalis*, but the awns are not contorted.

Aristida leptopoda Benth.

GEORGE BENTHAM; Flora australiensis: a description of the plants of the Australian territory, London, Vol. VII. [1878] p. 562!

Stems rather stout, from scarcely 6 in. to 2 ft. high. Leaves long and subulate, with rather broad loose sheaths. Panicle very loose, 6 in. to 1 ft. long, with numerous long rigidly filiform branches at first erect, at length spreading horizontally, bearing few spikelets on filiform pedicels. Outer glumes unequal, with long points, the longest usually about as long as the flowering glume. Flowering glume 6 to 8 lines long, on a very short scarcely ciliate stipes, with 3 nearly equal sessile awns $\frac{1}{2}$ to 1 in. long. Palea small and rigid.

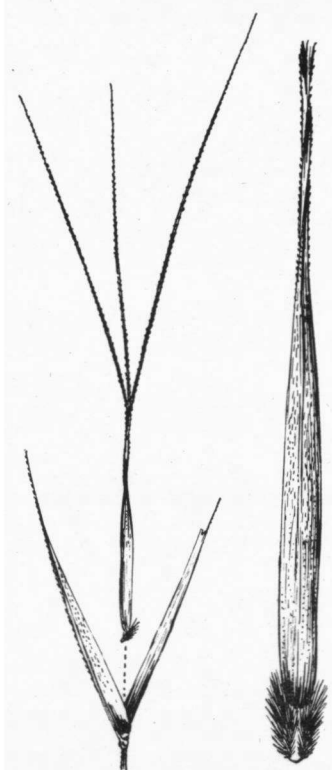


ARISTIDA LEPTOPODA Benth.
From type specimen.

Queensland. Brisbane River, *Bailey*; Darling Downs, *Leichhardt*; Peak Downs, *Burkitt*; Kennedy District, *Daintree*; Tawomba, *Hartmann*.

N. S. Wales. Glendon and Liverpool Plains, *Leichhardt*; Richmond River, *Herb. F. Mueller*.

The different specimens cited by BENTHAM are in the Kew Herbarium, they were studied through the courtesy of Dr. A. W. HILL. I have selected the sheet bearing plants from two localities. The right-hand specimen is a short plant showing the long-pedicelled spikelets. This specimen is labeled: „Liverpool plains, Leichhardt Herb. F. Mueller 1877.” The left-hand specimen, „Peak Downs, Burkitt”, also from the Mueller Herbarium, consists of 3 long panicles, not quite exserted from the upper sheaths. Mature plants are very distinct and to recognize at once.



× 4 × 12
ARISTIDA LEUCOPHAEA
Henrard.

From type specimen.

Aristida leucophaea Henrard

nov. spec.

(Sect. *Chaetaria*). Perennis, caespitosa. *Culmi* stricte erecti, elati, cum paniculis circa 70 cm. alti, inferne simplices, superne parum ramosi, teretes, dense cinereo-tomentosi, nodis glabris, internodio summo longe exserto, subtomentoso vel puberulo; *vaginae* glabrae vel hinc inde leviter pubescentes, striatulae, subcompressae, hiantes, internodiis breviores; *ligula* abbreviata, ciliolulata, auriculae pubescentes; laminae inferiores planae, curvatae, circa 3 mm. latae, striatae, utrinque scaberulae, marginibus incrassatis, *laminae* super-

iores angustiores, subplanae vel convolutae, vix 1 mm. latae hinc inde pilis longis albis conspersae, sensim longe acuminatae; *panicula* circa 15 cm. longa, contracta, angusta sed plus minusve interrupta, rhachi scabriuscula in axillis pilis paucis obsita, ramis binis vel subsolitariis, appressis, primario ad 5—6 cm. longo, inferne nudo, altero brevior paucispiculato circa 2 cm. longo; *spiculae* pallidae vel brunnescenti-viridulae, pedicellis angulosis, scaberulis; *glumae* inaequilongae, uninerves, inferior longior subpubescens, carina sca-

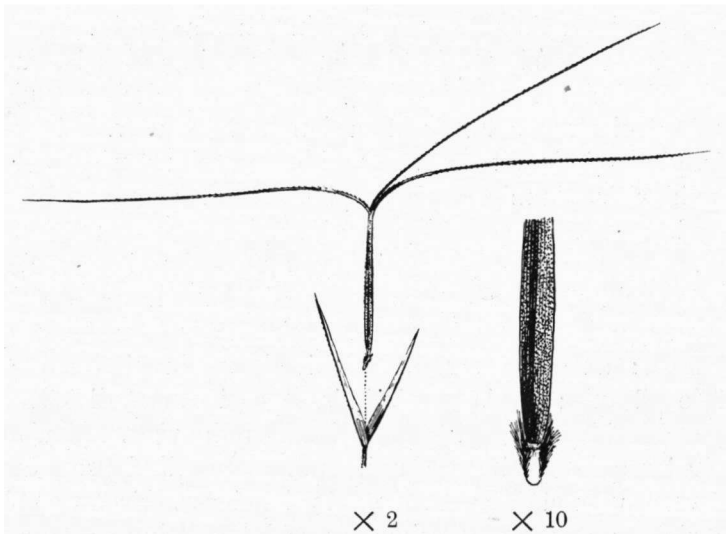
berrima, cum arista scabra 3 mm. longo, circa 10 mm. longa, superior glabra, carina laevis, cum arista scabra 1 mm. longo, circa 8,5 mm. longa, apice bidentata vel lacera, inter dentes aristata; *gluma fertilis* sublageniformis, superne sine articulatione sensim in stipitem scaberrimum, distincte tortum, 2,5 mm. longum abiens, callo obtuso dense barbato, circa $\frac{1}{2}$ mm. longo, 7,5 mm. longa; aristae scabrae, inaequilongae, subrectae vel subpatentes, centralis 13—15 mm. longa, laterales circa 10 mm. longae.

Rhodesia: Salisbury, 1440 m. s. m. Maio, 1920, leg. F. EYLES, Rhodesian Plants no. 2238. Typus speciei in Herb. Kew.

A very distinct species, at once to recognize by the woolly internodes and the inverse position of the glumes. Somewhat allied to the South-African *Aristida Sciurus* STAFF, which differs however in the very unequal glumes, the lower scarcely half as long as the upper. See afterwards the description of *A. Sciurus*.

***Aristida Liebmanni* Fournier.**

EUG. FOURNIER; Mexic. Plant. etc. Pars II. Gramineae, Paris, [1881] p. 78!



ARISTIDA LIEBMANNI Fournier.
From type specimen.

Caespitosa, culmo paulo plus quam pedali; foliis inferioribus approximatis distichis glabris planis, superioribus angustioribus 6—7-

pollicaribus; panícula exserta 5—6-pollicari, radiis geminis inaequalibus supra medium floriferis, infimis patulis; glumis inaequalibus acuminatis, inferiore paulo longiore, flosculum subaequantibus, flosculo stramineo, setis divergentibus subaequalibus.

Mirador, april (LIEBM. n. 662).

The type in the herbarium at Copenhagen was studied through the courtesy of Dr. C. CHRISTENSEN. The label in FOURNIER's handwriting bears the data: „Pl. Mexic. Liebm. Gramineae N. 662. *Mirador*, 4/1842.”

The rather rare species is very distinct by the inverse position of the glumes, the scarcely beaked not twisted lemma and the divergent widely spreading awns. My idea of the species is based on the plants collected by LIEBMANN. HITCHCOCK's description in his Revision is not in accordance with the type.

***Aristida Loheri* Mez.**

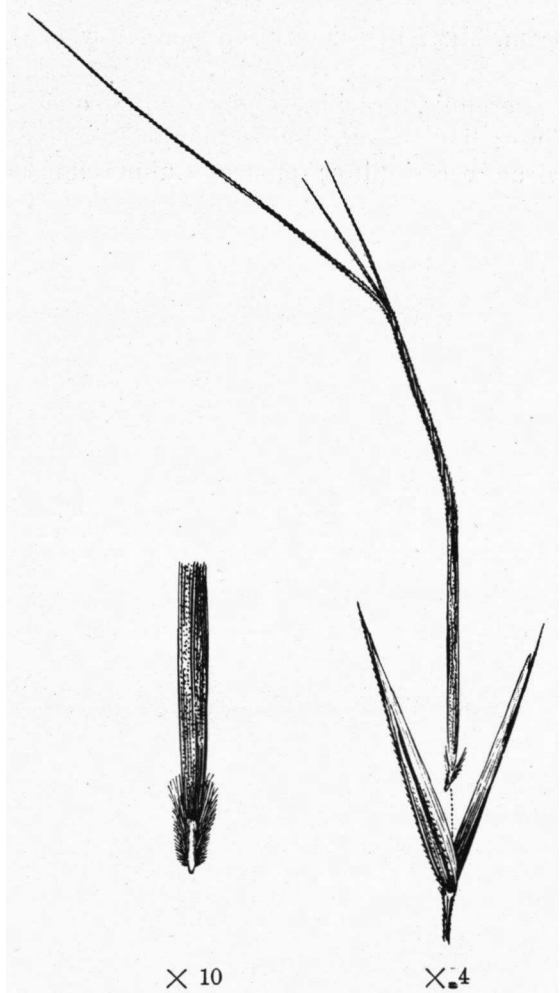
CARL MEZ; Drei neue Gramineen aus Papuasien, in FEDDE; Repert. spec. nov. XVIII. [1922] p. 27!

Perennis, e radicibus fibrosis dense fasciculata, vix 0,4 m alta, gracillima. Folia vaginis culmi quam internodia paullo brevioribus, appressis, nullo modo carinatis, cum margine glabris, laevibus; ligulis brevissimis; truncatis, integerrimis, brevissime puberulis; laminis irregulariter curvatis, tota longitudine convolutis setaceis, rigidulis, glaberrimis, fere laevibus, glaucescentibus, usque ad 0,11 m longis mihi visis. Culmi erecti, simplices, teretes, infra nodos ipsos glabros dense erecteque albo-lanati, apicem versus minutissime puberuli. Inflorescentia ultra vaginam summam breviter graciliterque stipitata, pauciflora, ramis nunc suberectis laxè nunc erectis densiuscule panniculata angustaque fere spiciformis, curvata, usque ad 0,2 m longa; axi fere tereti, gracili, dense brevissimeque quasi scabridule pilosulo; ramis tenuissimis, e basi parce divisis, scabridulis, paucifloris, usque ad 35 mm longis mihi visis. Spiculae erectae, laterales quam pedicelli brevissimi, angulati, dense scabriduli, apicem versus haud incrassati multo longiores, virentes vel pallidissime violascentes, minutissime scabridulae. Glumae lanceolatae, subaequaliter ad 9 mm longae, inferior 3-nervia sensim acutissima, superior 1-nervia juxta setulam minutissimam terminalem auriculata. Palea cylindrica, pallida, concolor, laevis, ad 7 mm longa, basi in unguem acutissimum, bene pilosum, ad 0,75 mm longum producta,

apice articulatione nulla in rostrum percrassum, obliquum, valde tortum, glabrum laeveque, ad 7 mm longum desinens demum in setas quam maxime inaequales mediam validam ad 14 mm longam laterales tenuiter filiformes ad 5 mm metientes divisa. — New Guinea, Port Moresby (Loher). — *A. redactae* Stapf ex India valde affinis.

Note: = *Aristida utilis* Bailey.

The specimen cited by MEZ is in the Munich Herbarium, labeled in his handwriting. There are two plants on the sheet, both perfectly agreeing with the accurate description given by MEZ and quite the same as the type of *A. utilis* BAILEY. (See afterwards the figure under *A. utilis*). They were collected by LOHER near Port Moresby in British New Guinea in the year 1910. The plant bears the Munich number 15656. The discovery in New Guinea of an *Aristida* hitherto only known as an endemic Australian species is very interesting but there are however more Australian grasses observed on New Guinea. 1)



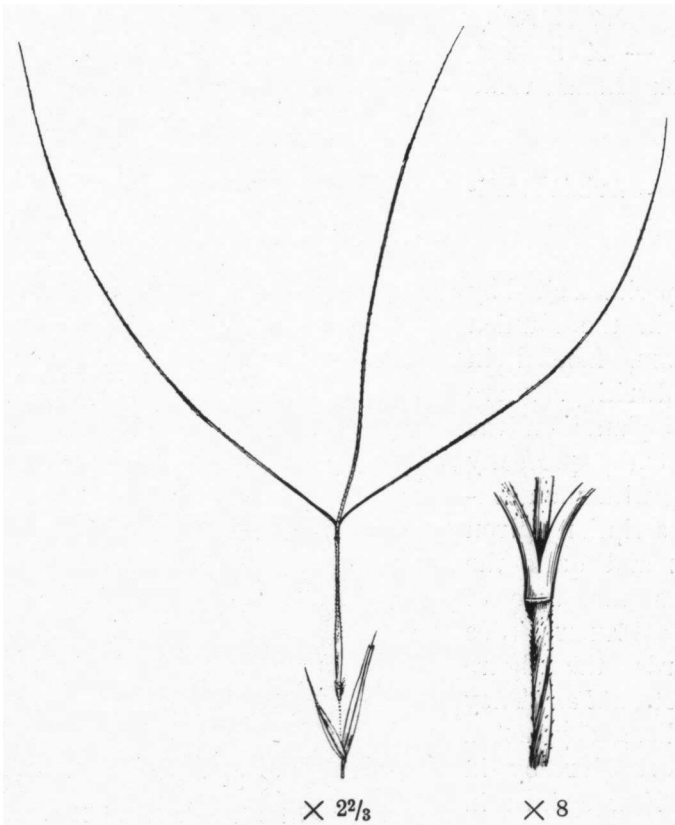
× 10
ARISTIDA LOHERI Mez.
From type specimen.

1) The genus *Ectrosia* R. BR., was hitherto limited to Australia. One of the species, *E. leporina* R. BR. is found in Dutch New Guinea (Northern part) in the year 1903. Expédition of Prof. Dr. A. Wichmann. The plants were abundantly gathered by the native collectors DJIBDJA and ATASRIP. The specimens are preserved in the Rijks Herbarium at Leyden.

Aristida Lommelii Mez.

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 150!

Perennis, gracilis. Vaginae culmi quam internodia breviores, glabrae; ligulae longiuscule pilosae margine valde barbatae; laminae vivae verosimiliter planae. Culmi cum nodis glabri. Inflorescentia



ARISTIDA LOMMELII Mez.

From type specimen.

submulti- vel multiflora, 2-pinnata, laxa, subellipsoidea; ramulis tenuissimis, medium usque sterilibus tunc spiculas densissime spicatas gerentibus; pedicellis vix ultra 0,5 mm longis. Glumae 1-nerviae, inferior ad 5, superior ad 8 mm longa. Paleae unguis ad 0,75 mm longus, longiuscule pilosus; articulatio deest; rostrum tenue, optime tortum; setae subaequaliter ad 20 mm longae, nudaе. — Ostafrika, Djalla-See (Lommel).

From the description we cannot recognize the species, because a very important character is omitted in the diagnosis. An examination of the type in the Berlin Herbarium, kindly received from Prof. PILGER proves that the species belongs to the section *Pseudarthratherum* having an articulation between the column and the awns just below the branching point (see my figure). The species is perennial and allied to *A. barbicollis* TR. et RUPR.. The type is labeled: „B. L. Institut Amani. Nr. 2455. Standort: erste Terasse z. Djalla see (Bez. Moschi). Gesammelt von: Lommel.” There is another sheet in the Berlin Herbarium also from the „Amani Institut” numbered 2595, bei Wera (?), 20. 2. 1900 leg. Lommel.

Aristida longeradiata Steudel.

E. G. STEUDEL; Synopsis Plantarum Glumacearum [1855] p. 140!

Radice fibrosa; culmo erecto tenui simplici glabro ($1\frac{1}{2}$ —3-pedali); vaginis internodis brevioribus striatis apice barbatis; ligula brevi ciliata; paniculae depauperatae effusae radiis solitariis alternis simplicibus longe nudis (demum elongatis) apicem versus floriferis; flosculis tenuissimis; glumis subaequalibus lanceolatis acuminatis flosculo ($2\frac{1}{2}$ —3-lineali) parum brevioribus; valvula scabra; setis lateralibus intermedio parum brevioribus flosculo 3-plo longioribus. Senegal.

Note: = *Aristida mutabilis* Trin. et Ruprecht.

The type in the herbarium of the Jardin des Plantes at Paris, was kindly received by the courtesy of Prof. H. LECOMTE. The annual plant is labeled „*Aristida* 1830 Senegal” and in STEUDEL’s handwriting „*longeradiata* Steud. colleg. Leprieur. 92.” STEUDEL’s description agrees with the specimen, but the description is incomplete and from the description alone the species is not to recognize. In the type there is a well-developed column, and an articulation just below the branching point of the awns. By these characters the species is to recognize as belonging to the section „*Pseudarthratherum*”. The glumes are somewhat unequal, awned, but they have lateral setae. We can recognize the species at first sight as an *Aristida mutabilis* and from the characters of the spikelets, the scabrous glumes and the length of the lemma, the column and the awns we find that STEUDEL’s plant belongs to the variety *longiflora* TRIN. et RUPRECHT, distinguished by a column, nearly as long as the body of

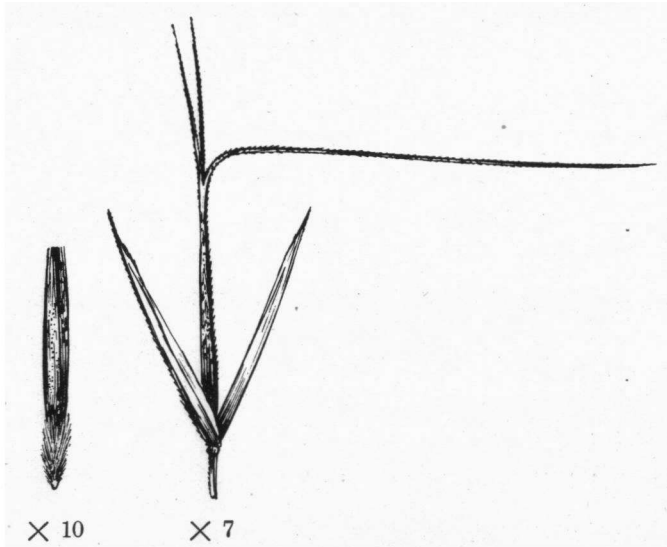
the lemma, the densely scabrous lower glume, which is somewhat shorter than the upper and the rather long, up to 25 mm. long awns.

Aristida longespica Poiret.

J. L. M. POIRET; Encyclopédie Méthodique. Botanique par M. LAMARCK, de l'Institut de France; Supplément, Tome I. [1810] p. 452!

12. ARISTIDE à longs épis. *Aristida longespica*.

Aristida culmo subcompresso, filiformi, ramoso; foliis filiformibus; spicâ gracili, elongatâ; aristis valdè inaequalibus. (N.)



ARISTIDA LONGESPICA Poiret.

From type specimen.

Cette espèce est très-voisine de la précédente¹⁾; elle en diffère par ses fleurs beaucoup plus petites, par ses arêtes très-inégales. Ses tiges sont rameuses, glabres, filiformes, un peu comprimées, hautes d'un à deux pieds; les feuilles glabres, roides, filiformes. Les panicules offrent un épi grêle, très-long, filiforme, peu garni, interrompu; les ramifications courtes, simples, serrées contre les tiges. Le calice est uniflore, à deux valves étroites, aiguës, presque égales; la valve de la corolle fort étroite, subulée, terminée par trois arêtes; celle du milieu divergente, une fois plus longue que la corolle; les deux autres beaucoup plus petites.

¹⁾ *Aristida purpurascens*.

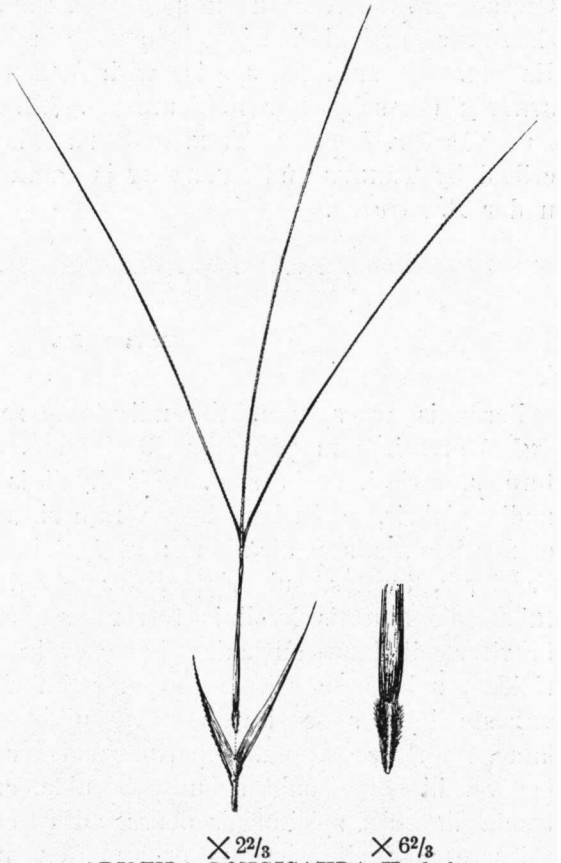
Cette plante croît dans la Caroline; elle m'a été communiquée par M. Bosc, qui en a fait la découverte. (V. s.)

I had at my disposal a few spikelets of the type. They were found, accurately packed up in an envelope, in BALANSA's Herbarium. Moreover I have seen a good specimen from Carolina in the VAHL-Herbarium at Copenhagen, sent by Bosc. The spikelets agree perfectly with those of the plants generally called *Aristida gracilis* ELL. by American botanists.

Aristida longicauda Hackel,

ap. J. A. HENRIQUES; Apontamentos sobre a flora da Zambesia, in Bolletim da Sociedade Broteriana. Coimbra. Vol. VI. [1888] p. 143!

Perennis. Culmi erecti, simplices, glaberrimi. Vaginae ad collum cingulo pilorum sericeorum patentium ornatae, ceterum glaberrimae. Ligula minuta ciliaris. Laminae convoluto-filiformes, acuminatae, 10-20 cm. longae, glabrae, superne scaberulae. Panicula circ. 20 cm. longa caudata, lineari-oblonga, contracta, densa, ramis solitariis, inferioribus basi breviter nudis, superioribus a basi flori-feris appressis, omnibus valde ramulosis, ramulis brevissimis conglomeratis scaberulis. Spiculae in apice ramulorum dense fasciculatae, sessiles vel brevissime pedicellatae, lineares, viridulae vel leviter subviolaceo-suffusae: glumae steriles inaequales, lineari-lanceolatae, 1-nerves, inferior 4,5 mm.



ARISTIDA LONGICAUDA Hackel.

From type specimen.

longa, ex apice setigera, superior 9 mm. longa infra apicem bidentulum mucronata; gluma florifera cum callo acuto 1,5 mm. longo dense pubescente 5—6 mm. longa, linearis, superne glaberrima, in aristae stipitem 4 mm. longum ter quaterve tortum non articulatam contracta, aristae divisiones subaequales patentes, circ. 2,5 cm. longae.

Proxima *A. Meccanae* Hochst. cui vero paniculae lucidulae rami basi longe nudi apice tantum fasciculato-spiculiferi, glumae steriles minus aequales etc.

Maçambique.

Type in the Hackel Herbarium at Vienna bearing the Vienna number 15566. The printed label reads: „Herbario do Jardim Bot. da Universidade de Coimbra” with the name in HACKEL's hand. The locality on the label is given as Coran Moçambique legit C. de Carvalla n^o. 35. A beautiful species of the section *Pseudarthratherum* (having an articulation just below the branching point of the awns). HACKEL compared the species with *A. Meccana* distributed by HOCHSTETTER (Kotschy Iter nubicum no. 54), which is the type of *A. mutabilis* var. *longiflora* TRIN. et RUPR. The true *A. meccana* as described by TRINIUS and RUPRECHT is another species. See afterwards under *A. meccana*.

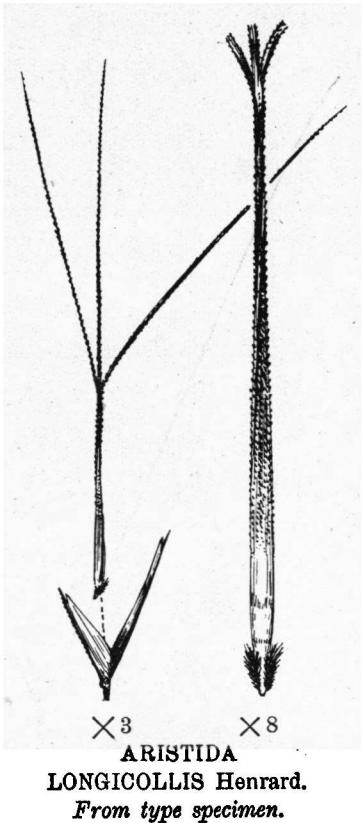
Aristida longicollis (Domin) Henrard

nov. spec.

Perennis, caespitosa, florendi tempore absque innovationibus. Culmi erecti, cum paniculis 40—50 cm. vel plus alti, subrobusti, teretes, striati, scaberrimi, pilis hyalinis brevissimis, multinodes, nodis glabris, e basi nodisque ramosi, ramis fasciculatis 2—4nis elongatis erectis paniculiferis; vaginae internodiis duplo vel pluries breviores, teretes, substriatae, arctae vel demum a culmo solutae, tuberculis minutis hyalinis retrorso-scaberrimae; ligula dense sed breviter ciliolata, auriculae bene evolutae, pubescentes; laminae rigidae, subplanae saltem in parte inferiore, superne convolutae, anguste lineares, sensim acutatae, subpungentes, 1 vel vix 1,5 mm. latae, inferiores 10 cm., superiores ad 4 cm. longae, supra hirsutulae vel hirtellae, subtus subscaberulae, crassinerves; panicula contracta linearis, spiciformis densa, ad 10 cm. longa; paniculae laterales, e nodis inferioribus erumpentes, multo breviores, vulgo 5 cm. longae, sine aristis 0,5 cm. tantum latae, inferne paululum

interruptae, rhachi tenui, tereti, scaberula, ramis subbinis vel subfasciculatis brevibus suberectis basi nudis, primariis inferioribus 3—5-spiculatis, reliquis 1—2-spiculatis, spiculis pedicellos aequantibus vel subsuperantibus; *spiculae* angustae, pallide viridulae vel subcoloratae; *glumae* inaequilongae, uninerves, *inferior* 4,5 mm. circa longa, acuminata, apice bifida, inter dentes aristulata, carina scabra, *superior* apice bidentata aristulata, circa 7 mm. longa, carina laevis, *gluma fertilis* angustata, exserta, inferne laevis, superne scaberrima, distincte sed breviter rostrata, columna circa 2 mm. longa, leviter vel vix torta, cum callo $\frac{1}{2}$ mm. longo, brevibarbato, circa 10 mm. longa; *aristae* scabrae, subaequilongae, gracillimae, erectae, ad 15 mm. longae.

Queensland: in collibus aridis prope Cloncurry, Februario 1910, leg. Dr. K. DOMIN. Typus speciei in Herb. Domin, Praga, sub nom. *Aristidae* adscension. var. *longicollis*.



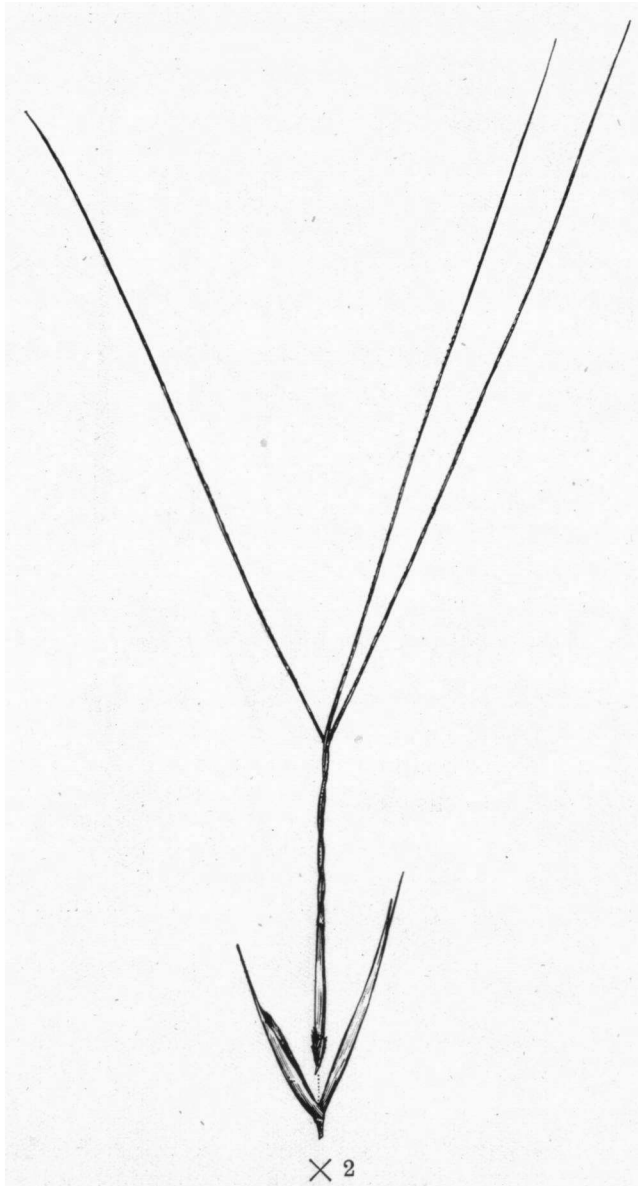
Species distinctissima, valde peculiaris, nulli speciei arctius affinis.

Aristida longiflora Schumacher.

F. C. SCHUMACHER; Beskrivelse af Guineiske Planter som ere fundne af Danske Botanikere, især af Etatsraad Thonning, in Sel. phys. og mathem. Skr. [1827] Deel III. pag. 68!

Panicula coarctata erecta, floribus aristisque longissimis, foliis convolutis margine scabriusculis. S.

Culmus *triginta-pollicaris*, ramosus, teres, glaber, geniculis tumidis. Folia *spithamea*, angustissima, convoluta, margine scabriuscula, ore vaginae ligulaeque brevissima subpilosa. Panicula coarctata ramisque erectis. Flores a basi usque ad apicem setae longissimae tres pollices et dimidium longi. Valvae calycis uniflorae lanceolato-setaceae, inaequales: longior novemlinearis convexa glabra, brevior sexlinearis carina



ARISTIDA LONGIFLORA Schumacher.

From type specimen.

scabrida. Corolla calyculata: calycula membranacea, albo-lanata, ciliata. Aristae inaequales scabridae longissimae: longior bipollicaris et ultra; breviores sesquipollicares. S.

The type in the Schumacher Herbarium at Copenhagen was collected by THONNING. The back of the sheet on which the specimen is mounted bears the data: „Aristida? stricta m, longiflora m. Collect. Guin. D. Thon.” and the number 357. The name stricta was crossed out. The species belongs to the section *Arthratherum*, both glumes are awned, quite glabrous, the second one has lateral setae and is narrower than the long-awned first one.

***Aristida longifolia* Trinus.**

Graminum Genera etc. loc. cit. [1829] p. 84!

Panicula contractiuscula; Glumis acuminatis: superiori inferiore

paulo longiori, perianthio 4-lineali paulo breviori; Setis lateralibus valvula sesqui-, media eadem plus duplo longiori.

V. spp. Brasil merid.

3—4-pedalis. Folia perangusta, plana, inferne laevia, superne deorsum scabra, longissima (paniculam aequantia). Panicula sesqui-pedalis, glaucescens.

TRINIUS et RUPRECHT; *Species Graminum Stipaceorum* [1842] loc. cit. pag. 118.

Paniculae 1—2 pedalis basi vaginatae *firmulae radiis* 3—5-nis, longissimis, rigidis, erecto-patulis, inferne nudis, superne spicaeformibus, longioribus iterum divisis; glumis parum inaequalibus: superiore 4 lineali, inferiorem mox aequante, mox lineam superante; flosculo 5—6 lineali, maculato, ad nervum dorsalem tantum scabriusculo, apice non torto; setis erecto-patentibus, media 9—10 lineali, lateralibus fere duplo longiore.

Chaetaria divaricata Nees ab Es! Agr. Bras. 1829. p. 387. excl. synn.

Aristida bromoides Salzmann (non HBK.): flosculo pallido fere 7 lineali et gluma superiore interdum 5 lineali.

In agrestibus ad Caxias provinc. Maragnan et prope Almeirim prov. Paraënsis (Martius!); Bahia in collibus aridis (Salzmann!); in umbrosis siccis pr. Cuyaba. April. (Riedel!)

Rhizoma perenne, subrepens. *Culmus* 1—2 pedalis, panicula aequilonga auctus, valde compressus, nodis exsertis, glabris. *Vaginae* glabrae, superiores internodiis multo breviores, ore ciliolatae. *Ligula* subnulla. *Folia* fere longitudine totius plantae, viridia, glabra, complicata l. planiuscula et lineam lata, fasciculorum filiformia. Quoad habitum refert *Aristidam* Humboldtianam, cujus autem arista infra divisionem torta et flosculi glumas subaequant.



× 2²/₃

ARISTIDA
LONGIFOLIA
Trinius.

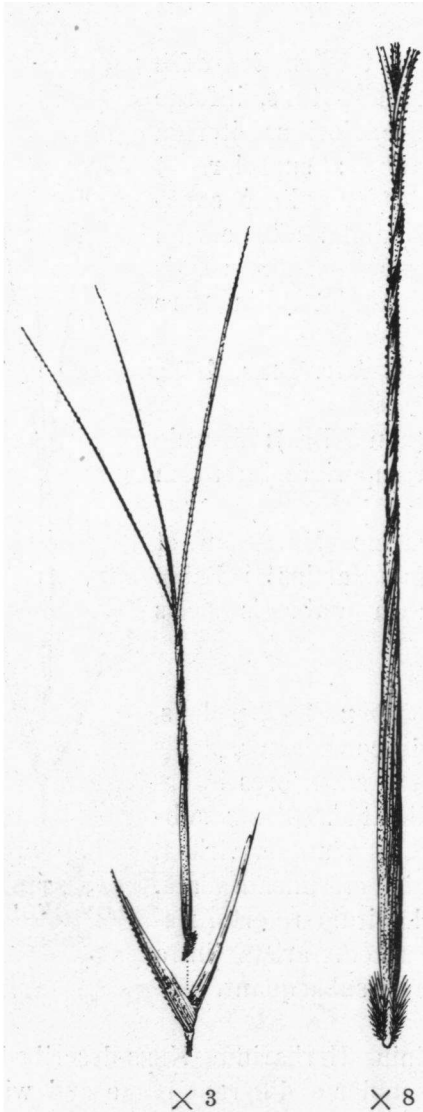
From type
specimen.

The type is Riedel in the Trinius Herbarium. NEES described the same species in the year 1829 under a different name and with a wrong synonymy, his description however applies to the plant collected by MARTIUS, which is in the Munich Herbarium. This speci-

men is quite the same as the specimen described by TRINIUS. *A. longifolia* is to distinguish from *A. divaricata* at first sight by the very different habit and by the wanting column, as already observed by TRINIUS.

***Aristida longiramea* Presl.**

J. S. PRESL; *Reliquiae Haenkeanae*. loc. cit. Tom. I. [1830] p. 224!



ARISTIDA LONGIRAMEA Presl.

From type specimen.

A. culmo simplici, tereti, foliis convoluto-setaceis, margine carinaque scabris, paniculae compositae contractae, secundae, nutantis ramis binis longissimis, glumis brevissime aristatis flosculo brevioribus, inferiore trinervi, superiore uninervi, arista media longiori.

Hab. in Mexico. ♀

Maxime affinis *A. spadiceae*, cum vero de setis glumas terminantibus nulla sit mentio, hinc omnino diversa. Glumae in nostra sunt lanceolatae, in *A. spadicea* vero subulatae.

Radix fibrosa emittens caespitulum. Culmi erecti, stricti, teretes, glaberrimi, ad nodos coarctati fusci, striati, ad primum paniculae ramum bipedales. Vaginae teretes, glaberrimae, striatae, arcte adpressae, solummodo medietaem culmi occupantes. Ligula margo brevissimus integerrimus. Folia vaginis suis multo longiora, linearia convoluto-setacea, rigida, intus glabra, margine et carina aculeis minutissimis scabra. Panicula 12—14 pollices longa, con-

tracta, secunda, nutans. Rami binati, fasciculis 3—4, uno longiore, inferiorum imus 9-pollicaris, ad primam ramificationem 3-pollicaris, omnes ramulosi. Rhachis semiteres angulis scabriusculis, rami compresso-semiteretes, nervis et angulis scabri, ramuli conformes, compressiores atque scabiores. Locustae secundae, binatae, pedunculatae, pedunculo uno longiore graciliore, altero brevior crassiore, scabris. Glumae lanceolatae, stramineae, inferior basi amplexans superiorem, seta brevi scabra tertiam partem glumae aequante terminata, 3-nervia, nervo medio carinata versus apicem scabro, lateralibus scabriusculis, superior longior inferiore, uninervia, apice bidentata, arista brevi scabra terminata. Palea inferior duplo longior gluma inferiore, convoluto-subulata, fuscescenti-grisea, aculeis minutis scabra, ad basin fasciculo pilorum brevissimorum alborum stipata, supra medium contorta, stipitem referrens aristae scabrae tripartitae. Aristae ramus medius palea inferiore atque ramis lateralibus longior. Semen rufescens, corneum transparent, lineari-fusifforme, intus vix sulcatum.

Note: = *Aristida laxa* Cavanilles var. *longiramea* (Presl) Henrard.

PRESL's type is in the National Herbarium at Prague, a duplicate in the Vienna Herbarium. There is also a duplicate in the Bernhardt Herbarium in the Missouri Botanical Garden. A figure of the plant in the Bernhardt Herb. is given by F. LAMSON-SCRIBNER in Tenth Annual Report of the Miss. Bot. Gard. (1899) plate 26. On pag. 38 of this Report, SCRIBNER says that *Aristida appressa* VASEY is the same. The latter is however another species, see this revision pag. 32. The figure given by SCRIBNER agrees with the authentic specimens I have seen, but the glumes are figured as blunt, in reality the glumes are nearly always damaged and the tips broken off. The glumes of *A. longiramea* are very acute and shortly awned as described by PRESL, they are 1-nerved. PRESL has not seen the *A. spadicea* H.B.K. and he distinguishes his plant from the species described in the Nova Genera, by the lanceolate, acuminate glumes and he indicates that they are subulate in *A. spadicea*. PRESL also states that the lower glume in *A. longiramea* is 3-nerved, but in the type I found the lower glume constantly 1-nerved, in some spikelets the glumes are plicate, in this case they appear to be 3-nerved under a strong lens. To see the nervation clearly it is advisable to bring the glumes in a drop of water and to examine them by transmitted light under a strong lens. The upper glume is longer than the lower and by damaging erosely dentate, the awns are but slightly unequal and in this character, the only one observed,

A. longiramea differs from *A. laxa* (*spadicea*). But even in *A. spadicea* the length of the awns is very variable and *A. longiramea* PRESL is therefore only a long-awned variety of *A. laxa* CAV..

***Aristida longiramea* Presl.**

var. boliviana Henrard.

J. TH. HENRARD, in Mededeelingen van 's Rijks Herbarium No. 40 [Juli 1921] p. 56!

Differt a typo praesertim callo acuto, brevior, densius barbato; palea inferiore in stipitem brevem, leviter tantum tortam abiens; arista ramis inaequalibus, $1\frac{1}{2}$ —2 cm longis praedita, quorum medius longior.

Charaktergras der Campos zwischen Rio Pirai und Rio Cuchi, 550 m, Jan. 1911 (no. 1442).

Note: = *Aristida Hassleri* Hackel.

The type is Herzog no. 1442. At the time I described this variety, comparing it with PRESL's *A. longiramea*, HACKEL's species was not known to me. Herzog's plant however perfectly agrees with the plants from Paraguay (Balansa no. 189; Hassler no. 8346).

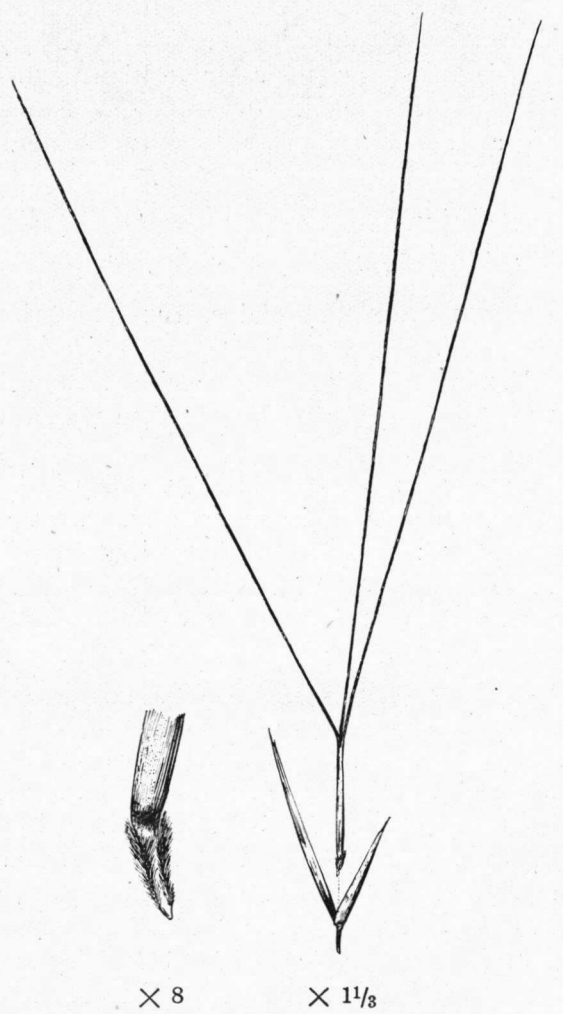
***Aristida longiseta* Steudel.**

E. G. STEUDEL; Synopsis Plantarum Glumacearum, Pars I. [1855] p. 420! no. 30b.

Radice fibrosa caespitifera; culmis cum tota planta glaucescentibus glabris (3—4-pollicaribus); vaginis striatis subpilosis; ligula brevissima subpulvinato-pilosa; foliis convoluto-setaceis rigidulis patulis rectis vel curvatis vix scabriusculis (1— $1\frac{1}{2}$ -pollicaribus); paniculae rariae radiis solitariis vel binis; glumis parum inaequalibus acutis flosculum subaequantibus subbrunneo coloratis; flosculo brevissime stipitato basi glabrescente, sursum scabriusculo 4-lineali; setis pro plantae statura longissimis (bipollicaribus et ultra), intermedia parum brevior. Fendler coll. nr. 978. N. Mexico.

The type, in the Paris Herbarium, kindly received from Prof. H. LECOMTE, is scarcely 15 cm. high, including the awns; it is a very meagre and depauperate specimen. On the label STEUDEL has

written „*Aristida macrochaeta*”, the name *macrochaeta* was crossed out and written over „*longiseta*” by STEUDEL himself. There is no trace of a beak, the lemma is not narrowed above, 12—13 mm. long including the 1 mm. long callus; the body of the lemma is smooth and scaberulous only just below the awns. The glumes are about 9 and 18,5 mm. long and the awns are 5 cm. long. In better-developed specimens (duplicates of the type) the awns are up to 7 cm. long and the glumes are 10—12 and 20 mm. long. The species is allied to *A. Fendleriana* STEUD. but differs in the longer glumes and awns and in the lemma which is not or scarcely narrowed above and smooth. *A. Fendleriana* has moreover a different habit. The chief characters to distinguish *A. longiseta* from its allies are accurately indicated in WOOTON and STANDLEY's Flora of New Mexico. (Contrib. U. S. Nat. Herb. XIX. 1915 p. 62).



ARISTIDA LONGISETA Steudel.

From duplicate type specimen (Herb. Lugd. Bat.)

Aristida longiseta* Steudel.*subsp. *rariflora* Hitchcock.**

A. S. HITCHCOCK; The North American species of *Aristida*, in Contrib. U. S. Nat. Herb. Vol. XXII. [1924] p. 565!

Differs from the species in the few-flowered panicle with capillary flexuous branches bearing 1 or 2 spikelets.

Type in the U. S. National Herbarium, no. 745501, collected in Tom Green County, Texas, May 1880, by Frank Tweedy.

This form bears the same relation to *A. longiseta* that *A. purpurea laxiflora* does to *A. purpurea*. The two subspecies have the same aspect, but differ in the spikelet characters. More information is needed on both forms. They may prove to be distinct species. Being scattered here and there through the range of the respective species they are referred to them as subspecies.

DISTRIBUTION. Dry plains, Texas to Arizona, and Colorado.

TEXAS: Del Rio, *Hitchcock* 13637. San Antonio, *Havard* in 1882; *Hitchcock* in 1903; *Plank* 45. Tom Green County, *Tweedy* in 1880. Llano, *Plank* 6.

COLORADO: Without locality, *Vasey* in 1868; *Hall*.

NEW MEXICO: Without locality, *Vasey*.

ARIZONA: Apache Smelter, Santa Catalina Mountains, *Griffiths* 7123. Ash Fork, *Griffiths* 7354.

A very curious plant, agreeing in the spikelet characters rather well with *A. longiseta*. The type is a single tuft with numerous curled leaves at the base and one culm about 40 cm. tall, the panicle is 15 cm. long, the short branches flexuous and more or less recurved. The glumes are 10 and 20 mm. long, more rigid than in the type of *A. longiseta*, the lemma is perfectly smooth, equally broad all over and minutely scaberulous only and constricted somewhat just below the branching point of the awns, 12 mm. long including the 1 mm. long callus. The awns are stouter, thicker and flatter than in typical *A. longiseta*, they are about 7 cm. long, somewhat twisted at the base and therefore more spreading than in *A. longiseta*.

Although treated by HITCHCOCK as a subspecies, I propose to give this plant the name of *Aristida rariflora* (HITCHC.) HENRARD. *Aristida longiseta robusta* is more allied to *A. longiseta*. See the observations under var. *robusta*.

Aristida longiseta Steudel.

var. *robusta* Scribn. et Merr.

F. LAMSON-Scribner and ELMER D. MERRILL; *Aristida purpurea*

Nutt., and its allies, in Circular no. 34, United States Department of Agriculture, May 24, [1901] p. 5!

A stout, densely tufted form, 3 to 4 dm. high, with robust culms, more rigid inflorescence and usually longer leaves than in the species. Empty glumes as in the species except that both are prominently cleft at the apex, bearing in the cleft a scabrous awn about 2 mm. long; flowering glume nearly smooth or only slightly scabrous.

GENERAL DISTRIBUTION. — In dry soil, South Dakota to Kansas, west to Washington and British Columbia. June to August.

SPECIMENS EXAMINED. — *South Dakota*: Aurora County, 35 E. N. Wilcox, August 18, 1896; Redfield, 68 David Griffiths, August 29, 1896; Belle Fourche, 404 Griffiths, August 4, 1897; Canning, 43 Griffiths, August 27, 1896; Lebanon, 252 Griffiths, July 23, 1896; Custer, 1118 P. A. Rydberg, August 16, 1892; Rosebud, 34 E. J. Wallace, July 26, 1896. *Iowa*: Rock Rapids, 410 C. R. Ball, July 6, 1897. *Nebraska*: St. Helena, 2629, F. Clements, June 27, 1893; Longpine, 1123 J. M. Bates, August 18, 1898; Osborne City, 156 C. L. Shear, July 9, 1894. *Wyoming*: Clear Creek, 116 Williams & Griffiths, August 5, 1898; Devil's Tower, 517 Griffiths, August 12, 1897; Whalen Canyon, 540 A. Nelson, July 19, 1894. *Montana*: Billings, 222 Williams & Griffiths, August 30, 1898; Glendive, L. F. Ward, July 21, 1883; Missoula, 250 Williams & Griffiths, September, 1898; Indian Creek, 336 F. L. Scribner, July 5, 1883 (type); Prickly Pear Canyon, 559 R. S. Williams, July 23, 1897. *Idaho*: T. E. Wilcox, 1881. *Colorado*: Colorado Springs, 496 S. M. Tracy, 1887. *Washington*: Alma, 536 A. D. E. Elmer, July, 1897; Rock Island, 439 Sandberg & Leiberg, July, 1893; Spokane, 906 Sandberg, Heller & McDougal, August 16, 1892, also 2597 C. V. Piper, June 25, 1897. *British Columbia*: Spencer's Bridge, J. Macoun, May 28, 1889.

This variety can be readily distinguished from the species by its more robust culms, and especially by its rather prominently awned empty glumes.

The type, indicated by the authors is Scribner no. 366 from Montana. With exception of the number 222, Williams and Griffiths, all the cited specimens are placed in HITCHCOCK'S Revision under var. *robusta*. Scribner no. 366 in U. S. N. Herb. bearing MERRILL'S handwriting is a single tuft of 5 culms, 40—45 cm. tall, the panicles are 10—15 cm. long, relatively dense, the branches appressed or ascending. The glumes and awns have the same length and the

same texture as those of typical *A. longiseta*, the awns are however more curved and more spreading; the tip of the lower glume is cleft by damaging, the upper is minutely bifid as in the type of *A. longiseta*. The lemma is glabrous, not quite smooth but prominently punctulate under a lens. The typical *A. longiseta* has the same rugulose-punctulate lemma, whereas in *A. longiseta rariflora* the surface of the body of the lemma is quite smooth and shining. *A. longiseta robusta* thus more approaches the typical *A. longiseta* and is only a variety of this species with stouter and more robust culms and a more rigid inflorescence. Among the great many specimens received from Prof. HITCHCOCK, I found intermediate specimens between typical *A. longiseta* and *A. longiseta robusta*, no characters were observed to separate the two forms sufficiently.

Aristida longiseta and its var. *robusta* are limited to North America and Mexico, the species was also indicated in Argentina by STUCKERT in his Tercera Contribucion (1911) p. 66 and 67 as var. *robusta* and by myself from Bolivia, in Mededeel. 's Rijks Herbarium no. 40 (1921) p. 55 (Herzog no. 3010), accepting that STUCKERT's determination was correct. Afterwards I recognized HERZOG's plant as another species (*A. venustula* ARECHAV.), a species very common in Argentina and indeed much resembling the North-American *A. longiseta*. I supposed therefore that STUCKERT's plants were also *A. venustula*.

When I studied Stuckert's plants in HACKEL's Herbarium, the two specimens mentioned by STUCKERT were found and thus HACKEL has given the determination. Having received from Dr. J. BRIQUET the collections of *Aristida* for my work, I found among them the plants from STUCKERT, placed in the Delessert Herbarium. Here are the same plants STUCKERT mentioned, they agree with the two plants in HACKEL's collection. Stuckert no. 16,021 Colonia Benites, Chaco, is *Aristida venustula* and Stuckert no. 16,806 Capilla del monte, Dep. Punilla, Prov. Cordoba, is *Aristida circinalis*.

Aristida lutescens (Nees) Trin. et Rupr.

TRINIUS et RUPRECHT; Species Graminum Stipaceorum, loc. cit. [1842] p. 173!

= *Arthratherum lutescens* NEES ab ESENB.; Florae Africae australioris, I. Gramineae. [1841] p. 179!

Description given by Nees, l. c. p. 179!

Panicula erecto-patula subsecunda ramis subgeminis, aristae lacinia media 9—10 lin. longa apicem versus plumosa, lateralibus paulo

brevioribus pubescentibus, stipite solido valvula cum eius stipite paulo breviori, glumis flosculo subduplo longioribus, altera paulo breviori, culmo fruticuloso ramoso, vaginis foliisque convoluto-setaceis laevibus articulis vaginarumque ore glabris.

Ad Zilverfontein in terris Buschmanorum, cum *Arthrathero brevifolio* et in colibus Karroo prope Knignunjels (Grootdarm) infra 200' alt. ad Garip fluvium, (Drège). 5.

Differt ab *Arthrathero Zeyheri* aristae intermedia apice haud setaceo nudo, panicula laxiori et setis lateralibus pubescentibus nec nudis. Dimensiones fere eadem. Glumae lutescentes, lanceolatae, apice truncatulo-subbidente. Arista media 10 lin., laterales 8 lin. longae; barba aristae mediae pallide lutescens.

Ab *Arthrathero brevifolio* distinguitur foliis longioribus (2—3 pollicaribus), vaginis ore nodisque glabris, aristis lateralibus longioribus.

Arthratherum namaquense differt aristis lateralibus vix minus ac media plumosis.

The type specimen in the Berlin Herbarium, kindly received for study from Prof. R. PILGER, bears a label written up by NEES: „*Arthratherum Zeyheri mihi*”, the specific name *Zeyheri* crossed out by NEES himself and substituted by the name „*lutescens*”. The label is numbered 2040, ad Zilverfonteyn in terra Buschmanorum (aut Hottentottorum?) cum *A. brevifolio* mixtum. The plants on the sheet, lacking the bases, were collected by DRÈGE. The species belongs to the section *Stipagrostis* and is allied to *Aristida Marlothii* HACK., which is however a different species with acute glumes, very short not twisted column, bearded nodes and panicles with hairy axils. Another allied species is *A. Dregeana* TRIN. et RUPR., which is to distinguish immediately by the 1-noded culms.



ARISTIDA LUTESCENS
(Nees) Trin. et Rupr.
From type specimen.

Aristida luzoniensis Cavanilles.

ANT. JOSEPHUS CAVANILLES; Icones et Descriptiones Plantarum quae aut sponte in Hispania crescunt, aut in hortis hospitantur. Matritum, Vol. V. [1799] p. 45! Tab. 470. Fig. 2!

ARISTIDA culmo ramoso: panicula contracta: spiculis alternatim pluribus: aristis subaequalibus. Culmi tripedales et amplius, ramosi, articulati, glabri. Folia subulata, convoluta; radicalia numerosa pedalia; reliqua ramos vaginantia, vagina arcta, striata, duos pollices saepius longa, postea in folium soluta, radicalibus simile. Paniculae contractae, terminales, quattuor pollices longae, ex pluribus spiculis compositae. Calicis valvulae lutescentes, carinatae, valde acutae, quarum interior paulo longior. Corolla calici et aristis subaequalis; valvula scilicet oblonga, marginibus involuta, basi dumtaxat villosa, apice triaristata, aristis subaequalibus; fructifera punctis fuscis variegata arteque in cylindrum convoluta.

Habitat in insula Luzon altera ex Philippicis, floretque Aprili et Maio. Vidi siccam in laudato herbario. 1)

Explic. tab. A Flos magnitudine naturali. B Idem auctus.

Note: = *Aristida adscensionis* L. var. *condensata* (Hack.) Henrard.

The plant on which the species was based, was not from the Philippines; probably, in NÉE's Herbarium, the labels are often commutated. An *Aristida* agreeing with the description and with the plate was never observed on the island of Luzon and we have to look for the species in another region, visited by NÉE. We know from CAVANILLES' introduction that NÉE visited Argentina. („Investigavit etiam pari diligentia inmensam planitiem, vulgo *Pampas de Buenos Ayres*, quae a Montevideo ultra Mendozam protrahitur"). The description of CAVANILLES' species agrees with *Aristida adscensionis* var. *condensata* described from Argentina, differing from the typical form in the longer glumes and awns and in the dense contracted panicle. CAVANILLES' plate confirms the identification. The figure A of the spikelet is the natural size, hence the fig. B is thrice enlarged. The measurements taken from this fig. B are: glume I. = $7\frac{1}{2}$ mm., glume II. = 10 mm., lemma = 8 mm., central awn = $12\frac{1}{2}$ mm., and lateral awns = $11\frac{1}{2}$ mm. long. These data are in full accor-

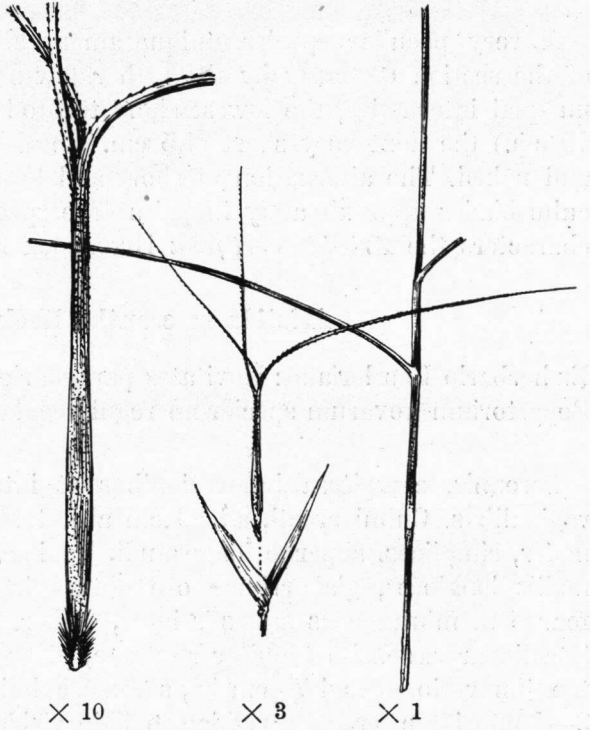
1) Herb. Ludovic. Née.

dance with the var. *condensata* of the *A. adscensionis*. The name *luzoniensis* is however not used by me in my work, because the type specimen could not be studied.

Aristida macilenta Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis, caespitosa. Culmi erecti, elati, paucinodes, internodiis alternatim elongatis (10—12 cm. longis) abbreviatisque (vix 1 cm. lg.), quo fit ut folia in quovis nodo bina occurrant, rami saepius oppositi erumpant; culmi ceterum subteretes, glaberrimi, vix 1 mm. crassi, circa 70 cm. alti. *Vaginae* infimae flavo-fuscae, superiores virides, striatae, teretes, arctae, laeves; *ligula* abbreviata, breviter ciliolata, auriculae pilis longis sparsis barbatae, vel foliorum superiorum glabrescentes; *laminae* angustae, convolutae vel subconvolutae vel inferne subplanae et ibi pilis longis conspersae, explanatae vix 1 mm. latae, foliorum inferiorum 6, vel interdum ad 10 cm. longae, culmeae multo minores, summae 1—2 cm. longae, utrinque sublaeves



ARISTIDA MACILENTA Henrard.

From type specimen.

vel in pagina superiore subscaberulae. *Panicula* perbrevis, sine aristis 4—5 cm. longa, vix 0,5 cm. lata, contracta, subspiciformis, rhachi scaberula, ramis binis vel superne subsolitariis, appressis, paucispiculatis, inferioribus interdum elongatis ad 3 cm. longis, in parte inferiore nudis; *glumae* subaequales, laeves, 1-nerves, inferior circa 6,5 mm. longa, acuta, breviaristata, carina superne scabra, superior 7 mm. longa, angustior, subaristata, carina laevis, gluma fertilis

callo barbato obtuso circa 0,4 mm. longo, 6 mm. longa, leviter punctulata, superne scaberrima, sensim angustata sed haud stipitata neque torta; aristae inaequilongae, basi contortae, centralis curvata, horizontaliter patens, circa 15 mm. longa, laterales suberectae circa 10 mm. longae.

Africa austro-orientalis: Nyasaland, leg. JOHN BUCHANAN, anno 1895, no. 238. Typus speciei in Herb. Mus. Britannic. (South Kensington London).

Rhodesia: District Salisbury, 4800 ft., March 1920, leg. F. EYLES no. 2142. Cotypus in Herb. Kew.

A. very peculiar species, unique among all the African *Aristidas* of the section *Chaetaria* by the rather few-noded culms with very unequal internodes, the lowest short the following very long (about 10 cm.) the next very short (1,5 cm. long), the last long-exserted and naked. The alternation of short and long internodes brings the culm-blades approximately in pairs. The species resembles in these characters the *Aristida curtifolia* HITCHCOCK from Cuba.

***Aristida macrantha* Hackel.**

Ex herbario Hassleriano: Novitates paraguarienses. III., in F. FEDDE; Repertorium novarum specierum regni vegetabilis VII. [1909] p. 372!

Perennis, caespitosa innovationibus et intravaginalibus et extravaginalibus. Culmi erecti, ad 80 cm alti, teretes, glaberrimi, plurinodes, simplices, superne longe nudi. Vaginae teretes, arctae, internodiis longiores, glaberrimae ore obtuso haud auriculatae. Ligula margo membranaceus angustissimus, glaber. Laminae e basi aequilata lineares, sensim tenuiter acutatae, planae vel siccitate convolutae, innovationum ad 70 cm lg., summa culmi cc. 20 cm lg., expansae 3—4 mm latae, erectae, rigidae, pallide virides, glaberrimae, crassinerves. Panicula cuneata v. scopiformis, densa, contracta circ. 30 cm lg., basi angustissima, apice circ. 10 cm lt., rhachi ramisque laevibus, ramis crebris brevibus (sine spiculis cc. 2 cm lg.) plerumque binis rhachi admotis crassiusculis fere a basi ramulosis, ramulis 1—2-spiculatis ramo appressis, spiculis dense fasciculatis breviter v. brevissime pedicellatis. Spiculae e maximis in genere, sine aristis circ. 4,5 cm, aristis computatis 18—20 cm longae, lanceolato-lineares, pallide viridulae v. leviter violascentes. Glumae steriles inaequales, I. circ. 35 mm, II. 45 mm lg., subulato-lineares, sensim in setam

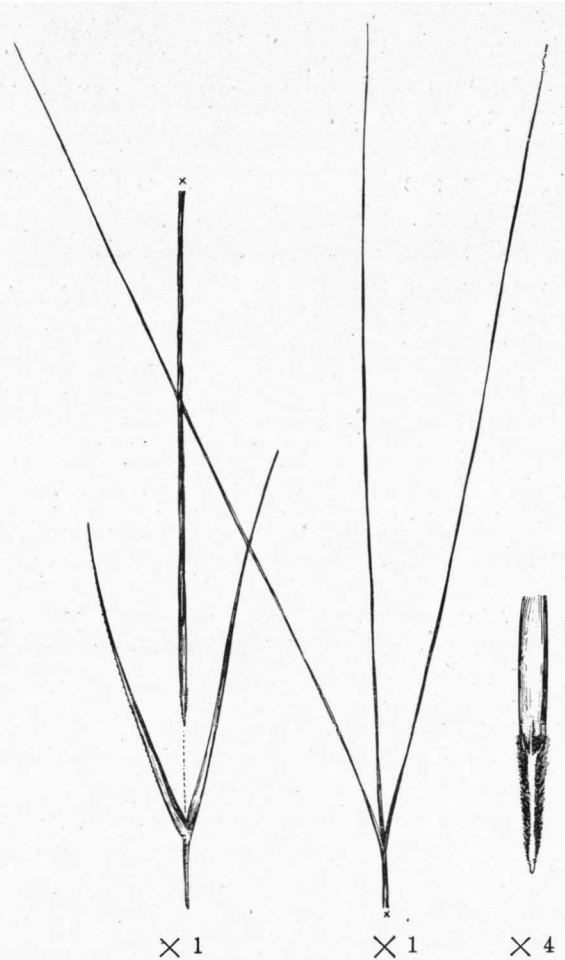
circ. 10—15 mm longam scabram attenuatae, 1-nerves, carina in I. serrulato-scaberrima, in II. laevis. Gluma fertilis linearis, filiformis, cum callo pungente 3 mm longo breviter sericeo-barbato 15 mm lg., scaberula v. laeviuscula, pallide viridula, demum cum arista articulata; aristae stipes 5—6 cm longus gyris 12—15 arctissime tortus scaber, rami patuli subaequales 10—12 cm longi subcapillares scabrae. Palea gluma circ. 4-plo brevior oblonga obtusa denticulata obsolete binervis.

Paraguay: Sierra de Amambay: in campis siccis Punta Porá, Dec. 1907, Hassler no. 9795, leg. Rojas.

Species in sectione *Schoenatheron* (Doell in Mart. Fl. Bras.) valde distincta, jam magnitudine spicularum a reliquis diversa, ab *A. riparia implexa* et *chapadensi*, quibus accedit, praesertim gluma I. quam II. brevior distincta.

The type of this beautiful species in HACKEL'S Herbarium

at Vienna, bearing the Vienna number 15558, there is a second specimen in the Vienna Herbarium stamped no. 947. The species is very characteristic on account of the dense, compact panicle with very long spikelets, columns and awns. HACKEL indicates an articulation between lemma and column but I could not find a trace of an articulation and the species belongs therefore indeed to DOELL'S group *Schoenatheron* as indicated by HACKEL and not to the section *Arthratherum*.



ARISTIDA MACRANTHA Hackel.

From type specimen.

Aristida macrathera Richard.

ACHILE RICHARD; Tentamen Florae Abyssinicae seu Enumeratio Plantarum hucusque in plerisque Abyssiniae provinciis detectarum et praecipue a beatis doctoribus Richard, Quartin Dillon et Antonio Petit (annis 1838—1843) lectarum, Paris, Vol. II. [1851] p. 393!

(Voyage en Abyssinie, Paris, Troisième partie, Histoire Naturelle, Botanique, Tome V).

A. annua: culmo caespitoso, gracili, laevi glabro pedali; foliis linearibus angustis acutissimis glabris, margine retrorsum laeviter scaberulis; ligula pilosa vaginis glabris, laevibus; panicula terminali subcontracta, ramosa, ramis appressis elongatis; spiculis subulatis, angustis, longissimis; lepicenae valvula exteriore lineari-lanceolata apice sensim angustata et acutissima dorso carinata et scaberrima, interna paulo longiore apice sensim in seta longiuscula gracili desinente; palea exteriore basi pilis cincta longissima, apice triquetra, spiraliter torta scabra; aristae longissime trifidae ramo intermedio paulo longiore, omnibus subulatis scabris.

Crescit in locis arenosis provinciae montosae *Chiré*, mense Octobre (Quartin Dillon).

Observation. — *L'Aristida macrathera* Nob. a une certaine ressemblance avec *l'Aristida stipaeformis* de Lamarck. Mais cependant elle en est bien différente, même au premier aspect. Sa panicule est beaucoup moins ramifiée, à rameaux moins longs, plus dressés. Les deux valves de la lepicène sont à peu près de même longueur dans notre espèce nouvelle; la valve externe est plus de moitié plus courte dans la plante du Sénégal; la valve interne se termine par une longue soie grêle dans l'espèce abyssinienne; elle est simplement aiguë dans l'autre espèce. Elle se rapproche davantage d'une espèce encore non décrite, *l'Aristida Kotschyi*, ainsi nommée par M. Hochstetter dans les collections de Nubie de M. Kotschy, no. 31. Elle se distingue de cette dernière par sa taille plus élevée; par la valve externe de sa lepicène plus longue que l'interne, terminée par une soie courte à son sommet.

Note: = *Aristida funiculata* Trin. et Ruprecht.

The type in RICHARD'S Herbarium (Herbier E. Drake), now in the Museum d'Histoire Naturelle at Paris, was studied through the courtesy of Prof. LECOMTE. The plant is a well-developed specimen

of the annual *Aristida funiculata*, at once to recognize by the inverse position of the glumes and the characters of the lemma. See this revision on p. 188.

***Aristida macrochaeta* Steudel.**

E. G. STEUDEL; Synopsis Plantarum Glumacearum [1855] p. 134!

Panicula maxima (ultra pedali) dichotoma in inferiore parte hinc inde folia filiformi munita, undique glaberrima; radiis elongatis basi longe nudis medium versus remotiuscule alternatim floriferis; spiculis solitariis vel binis (7—8'' longis); glumis flosculum superantibus inferiore parum breviora, utrisque longe setaceo-acuminatis (leviter purpurascens); setis 3 longissimis flosculum 3-plo superantibus, intermedia lateralibus vix longiore. (Folia, culmus, radix desunt; *M. A. Curtis* legit in) Virginia.

Note: = *Aristida oligantha* Michaux.

The type in the Herbarium of the Museum d'Histoire Naturelle at Paris, kindly received from Prof. H. LECOMTE, bears a label in STEUDEL'S hand: „*Aristida macrochaeta* Steud. (ramus panicula ultra pedalis.) Virginia legit M. A. Curtis. Com̄un. Lenormand". The plant on the sheet is a panicle only, about 30 cm. long. The glumes are long-awned and longer than the lemma, the three awns are about equal, \pm 6 cm. long, spreading and somewhat spirally curved at base.

***Aristida macrochloa* Hochstetter.**

Plantas novas africanas proponit et describit CH. F. HOCHSTETTER; in Flora oder allgemeine botanische Zeitung, Regensburg, Jahrg. XXXVIII. [1855] p. 200!

(Hb. abyss. Buchinger nr. 32).

Radice fibrosa, culmis spithamaeis ad nodos infimos ramosis, nodis vaginis foliisque glabris, his complicato-setaceis, spiculis racemosis, plerumque alternis solitariis breviter pedicellatis, rarius radiis ex rhachide binis, quorum alter spiculis 2—3 instructus; glumis subaequalibus 3—5-linealibus acuminatis vel cuspidatis, ad carinam scaberulis, flosculo basi brevissime barbato, valvula convoluta glumas longe superante 6—8-lineali apice in setas tres validas sub

lente membranaceo-alatas scabras 8—10-lineales excurrente, seta intermedia paulo longiore (inter valvulam et setas nec stipes nec articulatio).

Dieses Gras varirt auf eine merkwürdige Art am nämlichen Exemplar in Färbung der Aehrchen. Bei einigen Aehrchen sind die glumae schön hellblau, die valvula des Blümchens hellgrün; bei andern die glumae hellgrün, die valvula dunkel graublau. Es ist wohl möglich, dass die aufgestellte Art mit *A. pumila* Decaisne zusammenfällt, der sie nahe steht; wohl ebenso nahe steht sie auch der *A. modatica* Steud. (Syn. p. 239.), so dass sie auch mit dieser zusammengehören könnte — denn obgleich die Aehrchen meiner *macrochloa* um ein Beträchtliches grösser sind, so ist die Beschaffenheit der Aehrchen sonst die gleiche. Aber noch weit ähnlicher ist die *modatica* mit der *A. curvata* Nees, und gehört wohl sicher mit ihr zusammen; denn die stark geknieten Halme bei *modatica* wollen nichts bedeuten — das sind Zufälligkeiten, die oft nur von der Localität und andern Umständen abhängen, und noch weniger besagt die Verschiedenheit in der Länge des Halmes, wo es sich nur um einen halben Schuh oder gar nur um einige Zolle handelt. Trinius und Ruprecht haben in der Bearbeitung der Stipaceae in Act. Petrop. unter dem Namen *Aristida vulgaris* eine Menge von Formen, wohl auch theilweise verschiedene Arten, zusammengefasst, worunter auch *curvata* Nees und *pumila* Decaisne, wohin sie auch *modatica* gebracht haben würden, wenn sie sie gekannt hätten, vielleicht auch die gegenwärtige.

Note: = *Aristida adscensionis* L. var. *festucoides* (Poiret) Henrard.

The actual type was not found in herbaria, HOCHSTETTER's plant is probably in the herbarium of the University at Strasburgh. I examined however authentic specimens of Buchinger no. 32 from Abyssinia, collected by SCHIMPER. There is also a good specimen in the Delessert Herbarium at Geneva. From the description given by HOCHSTETTER we learn already that the species is allied to *A. pumila*, having the same extraordinarily long lemma. In *A. macrochloa* the lemma is smooth with a scabrous keel, it agrees with the lemma of *A. festucoides* (see this revision pag. 177). *A. pumila* differs in the lemma which is scabrous, especially in the upper part.

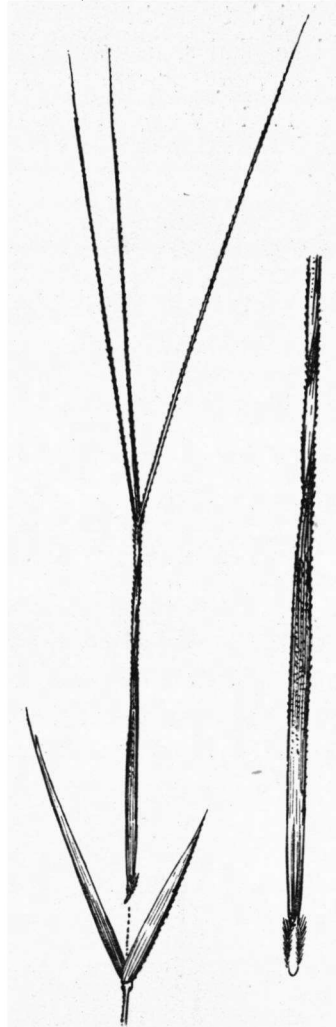
HOCHSTETTER compares his species also with *A. modatica* STEUD, described in the same year, which has however much smaller spikelets (see afterwards under *A. modatica*). What HOCHSTETTER named

A. curvata was the plant edited under that name in Schimper's *exsiccatae* and not the plant named by NEES *Chaetaria curvata*, which is a different South African species. (See this revision on pag. 124—125).

Aristida macroclada Henrard

nov. spec.

(Sect. *Chaetaria*). Perennis. Culmi erecti, sine panícula 3 dm. alti, e nodis inferioribus ramosi, striatuli, teretes, scaberuli, nodis tumescentibus; vaginae scaberulae, striatae, compressae, hiantes, internodiis breviores, prophyllis bicarinatis, fimbriatis; ligula abbreviata, ciliolata, auriculae longe barbatae; laminae angustae, acutae, convolutae, vel inferne planae et ibi pilis sparsis longis praeditae, 20 cm. longae vel summae breviores, multinerves, marginibus haud incrassatis, utrinque scaberulae; panícula circa 30 cm. longa, erecta, rhachi subtereti, basi in axillis glabra, ramis distantibus scabris, binis, longissimis, suberectis, inferioribus ad 15 cm. longis, sensim decrescentibus, in $\frac{1}{2}$ — $\frac{1}{3}$ inferiore nudis, ramulis scaberrimis, brevissimis, paucispiculatis, spiculis subimbricatis, pedicellis scaberulis quam ipsae brevioribus fultis; spiculae virides, glumae lanceolatae, 1-nerves, glabrae, inaequales, inferior acuta vel aristulata, 6,5 mm. longa, carina scabra, superior 10 mm. longa, carina laevis, apice manifeste bifida, inter dentes mucronata vel aristulata, aristula scabra 1 mm. longa; gluma fertilis inferne laevis, superne scabra, columna scaberula, torta, circa 6 mm. longa, callo subobtusato, breviter barbato; $\frac{1}{2}$ mm. longo, circa 12 mm. longa; aristae scabrae, erectae vel subpatentes, centralis 18—19 mm. longa, laterales ad 16 mm. longae.

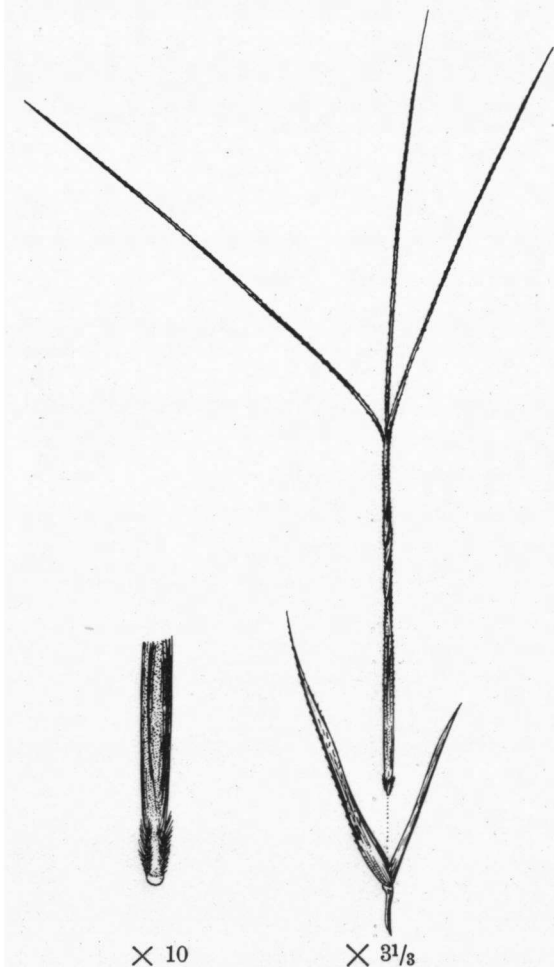


× 4 × 10
ARISTIDA MACROCLADA
 Henrard
From type specimen.

Australia borealis: loco non indicato, anno 1886 legerunt J. E. JENNISON WOODS et M. HOLTZE, ex Nation. Herb. of Victoria, Melbourne no. 12. Typus speciei in Herb. Kew.

Allied to *Aristida latifolia* DOMIN, but distinguished by the convolute blades, the very unequal glumes and the bifid apex of the upper one. *Aristida Schultzii* MEZ and *Aristida Warburgii* MEZ have 3-nerved lower glumes and shorter panicle branches.

Aristida hollathera DOMIN from North Queensland differs in the narrow depauperate panicle, longer glumes, very long column and in the long awns.



***Aristida macrophylla*
Hackel.**

EDUARD HACKEL, ap. R. v. WETTSTEIN; Ergebnisse der botanischen Expedition der Kaiserlichen Akademie der Wissenschaften nach Südbrasilien 1901, in Denkschriften der Kaiserlichen Akademie der Wissenschaften. Band LXXIX. [1908] p. 77!

Perennis? Culmi erecti, ca. 5 dm alti, graciles, teretes, scaberuli, simplices, 3-nodes, nodis in $\frac{1}{4}$ inferiore culmi aggregatis, parum prominulis, vaginis obtectis. Vaginae teretes arctae, internodiis longiores, ore

subauriculato utrinque barbatae ceterum glaberrimae; ligulae brevissimae, truncatae, ciliolatae, ad latera pilis longis stipatae. Laminae anguste lineares, siccitate subjunceo-convolutae, sensim setaceo-

acuminatae, longissimae: inferiores culmi ad 70 *cm* v. plus longae, summa plus quam 40 *cm* longa, omnes erectae, culmum cum panícula longe superantes, explicatae 2—2.5 *mm* lt., subtus glaberrimae, supra dense puberulae, margine valde incrassato laeviusculae, nervis utrinque 6—7 crassis subcontiguis percursae. Panícula oblonga, ad 20 *cm* lg., patula, rhachi scaberula, ramis tenuibus scabris binis, mox supra basin divisis, a $\frac{1}{4}$ inferiore spiculiferis, primariis secundarios plures 2—4-spiculatos superne approximatos gignentibus, spiculis in ramis subaequaliter dispositis vel versus apices confertis, subimbricatis, breviter v. brevissime pedicellatis, pedicellis subterminalibus vix 2 *mm* longis subclavatis scabris. Spiculae lineares, 10 *mm* lg. (sine aristis), livide violascentes v. brunnescentes, glabrae; gluma I. subulato-lanceolata, breviter aristulata (10 *mm* lg., aristula 1 *mm*), chartaceo-membranacea, subcarinata, 3-nervis, nervis extus aculeolato-scabris; II. quam I. $\frac{1}{3}$ brevior (7 *mm* lg.), linearis, acuta, mucronulata, membranacea, 1-nervis, laevis; III. quam I. subduplo brevior (6 *mm* lg.), linearis, basi minute barbulata ceterum scaberula, in stipitem 6—7 *mm* longum gyris ca. 4 tortum scabrum producta, aristis patulis, basi non tortis, scabris, intermedia ca. 20 *mm* lg., lateralibus 17 *mm*. Palea minuta. Antherae 1.5 *mm* lg.

São Paulo. Prope Pilar haud procul ab urbe S. Paulo. 850—800 *m* s. m. 1902 (W.).

In der ganzen Gattung durch die aussergewöhnliche Länge der Blätter, welche den Halm sammt Rispe weit überragen, ausgezeichnet. Sie übertreffen noch jene der *A. longifolia* TRIN., die übrigens nicht nahe verwandt ist, da sie zur Sektion *Rhabdatheron* DOELL in MART. Fl. Bras., II, 3, p. 12, unsere neue Art aber zu *Schoenatheron* DOELL, l. c., gehört, auch einen ganz anderen Bau der Rispe aufweist. Ein anderes sehr gutes Merkmal ist das Längsverhältnis der Hüllspelzen, das dem gewöhnlichen (I. Hüllspelze kürzer als II.) entgegengesetzt ist. Darin stimmt sie mit der auch sonst nahe verwandten *A. Hassleri* HACK. in Bull. Herb. Boiss. 1904, p. 277, überein, die sich aber durch eine Reihe von Merkmalen unterscheidet: Halm mit meist fünf Knoten, deren oberster oberhalb der Mitte steht, an allen oder doch den meisten Knoten verzweigt, die Zweige rispenträgend, abstehend, so dass die Scheiden der Tragblätter vom Halme abgedrängt werden; Scheiden meist kürzer als die Internodien, an der Mündung kahl, Blätter weit kürzer, höchstens 20 *cm*, das oberste 7 *cm* lang, flach oder im Trocknen etwas eingerollt, aber nicht binsenförmig, oberseits rauh, aber nicht flaumig; Rispe sehr locker, ausgebreitet, Äste im unteren Drittel ungeteilt, Ährchen einander nicht berührend; Deckspelze im oberen Teile von feinen Stachelchen sehr rauh, schwarz

gesprenkelt, der ungeteilte Stipes der Granne nur 3 mm lang mit zwei schwach ausgeprägten Windungen, die drei Grannen sind fast gleich lang. Habituell gleicht unsere Art mehr der *A. torta* KUNTH, die aber zur Sektion *Rabdatheron* gehört. Auffallend ist, dass an den zahlreichen untersuchten Exemplaren, die übrigens durch Zerteilung eines grösseren Rasens gebildet zu sein scheinen, gar keine Innovationssprossen zu finden sind. Dennoch ist die Art höchstwahrscheinlich perennierend, weil an der Basis der Halme bräunliche Reste alter abgestorbener Scheiden vorkommen.

The sheet in HACKEL'S Herbarium at Vienna is stamped with the number 15557, it bears a printed label with the name in HACKEL'S handwriting. Duplicates of the species in the Vienna Herbarium (stamped 12127) and in the Herbarium of the University at Vienna, received for study from Prof. Dr. R. VON WETTSTEIN. The species was also collected in Brazil by LÖFGREN, in Paraguay by HASSLER and in Misiones by NIEDERLEIN. In the year 1922 the species was also collected in Misiones by Dr. PARODI (Posadas no. 4241).

Aristida Mallica Edgeworth.

M. P. EDGEWORTH; Florula Mallica, in Journal of the Proceedings of the Linnean Society of London, Vol. VI. [1862] p. 206!

Sect. ARTHRATHERUM. Foliis scabris pilosis, glumis subaequalibus (inferiore paullo longiore) acuminatissimis in setula hispidula terminatis.

Multan.

Nana, vix spithamaea, culmis parce pilosis. Folia scabra. Glumae in setula hispidula terminatae, acuminatissimae, longior paulo brevior (5—7-linealis) carina serrulata. Gluma superior laevis, 1-nervia (4½—6-linealis). Flosculus scaberrimus; arista paullo super caryopsem secedens, stipite scabro-hispido 8—9-lineali, setis duabus 10—12 lin., tertia 14—15-linealibus.

This species is technically most like *Royleana*, Trin. (Steud. Gr. no. 177, p. 143), but the habit is very different; it is of a reddish colour, and very dwarf. It seems to approach nearest to *A. leiocalycina*, Trin. (Steud. Gr. no. 120, p. 146), but I have not seen an authentic specimen of that; the proportion of the glumes also is at variance.

Note: = *Aristida funiculata* Tr. et Rupr. var. *mallica* (Edgew.) Henrard.

This species was mentioned as a synonym under *A. funiculata* in HOOKER Fl. Brit. Ind. VII. p. 226, but it is not identical with the type of *A. funiculata* TRIN. et RUPR. (see this revision pag. 188). The Indian specimens differ constantly in the much shorter column, which is commonly scarcely 20 mm. long or sometimes but slightly longer. HOOKER says 1 inch or less and EDGEWORTH gives 8—9 lines. The awns are always shorter in Indian specimens, 3—3,5 cm. long. The column of the African *A. funiculata* is very long, 4—4,5 cm., and the awns much longer, about 5 cm. long. Typical *A. funiculata* is not observed in British India and the plant from that region is taken up by me as a distinct variety on account of the differences cited above and the different geographical range.

Another plant allied to this variety is *A. paradoxa* STEUDEL, from the Canaries, where the plant is endemic. *A. paradoxa* has a column about 3 cm. long, intermediate in length between typical *A. funiculata* and *A. mallica*, but the awns of *A. paradoxa* have about the same length as the awns of *A. funiculata*, (4,5—5,5 cm.). See afterwards the observations under *Aristida paradoxa*.

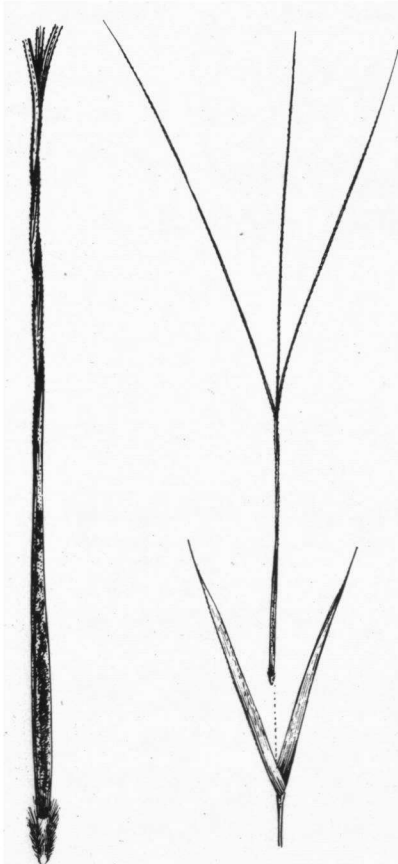
***Aristida Mandoniana* Henrard.**

J. TH. HENRARD, ap. TH. HERZOG; Die von Dr. Th. Herzog auf seiner zweiten Reise durch Bolivien in den Jahren 1910 und 1911 gesammelten Pflanzen. Teil V., in Mededeelingen van 's Rijks Herbarium Leiden no. 40. [1921] p. 55!

Perennis, dense caespitosa. Culmi erecti, ad 8,5 dm alti, teretes, glabri, striati, 3-nodes, simplices, apice longiter nudi. Vaginae internodiis longiores, glaberrimae, inferiores dilabentes, stramineo-fuscae, superiores arctae vel apice parum hiantes, viridi-fuscae; vaginae innovationum pulchre rubro-violaceae. Ligula brevissima, truncata, breviter barbata. Laminae anguste lineares, in siccis complicatae, scabriusculae, sensim longe acutatae, crassinerves. Panicula contracta, angusta, subdensiflora, spiciformis, basi interrupta, fusco-purpurea, 13—20 cm longa et plus minusve 2 cm lata, ramis solitariis, abbreviatis, minute scabris, erectis, primario basi breviter nudo, multispiculato, secundariis 1—3-spiculatis. Spiculae anguste lineares, pallide viridi-fuscae. Gluma prima lineari-lanceolata, membranacea, carinata, carina scabra, 3-nervia, ad 15 mm longa, sensim longe attenuata; gluma secunda dorso leviter carinata, laevis, ad 12 mm longa, ut in prima acutata; gluma fertilis angusta, tubulosa, nigro-maculata, callo acuto 1 mm longo barbato,

sine callo ad 8 mm longa, in stipitem leviter spiraliter tortam plus minusve 4 mm longam abiens. Aristae divisionibus erecto-patentibus, scabris, intermedia circa 25 mm longa, laterales breviores ad 20 mm longae. Antherae 1 mm longae.

Bolivia: Prov. Larecaja, in viciniis Sorata in graminosis, 2700 m,



× 8

× 22/3

ARISTIDA MANDONIANA Hénnard.

From type specimen.

III—IV a. 1861, G. MANDON, Plantae Andium Boliviensium no. 1277 (herb. Lugd. Bat. no. 908. 84—409 et 408).

Auf Bergwiesen bei Samaipata, 1900 m, März 1911 (TH. HERZOG no. 1708).

Die HERZOG'sche Pflanze, sonst habituell mit MANDON no. 1277 identisch, ist weniger gut entwickelt, da viele Aehrchen (parasitisch?) etwas deformiert sind; die Hüllspelzen und auch die Grannen sind etwas kürzer und der sonst stark behaarte Callus ist beinahe kahl. Aber es finden sich auch viele normale Aehrchen, welche denen der MANDON'schen Pflanze völlig gleich sind.

Diese Art stimmt äusserlich überein mit einigen durch ANDERSSON von den Galapagos-inseln beschriebenen Arten, nämlic *Aristida caudata*, *divulsa* und *compacta*, welche aber sofort kenntlich sind durch ihre artikulierten Grannen (*flosculo apice cum arista persistente articulato!*).

Im Habitus kommt unsere Art auch überein mit *Aristida mendocina* PHIL. (= *A. Cordobensis* HACK.), doch ist sie gänzlich davon verschieden durch weniger kompakten Blütenstand und besonders durch das andere Längenverhältnis der Hüllspelzen, da bei *Aristida mendocina* die erste Hüllspelze dreimal kürzer als die zweite ist. Bei *A. Mandoniana* findet gerade das Gegenteil statt und dadurch ist diese Art in Verbindung zu bringen mit *A. Spegazzinii* ARECH., aber vor allem mit *A. inversa* HACK.. Die ARECHA VALETA'sche Art weicht indessen habituell durch niedrigen

Wuchs, nur zwei, am Grunde des Stengels genäherte Knoten und etwa 6 cm lange Grannen sehr von unserer ab.

Die nach der Beschreibung sehr verwandte bolivianische *Aristida inversa* HACKEL's ist verschieden durch zweizählige erste und sehr kurze, nur 3 mm lange zweite Hüllspelze, ausserdem sind bei ihr die Aeste des Blütenstandes nicht alleinstehend.

The lateral nerves of the lower glume are very short and to observe only at the base of the glume, they are often wanting or indicated only. In the German text I noted some differences with *A. mendocina* (= *A. cordobensis*), a species with a very short upper glume. This character was observed by examination of the types, the descriptions of both are wrong as to the true position of the glumes. See *A. cordobensis* this revision p. 118 and *A. mendocina* this revision p. 343.

***Aristida manzanilloana* Vasey.**

GEORGE VASEY; Descriptions of new grasses from Mexico, in Contributions from the U. S. National Herbarium, Washington. Vol. I. [1893] p. 282!

Apparently annual; culms tufted, 2 to 2½ feet high, smooth, slender, erect, simple, or geniculate and branching below; leaves 2 to 3 inches long, plane below, conduplicate above, not rigid, very narrow, almost setaceous; sheaths shorter than the blade; panicle racemose, simple, 4—5 inches long; branches single, or 2 or 3 together, the lower about 1 inch long, sessile, with 3—5 somewhat crowded spikelets; empty glumes about 3 lines long, awn-pointed, nearly equal; floral glume with the undivided awn about 1 inch long when mature, scabrous on the keel, not twisted, flattish, commonly curved above.

Collected in the mountains about Manzanillo by Dr. Edward Palmer, December 1 to 31, 1891 (No. 1084). This species differs from *A. tenuis* variety *flexuosa* in its culms being slender and flexuous, leaves softer, and spikelets with a few scattered hairs.

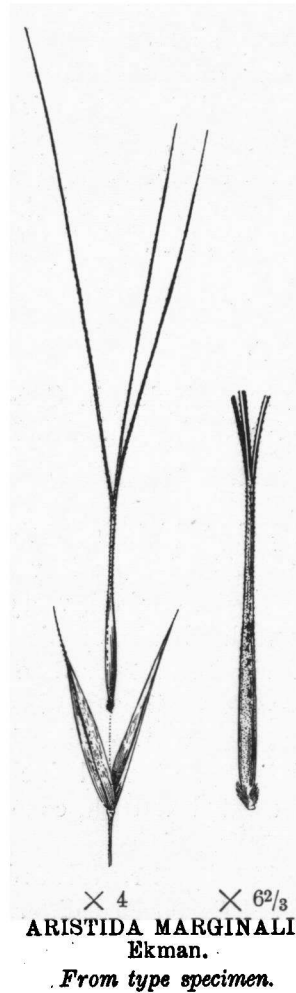
Note: = *Aristida jorullensis* Kunth.

The type in the U. S. National Herbarium is an overmature plant, many flowers are fallen, the culms are 15—35 cm. tall, branching and the panicles 5—11 cm. long. The spikelets agree with those of *A. jorullensis*, the glumes and pedicels have the scattered

hairs of this species. A portion of the type was examined through the kindness of Mrs. A. CHASE.

***Aristida marginalis* Ekman.**

E. L. EKMAN; Neue brasilianische Gräser, in Arkiv för Botanik utgifvet af K. Svenska Vetenskapsakademien i Stockholm Band X. No. 17. [1911] p. 23! Tafel 3, Fig. 2; Tafel 6, Fig. 12!



Perennis. Culmi stricte erecti, graciles, ad 12 dm alti, inferne 1,5 mm crassi, subcompressi vel superne teretes, simplices vel raro parum ramosi, multi- (saepe 11-) nodes, nodis culmi medii crebris, internodiis hic 2—3 cm tantum longis, summis creberrimis, internodiis igitur brevissimis, ut folia summa 2—3 eodem loco inserta videant. Foliorum vaginae arctae, saltem basales subcompressae, striatae, laeves, glaberrimae, internodiis culmi partis inferioris longiores vel iisdem aequilongae, iis partis mediae subduplo breviores, summis valde longiores; ore barbato; ligula truncata, brevissima, ciliata; laminae lineares, e basi lata sensim acutissime acutatae, ad 25 cm longae, basi 3 mm latae, planae, novellae tantum siccitate convolutae, glaucescentes, supra scabrae, subtus laeves, glaberrimae, crassinerves, utroque latere nervis 6—7 subcontiguas percursae, nervo marginali valde prominenti, crassissimo, cartilagineo, stramineo. Panicula oblongo-lanceolata, ad 22 cm longa, 6 cm lata, densiuscula, sat parvi-sed multiflora, rhachi striato-angulata, scabra, glabra, ramis ternis, eodem loco insertis (potius: ramis singulis, ad ipsissimam

basin in tribus divisis) vel superne binis (ramo altero laterali haud evoluta), ramo intermedio trium ad 10 cm longo, usque ad medium indiviso, supra eam in ramulis spiculigeris ad basin divisis inaequilongis soluto, ramis trium lateralibus modo rami intermedii ad basin vel paulo supra eam ramulosis, ramis ramulisque subangulatis, scaberulis. Spiculae singulae, nunc longius, nunc breviter pedicel-

latae, pedicellis scaberulis, apice vix ullo vel obsolete incrassatis, in ramulis aequaliter dispositae, erectae, contiguae, lanceolato-lineares, sine aristis 5—6 mm longae, violaceae, saepe ex parte stramineae, quo panícula multicolor videtur. Gluma I. lineari-lanceolata, 4,5 mm longa, 1 mm lata, obtusiuscula, aristulata, arista scabra 1,5 mm longa, membranacea, membrana sub lente forte pellucido-punctata, universis, nervo extus scabro, violacea, margine pallidior, straminea, metallico-nitens; gluma II. iam aequans, in arístam 1 mm longam sensim attenuata, ceterum ut in prima; gluma III. fertilis anguste linearis, 5 mm longa, arcte involuta, livida, maculis magnis atro-violaceis ornata, callo barbato, in stipitem abiens vix perspicuum 1 mm longum, rectum, scabrum, aristis patulis, basi non tortis, scabris, intermedia maxima 14 mm longa, lateralibus 9 mm fere longis, omnibus saepe minoribus. Palea minuta. Antherae 1,6 mm longae.

Prov. Matto Grosso, Cuiabá, in margine silvulae („capão”) loco sicco, graminoso, arenoso-argilloso legit G. O. MALME, 26. 4. 03, sub numero 3143 Exp. II. Regn.

Eine durch den grazilen Wuchs, durch die zahlreichen Knoten, vor allem aber durch den sehr hervortretenden Randnerv der Blätter leicht kenntliche Art aus der Gruppe *Rhabdatheron* DÖLL. Habituell erinnert sie etwas an *Ar. torta* KUNTH, und ist wohl mit dieser auch ziemlich nahe verwandt, unterscheidet sich jedoch von ihr durch die eben angeführten Merkmale. Verdickte Randnerven haben auch die von HACKEL 1904 und 1906 beschriebenen resp. *Ar. Hassleri* und *Ar. macrophylla*. Die letztere gehört aber zur Sektion *Schoenatheron* DÖLL, und hat ausserdem die erste Hüllspelze länger als die zweite, und auch *Ar. Hassleri* unsrer Art gegenüber charakterisiert. Beide Spezies weichen übrigens in den Zahlenverhältnissen der Spelzen weit von unsrer ab.

Dasselbe gilt von *Ar. altissima* ARECH. 1903, S. 80, die nicht die Ausbildung der Randnerven, wohl aber die eigentümliche Stellung der oberen Blätter mit ihr gemein hat.

The type in the Herbarium at Stockholm was studied through the kindness of Prof. C. A. M. LINDMAN. The plant belongs to the Regnell Herbarium and is labeled in EKMAN's handwriting. The species is allied to *A. gibbosa* but differs in the short column and in the equal glumes, it is also allied to *A. laevis* which differs in the very unequal glumes and the absence of a column. *A. torta* is a different Brazilian species with very unequal awns of the lemma, the central one strongly curved. *A. altissima* from Uruguay has

much longer spikelets with very long-awned glumes and a scarcely beaked column. *Aristida marginalis* grows along edges of woods and is distinguished from its allies by the flat blades.

***Aristida maritima* Steudel.**

E. G. STEUDEL; Synopsis Plantarum Glumacearum [1855] p. 137!

Radice fibrosa caespitifera; culmis tenuibus ramosis geniculatis teretibus glabris foliatis (3—6-pollicaribus); vaginis arctis tenuissime striatis, ligula pilorum fasciculus; foliis angustissimis planis (vix $\frac{1}{3}$ " latis) vel saepius convolutis rigidulis (1—2" longis); paniculae contractae erectae (2—3-pollicaris) radiis binis vel solitariis divisis, radiolis erectis 1—3-spiculatis, spiculis plus minus longe pedicellatis erectis albis vel coerulescentibus; glumis inaequalibus, superiore flosculum aequante apice subtruncata mucronulata vel brevissime piloso-setulosa; aristis nudis subaequalibus 3-linealibus, flosculo recto parum longioribus. Aristidae dispersae *Trin. Rupr.* nimis vage constitutae formis associanda? In maritimis Guadaloupe.

Note: = *Aristida adscensionis* L.

The type I saw in STEUDEL's Herbarium at Paris, kindly received from Prof. H. LECOMTE. The sheet is labeled in STEUDEL's handwriting: „*Aristida maritima* Steud. In sabulosis aridis maritimis Insl. Guadaloupe. Duchaissing." The type consists of two annual plants, exactly agreeing with the common *A. adscensionis* as found on the West Indian Islands.

***Aristida Marlothii* Hackel,**

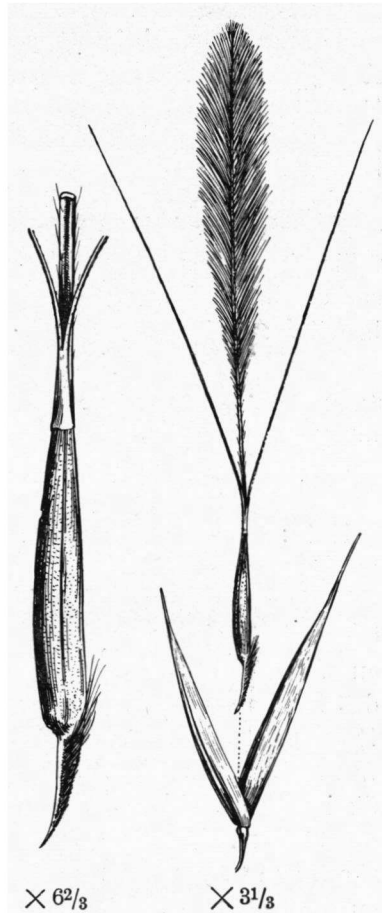
in *Plantae Marlothianae*, ENGLER; Botanische Jahrbücher, XI. [1889] pag. 400!

(Sect. *Arthratherum*.) Perennis, rhizomate crassiusculo. Culmi innovationesque (hae extravaginales) basi squamis firmis obtusis mucronatis dense tunicati. Culmi 40—50 cm alti, ascendentes, teretes, multinodes, glaberrimi, simplices. Folia versus culmi basin conferta, glauca: vaginae arctae, teretes, internodiis superioribus breviores, inferioribus longiores, nodis reflexo-barbatae, ceterum glaberrimae; ligula vix ulla, obsoleta; laminae lineares, pungenti-acuminatae, 3—4 cm longae, rigidissimae, patentes, siccitate convolutae et junci-

formes (diametro 1,5 mm), subtus glaberrimae, supra puberulae, nervis 5—7 aequalibus supra prominentibus (interjectis singulis secundariis tenuibus) percursae. Panícula ampla, pyramidata, 15—20 cm longa, laxa, patens, rhachi glaberrima, ramis inferioribus 3nis—4nis in axillis barbatis, tenui-filiformibus glaberrimis, primario etiam supra basin ramuloso, 5—6 spiculato, reliquis 2—3 spiculatis. Spiculae pedicellis glaberrimis glumas aequantibus v. superantibus fultae, lineari-lanceolatae, dempta arista 12—14 mm longae, flavo-viridulae: glumae steriles lanceolatae, acuminatae, glabrae, 3 nervis, I^{na} 10 mm, II^{da} 13 mm longa, gluma florifera lineari-oblonga, cum callo 2 mm longo acuto breviter barbato sed dempta arista 8 mm longa, praeter callum glaberrima, 3 nervis, plumbea. Aristae stipes brevissimus (1 mm longus) v. obsoletus, minime tortus, tubulosus, a glumae apice articulatum deciduus; divisiones parum inaequales, erecto-patulae, media ca. 18 mm longa a basi plumosovillosa, villis sursum accrescentibus, laterales ca. 14 mm longae, in $\frac{1}{2}$ inferiore glabrae, scabrae, in $\frac{1}{2}$ superiore breviter ciliatae. Palea 1 mm longa, obtusissima. Antherae 7 mm longae.

Hereroland, in dunis prope sinum Walfischbai (Marl. n. 1039a). — Florif. m. Apr. 1886.

Ab omnibus speciebus austro-africanis nostrae affinitibus (e. gr. *A. capensi* Thunb., *A. lutescente* Nees) differt aristae stipite brevissimo v. obsoleto; ab *A. pungente* L., cujus stipes aristae etiam brevis (quamvis non ita) differt aristae divisionibus lateralibus non plumosis sed breviter et non nisi in parte superiore ciliatis.



ARISTIDA MARLOTHII Hackel.

From type specimen.

According to Dr. STAFF, in *Flora Capensis* Vol. VII. p. 567, only a variety of *A. lutescens*, but although allied to it, a distinct species, distinguished by the very short column, the retrorsely bearded nodes and the hairy axils of the panicle branches. The type bearing

HACKEL's handwriting in the Engler Herbarium at Berlin. There is also a specimen from ENGLER's Herbarium in HACKEL's collection stamped with the Vienna number 22108, labeled: Damaraland, Marloth, n. 1176. The type has the same number 1176 and the number 1039a, cited in the description, is probably an error.

***Aristida mauritiana* Hochstetter.**

Nomen nudum in SCHIMPER; It. Abyssinicum. Sectio secunda. no. 1047!

Descriptio in A. RICHARD; Tentamen florae Abyssinicae, Vol. II. [1851] p. 392!

A. culmo a basi ramoso, geniculato, gracili, spithaemeo, glabro; foliis linearibus convolutis acutis, glabris, laevibus; ligula pilososericea brevissima; panícula contracta interrupta, subsecunda, ramis brevibus: lepicenae valvula exterior lanceolata acuta, dorso carinata, scaberulaque; interiore paulo longiore florem aequante apice subobtusa; arista tripartita; aristae ramis triquetris basi quasi alato-marginatis scabris, intermedio paulo longiore.

Crescit ad pagum *Ailet*, in provincia *Medat*, mense Martio (Schimper).

Note: = *Aristida adscensionis* L.

Under the name of *Aristida mauritiana* Kunth, the plant was edited in exsiccatae with a printed label: Schimperiter Abyssinicum. Sectio secunda. No. 1047. In provincia Modat ad pagum Ailet d. 31. Mart. 1839. The description was published by RICHARD under HOCHSTETTER's name. RICHARD probably overlooked KUNTH's species from the year 1829. The plants belong to *A. adscensionis*, they are distinctly annual and agree in the spikelet characters with *A. festucoides* POIR., the lemmas are however not so long although exceeding the glumes, for the rest they have quite the same form and the surface of the lemma is quite smooth with a scabrous keel. See also my observations under *A. modatica* STEUDEL.

***Aristida mauritiana* Kunth.**

CHARLES SIGISMOND KUNTH; Révision des Graminées dans les Nova Genera et Species plantarum de Humboldt et Bonpland, Paris. [1829] Tom. I. p. 265. tab. 44!

Foliis involuto-filiformibus culmisque glabris, erectis, subsimplicibus; panícula simplici, racemosa; glumis inaequalibus, obtusiusculis,

glabris; inferiore carina scabra, mucronulata; palea inferiore glabriuscula, glumam superiorem subaequante; aristis inaequalibus, scabris.

Crescit in insula Franciae.

Radix fibrosa. Culmi caespitosi, erecti, 8—10-pollicares, simplices vel inferne ramulo uno alterove sterili instructi, teretes, filiformes, sulcati, glabri, ad nodos subgeniculati; nodis imberbibus. Folia angustissima, convoluto-filiformia, sulcato—9-nervia, glabra, margine scabriuscula, subflexuoso-curvata; summum $2\frac{1}{2}$ -pollicare; inferiora gradatim breviora. Ligula abbreviata, membranacea, ciliata. Vaginae sulcato-striatae, viridi-subpurpurascens, glabrae. Paniculae terminales, simplices, racemosae, $3\frac{1}{2}$ -pollicares; ramulis alternis, remotis, scabriusculis, adpressis. Spiculae pedicellatae, uniflorae; pedicello hispidulo. Flos stipitatus, glumam inferiorem duplo superans; stipite sericeo-barbato. Glumae duae, membranaceae, uninerviae, carinatae, stramineo-subpurpurascens, inaequales; inferior oblongo-lanceolata, obtusiuscula, mucronulata, carina hispidulo-scabra; superior duplo longior, lanceolata, apice obsolete triloba et ciliolata, carina glabra. Paleae duae, valde inaequales; inferior subcarinato-involuta, apice triaristata, trinervia, glabra, apicem versus scabra, virescens; aristis scabris, patulis, haud articulatis, viridi-purpurascens, longitudine paleae, intermedia paulo longior. Palea superior minuta, ovarium vix aequans, obovato-elliptica, apice rotundata enervia, glabra, tenuiter membranacea, hyalina, genitalia amplectens. Squamulae duae, stipiti ovarii basi adnatae, laterales, paleam superiorem et ovarium paulo superantes, subspathulatae, inferne dilatatae, obtusae, membranaceae, hyalinae, glabrae, obsolete quadrinerviae. Stamina tria, stipiti ovarii basi adnata, unum anterius, duo lateralia. Filamenta capillacea, glabra. Antherae oblongo-lineares, utrinque bifidae, lobis acutiusculis, croceae, biloculares, secundum totam longitudinem dehiscentes. Pollinis granula minutissima, subrotunda, hyalina. Ovarium oblongo-fusiforme, breviter stipitatum, glabrum.



ARISTIDA MAURITIANA Kunth.

From type specimen.

Styli duo, terminales, breves. Stigmata plumosa, flavescentia; pilis simplicibus, obsolete denticulatis, hyalinis. Caryopsis linearis, teretiuscula, obtusa, glabra, interne sulco longitudinali notata, libera, fuscescens, paleis arcte involuta superioreque paulo brevior, levissime torta. Albumen farinaceum, album. Embryo fructu dimidio brevior, subulatus, exterior. Corculum subcylindraceum, utrinque obtusum, in fissura cotyledonis locatum, infra medium affixum ipsaque dimidio brevior.

The type in the Kunth Herbarium at Berlin was studied through the courtesy of Prof. R. PILGER. There are two sheets, the first is labeled: „*Aristida mauritiana* K. Insula francae Ex Museo Paris 1820.” On this sheet Prof. MEZ has written: „Typus speciei”. The second sheet is labeled: „Hb. Kunth. *Aristida tenuis*. 54. Ex herb. Aub. du Petit-Thouars 1829” and an accompanying label bears the name „*Aristida Thouarsii* m.” in TRINIUS' handwriting. Both specimens are identical and belong to a very characteristic species found in Mauritius and in Reunion (Bourbon). The species is annual and belongs to the *Chaetaria*-group, it somewhat resembles the *A. adscensionis*, but is widely different in the long, filiform leaves and the very narrow interrupted panicles with very small spikelets. The very accurate description of KUNTH mentions the curious characters of the spikelets, the obtuse glumes, both having a bifid apex and a mucro from the sinus. The lower glume is 3 mm. long, the upper about 4,5 mm. long, the lemma including the $\frac{3}{4}$ mm. long callus is about as long as the upper glume, the awns are somewhat unequal, the central \pm 7 mm., the lateral ones \pm 5,5 mm. long.

***Aristida meccana* Hochstetter,**

ap. C. B. TRINIUS et F. J. RUPRECHT; Species Graminum Stipaceorum in Act. Acad. Imp. Scient. Petrop. Ser. VI. Tom. V. [1842] p. 152!

Paniculae 2—3 pollicaris, contractae, linearis l. oblongae, flexuosae, basi demum exsertae radiis inferioribus solitariis, erectis l. adpressis, $\frac{3}{4}$ pollicaribus, fere a basi dense floriferis; glumis glabris inaequalibus: superiore fere trilineali, apice bidenticulata et brevissime mucronata, inferiorem acutam duplo excedente; flosculo trilineali, glabro, apice laxe l. densiuscule *torto* et cum basi aristae (vix sua sponte) *solubilis distincte articulato*; setis subaequalibus, patentibus l. divaricatis, 7—9 linealibus.

In valle Fatme prope Meccam rarius (a cel. Schimper lectam mis. Hochst. et Steud.); Flora Sinaïtica. (Ehrenberg! — panicula pollicaris, plerumque vaginata, radiis jam a basi ima divis.)

Radix annuae? fibrae paucae tomentosae. *Culmi* 5—8 pollicares, erecti, ad nodos parum geniculati, tenues, ut tota planta glauci. *Vaginae* internodiis breviores, ore tenue et longe barbato-pilosae. *Folia* pollicaria, rigidiuscula, patentia l. divaricata, lineari-complicata. *Flosculus* inferne $1\frac{1}{2}$ lineam longus, ovatus, dein in stipitem aequilongum angustatus. *Arista* solubilis ad articulum, sed a flosculis etiam maturis sponte delapsam non vidimus. Teneritudine et spiculis angustis insignis.

A rare species with a very curious geographical distribution. Described from two localities it was neglected during a long time. The plants edited in KOTSCHY'S *exsiccatae* under the name of *Aristida Meccana* HOCHST. pl. arab. mscpt., belong to a different species, described by TRINIUS and RUPRECHT as *A. mutabilis*. From the description of *A. meccana* HOCHST. published by the Russian monographers we find however that *A. meccana* HOCHST. from the year 1842 is a different species. The species was not recognized and described once more as *A. Schweinfurthii* by BOISSIER in his *Flora Orientalis* from the so-called Arabian desert between Ras Benas and Kosseir. The type specimen of *A. meccana* was collected by SCHIMPER in the Valley of Fatima between Mecca and Djedda. I have not seen this plant but I saw very beautiful specimens collected at the type locality by HILDEBRANDT and by KRUIJT, specimens perfectly agreeing with the description. The cotype was collected by EHRENBERG on the Sinai, from this locality I have seen specimens, identical with the Arabian plants. The species occurs moreover in the Arabian desert (Boissier's type) and in Southern Arabia in the vicinity of Aden (Schugra), collected by SCHWEINFURTH in the year 1881 on the Riebeck Expedition.

The species was also found on the Island Gran Canaria near Cape Mas Palomas in the year 1856 by BOLLE, a very curious locality and it may be that the species was introduced there from the Orient. A figure of the spikelet will be given afterwards under *A. Schweinfurthii*. See that species.

***Aristida megapotamica* Sprengel.**

KURT SPRENGEL; *Curae posteriores in Systema Vegetabilium*, ed. XVI. Vol. IV. Pars II. Göttingen. [1827] p. 31!

A. paniculae strictae elongatae ramis subsecundis, calycibus longissimis aristatis glabris, arista corollae longissima patula scabra.

Rio grande. Sello.

Modern authors have pointed out that *Aristida megapotamica* is the earliest name of a species afterwards described as *A. implexa* by TRINIUS. O. KUNTZE¹⁾ first used the name given by SPRENGEL and he was followed by EKMAN²⁾. In his work on *Aristida HITCHCOCK*³⁾ placed *A. megapotamica* in the genus *Stipa*. He says: „the type specimen in the Berlin Herb., collected by Sello in Rio Grande do Sul, Brazil, is a species of *Stipa*. Sprengel's description indicates a species of *Stipa* rather than of *Aristida*, „arista corollae longissima patula scabra". Doell refers this to *Stipa filifolia* Nees." I have studied this question accurately and although I generally agree with American authors that it is better to accept a name which leaves no room for doubt and that names, belonging to shortly and insufficiently described species ought to be neglected, we have to consider each case upon its real value and I wish to give here a short history of the species.

It was not SPRENGEL's fault that afterwards his plants, belonging to a single label in his handwriting, were separated and therefore I give here some particulars on SPRENGEL's plants. SPRENGEL was professor at Halle and his herbarium was divided after his death, the grasses came in possession of CARL MÜLLER who described many species from SPRENGEL's herbarium⁴⁾. If we study the Herbarium at the University of Halle we find that all the plants are unmounted, they are lying in covers and the labels are partly attached to the specimens, but mostly free from them, so it is nearly impossible to find out the plant to which belongs a label. This is very disagreeable because many plants were used by DOELL, for the Flora Brasiliensis. DOELL's labels are mixed with the other labels in the cover. From DOELL's work we know that he has seen the *A. megapotamica*, a species he mentions on different places. Under *A. pallens* Cav. on p. 14 he gives as a synonym *Aristida Megapotamica Sprengel Cur. post. 31, ex parte* and under *A. implexa Trin.* on pag. 25, the synonym *A. Megapotamica Sprengel in herb. Acad. Hallens., ex parte. Alterum ejusdem plagulae specimen Stipam filifoliam exhibit*, with the observation: *Aristida Megapotamica Sprengel (Cur. post. 31), de qua apud TRINIUM (Act. Petrop. 1849. p. 124) sermo est, in Academiae Hallensis herbario „specimen" exhibit*

1) O. KUNTZE; Revisio Generum Plantarum, pars III². [1898] p. 340.

2) E. EKMAN; Die Gräser des brasilianischen Staates Paraná, Arkiv för Botanik, XIII. no. 10. [1913] p. 38!

3) A. S. HITCHCOCK; Contrib. U. S. Nat. Herb. Vol. XXII. [1924] p. 553!

4) C. MÜLLER; De Graminibus novis vel minus cognitis, Bot. Zeitung XIX. [1861] p. 313!, p. 323!, p. 332!, p. 338!

verosimiliter authenticum, quod integram *Aristidae implexae* stirpem atque *Stipae filifoliae* inflorescentiam complectitur. In the same work on p. 10 DOELL gives under *Stipa filifolia* Nees as a synonym *Aristida Megapotamica* Sprengel Cur. post. 31 ex parte, with a note: „Herbarii Sprengeliani specimen, hoc nomine insignitum, inflorescentiam defractam offert ad *Stipam filifoliam* pertinentem.”

SPRENGEL'S authentic label, in his handwriting, bears three different names, belonging to three different plants, formerly lying together in the same cover. The different plants in SPRENGEL'S cover are easy and at once to recognize. The label in SPRENGEL'S script bears the following names:

Ad Arist. murinam Cav.

Aristida megapotamica

et

Chaetaria pallens Nees gram bras. p. 380.

Among the three plants there was an inflorescence of a *Stipa*, mixed by accident under the plants. To this cover of SPRENGEL belonged three labels in DOELL'S handwriting, one of the labels reads: „*Aristida implexa* Trin.”, a second label reads: „*Panicula: Stipa filifolia* Nees,” the third label: „*Aristida pallens* Cav. var. (das reichblätterige Exemplar)”. If nothing had been changed, the question was finished here, but in the year 1890 the SPRENGEL types were placed in the Berlin Herbarium. They were mounted there and a printed label: „Mus. botanicum Berolinense. Herb. Kurt Sprengel a. 1890 acc.” was added. Unfortunately the authentic label of SPRENGEL bearing the different names cited above, was placed in the Berlin Herb. with one of the labels by DOELL and but one of the plants from SPRENGEL'S cover. The sheet in the Berlin Herb. bearing SPRENGEL'S authentic label with his three names is not the type at all, it is but a part of SPRENGEL'S plants and indeed „das reichblätterige Exemplar” as indicated on DOELL'S accompanying label. The plant at Berlin is as to the vegetative parts and the spikelet characters an immature plant of the true *A. pallens* Cav. On this sheet Mez has written: „Typus speciei! *Aristida megapotamica* Spr.”, but in different herbaria this name was generally given by him to *A. implexa*.¹⁾

In the Halle Herbarium we find however the cover with the

¹⁾ The specimen indicated by TRINIUS as *Arthratherum megapotamicum* NEES (see this revision on p. 256) in the Berlin Herbarium, is *A. implexa*; it is labeled by NEES: „*Arthratherum megapotamicum* mihi *Aristida megapotamica* Spr. Brasilia Sellow”. On this authentic label is written: „Carl Mez IX. 20.” *Aristida megapotamica* was omitted in NEES' *Agrostologia Brasiliensis*.

name *megapotamica* Spr., containing the other plants named on SPRENGEL's authentic label. These plants are: a well-developed specimen of the true *Aristida murina* CAV., further a well-developed very beautiful specimen of *A. implexa* TRIN. and a label with DOELL's determination, in the same cover there is a panicle of *Stipa filifolia* with a label giving DOELL's determination and the word „Panicula”.

In the year 1861 CARL MÜLLER writes on *A. megapotamica* in Bot. Zeitung p. 342. He says: „Erst später erfuhr Sprengel, dass seine Pflanze eins sei mit *Chaetaria pallens* Cav. (Nees Agrostol. Brasil. p. 380), was er auch nachträglich in seinem Herbar bemerkte”. Indeed, SPRENGEL's *A. megapotamica* is from the year 1827 and it may be that the additional notes were written by him in the year 1829 (Nees Agr. Bras.), but it is wrong to accept therefore the *Chaetaria pallens* as the type of *Aristida megapotamica*. SPRENGEL recognized the *A. murina* (first name on his label), he also recognized *Aristida pallens* (third name on his label), the second name on his label (*megapotamica*) thus belongs to one of the two remaining specimens in his herbarium, but we cannot accept that this name corresponds to the fragment of a *Stipa* and we must accept that SPRENGEL's name belongs to the very good specimen of *Aristida implexa*.

That SPRENGEL's description is insufficient is no reason to reject his name, there are so many species of old writers with such totally insufficient diagnoses, but it is not true that the description points to *Stipa filifolia* rather than to *Aristida megapotamica*, because SPRENGEL's „*calycibus longissimis aristatis glabris*” clearly points to *A. implexa*, a species with such very long-awned glumes (see my figure on p. 256 of this revision) and not to *Stipa filifolia*, where the glumes are acute or acuminate but not long-awned. SPRENGEL's „*arista corollae longissima patula scabra*” points also better to *A. implexa*, whereas in *Stipa filifolia* the awn is not long and not spreading. The comparison of the two plants in SPRENGEL's Herb., at once clears up SPRENGEL's phrases. The study of SPRENGEL's authentic label together with all the specimens in the Halle Herb. and the specimen in the Berlin Herb. has elucidated this difficult question and once more proves how difficult it is to select the type.

Selecting the type is by no means a mechanical method, but it is the result of a careful study of all the data found on authentic labels in connection with the published description and the plants found in herbaria.

***Aristida mendocina* Philippi.**

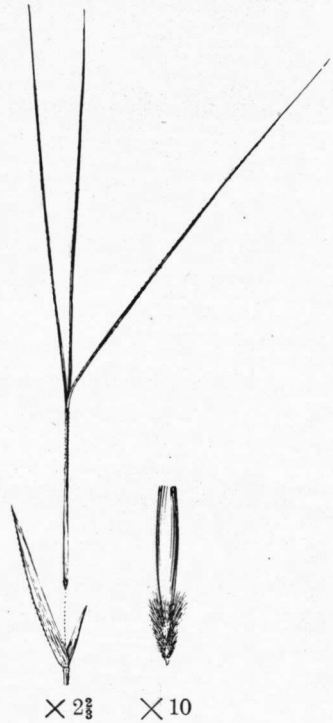
RUDOLPH AMADUS PHILIPPI; *Sertum mendocinum alterum*, Santiago, Chili. 2. [1871] p. 205 no. 239.

A. panicula elongata, gracili, spiciformi; spiculis subsessilibus; gluma inferiore vix tertiam partem superioris aequante, superiore mutica, paleam inferiorem nigricantem aequante; pedicello piloso; ramis aristae haud articulatae paleam sesquies aequantibus, 9 lineas (20 millimetros) longis.

Mendoza.

Toda la planta es de un color garzo. Los tallos son filiformes, lampinos, ramificados i alcanzan a 1 i cuarto pies o sea 235 milímetros.

Las vainas son peludas en su boca; la lamina de las hojas tiene unas 2 i media pulgadas (69 milímetros) de largo, i 1 linea (2 milímetros) de ancho; su base es plana, pero luego se enrollan; su borde es escabro. La panoja puede tener hasta 6 pulgadas (15 centímetros) de largo, i tiene sus ramos mui distantes en su parte inferior i del largo de 2 pulgadas (50 milímetros). La gluma inferior mide 1 i media lineas (3 milímetros), la superior 4 lineas (8 i medio milímetros), la palea inferior lo mismo. Los ramos de la arista son iguales i escabros.



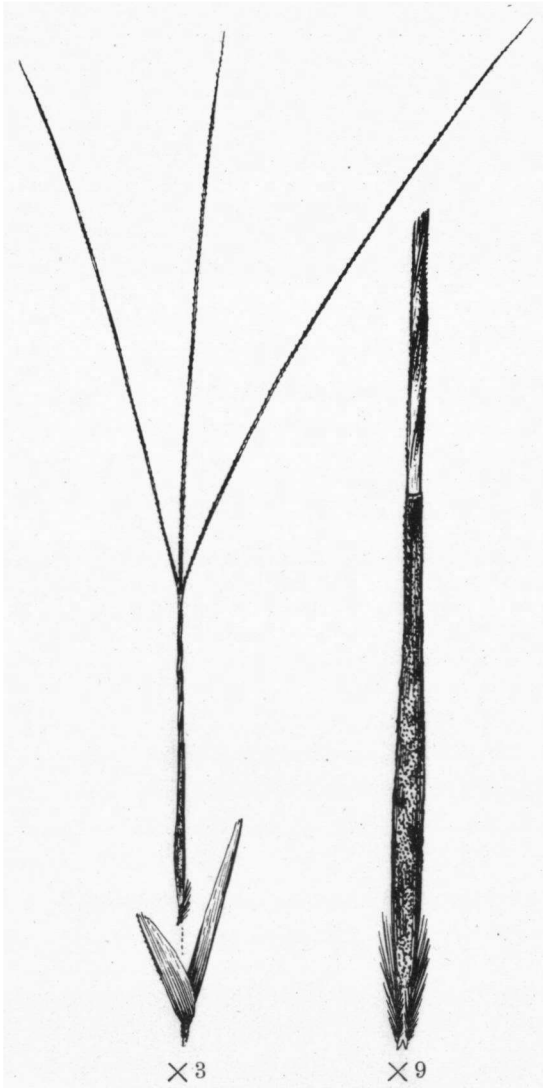
ARISTIDA MENDOCINA Philippi.

From duplicate type specimen.

In PHILIPPI'S description the lower glume is given as shorter and scarcely $\frac{1}{3}$ as long as the upper one. I have not seen the actual type, but the species described by PHILIPPI has an inverse position of the glumes, the lower glume is about 8 mm. long and the scarcely 3 mm. long upper one is mostly hidden by the outer one. See also my observations under *A. cordobensis* HACK. on pag. 118 of this revision.

I have studied an authentic specimen in the Rijks Herbarium labeled: „Philippi pl. chilens. *Aristida mendocina* Phil. — Ipse. Mendoza”. (Herb. Lugd. Bat. sub no. 908.83—1456). I have seen two authentic specimens perfectly agreeing with this specimen in

HACKEL'S herbarium, one: „Philippi. Ed. Hohenacker, cordillera alt. chili”. (Vienna number 15552), another labeled: „Philippi. Ed. Hohenacker, in cordillera ad montem Pise, Febr. 1852”, (Vienna number 15553).



ARISTIDA MERIDIONALIS Henrard.
From type specimen.

Aristida meridionalis
Henrard
nov. spec.

(Sectio *Arthratherum*).

Perennis, caespitosa, innovationibus intravaginalibus; culmi stricte erecti, ad 1,5 m. circa alti, simplices vel parum ramosi, teretes, glaberrimi, paucinodes, basi fere arundinacei, diametro inferne circ. 2—8 mm.; vaginae inferiores laxiusculae, demum a culmo solutae, teretiusculae, laeves, nitentes, superiores arctae, internodiis breviores; ligula brevissima, ciliolata, auriculae floccoso-barbatae; laminae lineares, angustae, inferne planae, 1—5 mm. latae, superne setaceo-convolutae, 30—40 cm. longae, interdum flexuosae, subtus laeves, supra scaberrimae; panicula effusa, laxa, 30—50 cm. longa, 15—30 cm. lata, rhachi tereti, stricta vel superne flexu-

osa, laevi, ramis 2—3nis patentibus, inferioribus 10—20 cm. longis, ramulis filiformibus vel capillaribus flexuosis, scaberrimis, basi longe nudis, pedicellis capillaribus; spiculae livide brunnescentes vel rubro-violascentes, glumae valde inaequilongae,

1-nerves, firmulae, haud carinatae, *inferior* lineari-oblonga, obtusa vel emarginata, apice ciliolulata, circa 4–5½ mm. longa, *superior* angustior, lineari-lanceolata, bidentulata, circa 9–12 mm. longa, *gluma fertilis* linearis, tubulosa, laevis, callo bifido dense barbato circa 1½ mm. longo, 6–9 mm. longa, articulatio manifesta, columna spiraliter torta, scabra, circa 6–10(–15) mm. longa, aristae divergentes vel suberectae, subaequales, circa 2,5 cm. longae vel centralis ad 3 cm. longa, palea lata, circa 1 mm. longa, lodiculae minute striatulae, antherae 2 mm. longae.

Africa australis: Tsumeb, Jan. anno 1912 leg. K. DINTER no. 2476. Typus speciei in Herb. Lugd. Batav. sub no. 922.258–618.

A very beautiful plant, sometimes, in wet places of a man's height and then very robust. DINTER's specimens from Tsumeb were collected in turfey meadows. Allied to *A. diffusa* TRIN. which however differs at first sight in the wanting flake of wool at the mouth of the sheaths, the shorter column, the narrower glumes and the not so deeply bifid callus. *Aristida diffusa* is moreover never such a robust plant. Also allied to the North African *A. stipoides* LAM. (= *A. amplissima* TR. ET RUPR.), a species with the same deeply bifid callus and the flake of wool at the throat of the blades but distinguished by the very long column (about 4 cm.) and the not so densely caespitose mode of growth with fewer innovation shoots.

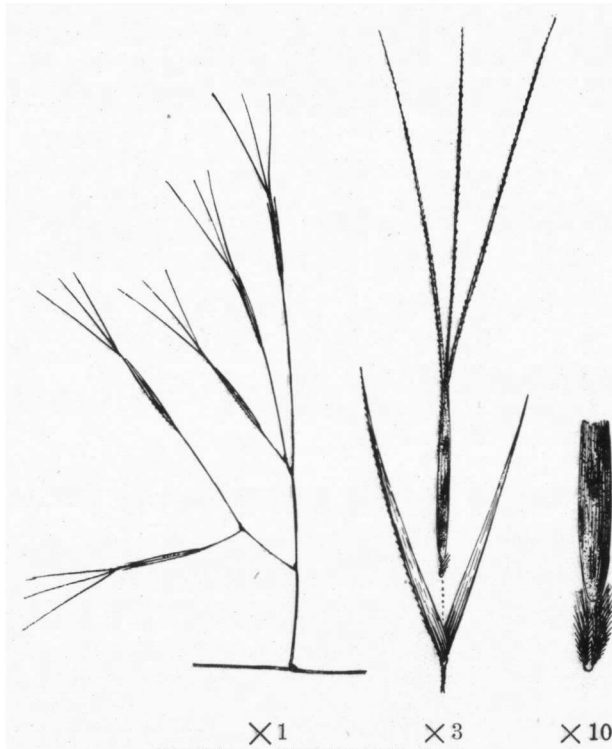
The species was described by Dr. STAPF as a variety of *Aristida stipoides* in Flora Capensis Vol. VII. p. 562 but it differs from the type of *A. stipoides* in the characters cited above. I have seen all the specimens mentioned by Dr. STAPF, through the courtesy of Dr. A. W. HILL. Rehmann, 3386 is an immature specimen, Burchell, 2188 is an overmature plant, all the awns with the columns are fallen off, but the specimen agrees in all the characters with the plants collected by Buchanan, no. 56, 68 and 281, the latter are well-developed but not quite mature. *Aristida stipoides* is limited to North Africa, from the Senegal to Abyssinia extending southward to British East Africa (Unyamwesi). I did not find intermediate specimens between *A. stipoides* and *A. meridionalis*, the distinguishing characters are supported by a distinct geographical distribution, therefore I have treated them in my work as species.

***Aristida mexicana* Scribner**

nov. spec.

(Sect. *Chaetaria*). Perennis, caespitosa, elegans, 30 cm. alta, innovationibus intravaginalibus. *Culmi* simplices, erecti vel leviter ascen-

dentis, basi squamis vetustis obtecti, teretes, leviter striati, praesertim infra paniculam hirtelli vel subpubescentes. *Vaginae* glabrae, scaberulae, compressae, haud carinatae, striatae, internodiis longiores, marginibus subhyalinis. *Ligula* abbreviata, dense breviterque ciliata, auriculae barbatae, collo pubescente vel hirsuto. *Laminae* lineares, complicatae vel in parte inferiore subplanae, glauco-virides, utrinque scabrae, marginibus scaberrimis, sensim angustatae, acutae, 10—20 cm. vel plus longae, explanatae 1 vel vix 2 mm. latae. *Panicula* primo



ARISTIDA MEXICANA Scribner.
From type specimen.

subpyramidata, ad 30 cm. longa, 20 cm. lata; *rhachi* subcompressa vel subtereti, praesertim in parte inferiore, inferne leviter hirtella, superne angulata, scabra; *ramis* solitariis, angulosis, scaberulis, interdum mox supra basim jam divisis, angulo recto patentibus, elongatis, inferioribus in axillis barbatis pubescentibusque, 10 cm. longis; *ramulis* iterum divisis, paucispiculatis, spiculis fere aequaliter dispositis patentibus, longe pedicellatis,

pedicellis in terminalibus et subterminalibus spicula triplo longioribus, in lateralibus spicula (dempte aristis) paulo brevioribus. *Glumae* bruneo — vel viridi—violascentes, angustae, longe acuminatae, aristatae, arista circa 1 mm. longa, setae laterales nullae, uninerves, subaequales vel inferior paulo longior, gluma I. circa 13 mm. longa, carina scabra, gluma II. 12 mm. longa, carina laevis, *gluma* III. *fertilis* tubulosa, nigro-maculata, laevis, carina superne scabra, callo barbato subacuto, \pm 1 mm. longo, 8 mm. longa, superne leviter angustata, haud stipitata neque torta, aristae scabrae, erectae,

subaequilongae, 16–17 mm. longae, arista media interdum subpatens.

Mexico: in arenosis prope Tlalpam, 7300 ped., 2 Sept. 1896; leg. G. G. PRINGLE, *Plantae Mexicanae* no. 6408, sub nomine *Aristida mexicana* Scribner n. sp. Near *A. Havardii* Vasey. Typus speciei in Herb. Lugd. Bat. sub no. 926.134–806.

This species was edited in Pringle's exsiccatae with SCRIBNER'S manuscript-name, but the species was never published. The habit is very distinct, on account of the long-pedicelled spikelets, giving the panicle a very loose and open aspect. The plants belonging to this species were included by HITCHCOCK in his revision in *Aristida divaricata* H. B., which differs however at first sight in the strongly twisted column and the long branches, naked at the base. SCRIBNER compared his new species with *A. Havardii* VASEY, (a species allied to *A. divaricata*), characterized by a different mode of growth, short pedicels and a twisted much shorter column. *Aristida pansa* WOOT. ET STAND. differs in the narrower panicle with ascending branches, bearing appressed spikelets and in the very unequal glumes. The new species is as to the spikelet characters allied to *Aristida gentilis*, which differs however in the very long branches, naked at the base and in the appressed short pedicels.

The species is so far as I have seen, limited to Southern Mexico and is observed in the Federal District (Pringle no. 6408) and in Puebla (abundantly collected by Hitchcock, mostly named *A. Havardii* Vasey).

I have studied the following specimens: Chalchicomula, Hitchcock no. 6289, Esperanza, Hitchcock no. 6481 and San Marcos, Hitchcock no. 6515.

***Aristida micrantha* (Vasey) Nash.**

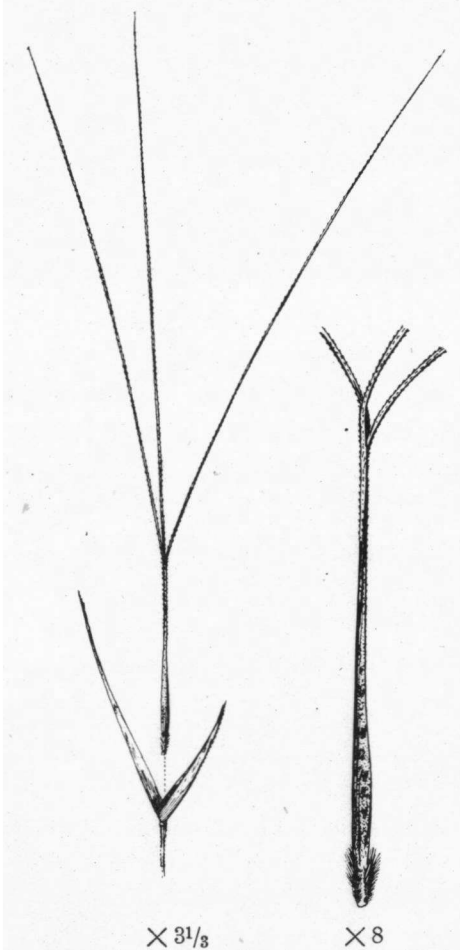
GEORGE V. NASH, in JOHN KUNKEL SMALL; *Flora of the Southeastern United States*, New York. [1903] p. 117!

= *Aristida purpurea micrantha* Vasey; *Monograph of the Grasses of the United States and British America*, in *Contributions from the U. S. National Herbarium*. Vol. III. [1892] p. 47!

Description given by Vasey:

Culm 1 to 1½ feet high, slender, flexuous, leaves much as in first

var. ¹⁾, but culms usually decumbent at base and branching, the branches mostly in twos or threes, capillary, few-flowered, spreading or reflexed, spikelets usually smaller than in any other form (lower 3 to 4, upper 4 to 6 lines long). — Western Texas.



ARISTIDA MICRANTHA (Vasey) Nash.
From type specimen.

Description given by Nash in Small's Flora:

Stems tufted, 2—4 dm. tall, slender, simple: leaf-blades 4—15 cm. long, involute, at least when dry: panicle 8—12 cm. long, its branches filiform, flexuous, spreading or ascending: spikelets 2—4 on the longer branches, the 2 outer scales 1-nerved, the second one 8—10 mm. long, the flowering scale 6—8 mm. long, the awns ascending or nearly erect, the central awn 1.5—2 cm. long, rarely longer, the lateral awns a little shorter.

In dry soil, Texas. Summer.

Note: = *Aristida Roemeriana* Scheele.

The type in the U. S. Nat. Herbarium was collected in Texas by C. G. NEALLEY in the year 1889, it bears the name in VASEY'S handwriting. The plant belongs to the group of the „*purpureae*”, having a first glume much shorter, mostly

half as long, as the second one. Although allied to *A. purpurea* it is a distinct species, distinguished by the habit, the shorter spikelets with much shorter glumes and by the distinctly beaked lemma, the column slightly twisted. In the type specimen the lower glume is about 5,5 mm. long, the upper is about 10 mm. long, the lemma has an obtuse hairy callus about $\frac{1}{2}$ mm. long and a scaberulous beak about 2 mm.

¹⁾ *Aristida purpurea* var. *Fendleriana* VASEY.

long; the body of the lemma is smooth with a scabrous keel, the total length of the lemma is about 7,5 mm., the awns are about equal, 20—25 mm. long. The species is rather variable, the glumes are sometimes less unequal, the lower 7—10 mm. long and the upper 10—13 mm long, but the lemma always rather short 7—8 mm. long as in the type, the awns are also variable and up to 4 cm. long. Specimens with these characters are more like the type of *A. Roemeriana* (see afterwards under this species), the latter has also a quite smooth distinctly beaked lemma.

***Aristida micropoda* Trin. et Ruprecht.**

Spec. Graminum Stipaceorum, loc. cit. pag. 107!

Paniculae lucidissimae, sparsiflorae, rigidiusculae fere semipedalis radiis geminis: altero *brevissimo* unifloro, altero longiori 1—2 floro; glumis parum inaequalibus, 5—7 linealibus, apice profunde bidentatis et subulo 2—5 lineali instructis; inferiore quidpiam brevioris; flosculo 6—7 *lineali*, dorso laevi, apice non torto neque articulado; setis omnibus patulis, media bipollicari, lateralibus quidpiam brevioribus.

Arkansas. (Beyrich!)

Culmi caespitosi, erecti, bipedales, ad nodos ramosi. *Folia* convolutofiliformia, fere pungentia, semipedalia, inferiorum nonnulla plana. *Ligula* nulla. *Spiculae* pleraeque pedicello vix semilineali, patenti, rigido affixae. Proxima *A. oligantha*, sed spicularum magnitudine et radiis geminis potissimum diversa; panícula junior facie *A. purpureae* nondum evolutae.

Note: = *Aristida oligantha* Michaux.

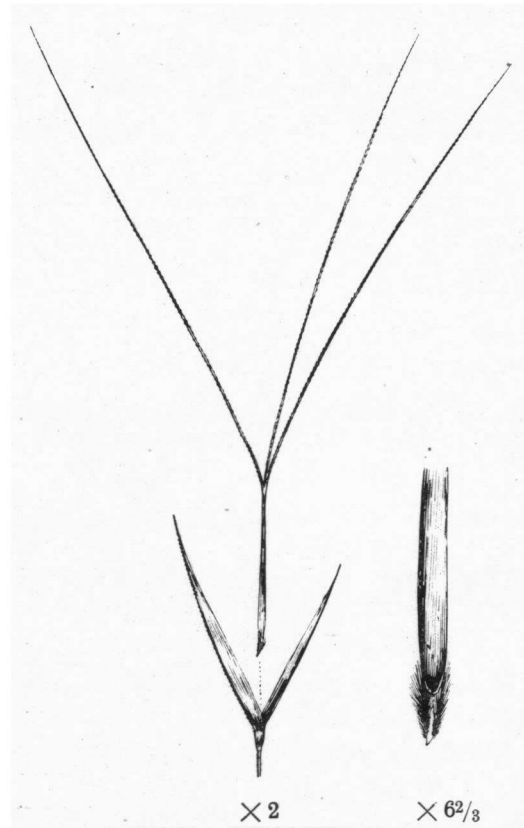
The type in the Trinius Herbarium at the Academy of Sciences, Leningrad. The specimen is labeled: „Arkansas 115”. The authors have given differences between the supposed new species and *A. oligantha*, but their *A. micropoda* is an immature plant; geminate panicle branches are common in *A. oligantha* and there is great variability in the length of the spikelets.

***Aristida misionum* Mez.**

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] pag. 151.

Perennis, gracilis. Vaginae culmi glabri quam internodia longiores; ligulae brevissime pilosulae nec margine barbatae; laminae convo-

lutae, flaccidae. Inflorescentia laxe effuseque 3—4-pinnatim panniculata, fusiformis; ramulis suberectis, usque ad 90 mm longis, a medio ramosis spiculigerisque; pedicellis lateralibus usque ad 5 mm longis. Glumae lanceolatae, sensim acutae nec setulosae, 1-nerviae, inferior ad 15, superior ad 11 mm longa. Paleae unguis ad 0.75 mm longus, breviter pilosus; articulatio deest; rostrum longum, haud tortum; setae nudaе, media ad 40, laterales ad 32 mm longae. — Argentina, Misiones (Niederlein).



ARISTIDA MISIONUM Mez.

From type specimen.

The sheet labeled by Mez: „*Aristida misionum* n. sp.”, is in the Berlin Herbarium. The label is stamped: „Herbarium Hieronymus” and bears the data: „Deutsch-argentinische Misiones-Expedition — Rio Alto Parana '83 Itusaingo, 1/3 Febr. leg. G. Niederlein.” The specimen on the sheet has a lemma produced into a straight short beak, about 3—4 mm. long, in all the other characters it agrees with *A. circinalis*, a species with the same inverse position of the glumes. In the genus *Aristida* the margins of the lemma are generally overlapping and the lemma is thus tubulose, some species have lemmas with thinner margins, the margins are inrolled and the lemma appears deeply furrowed. There are described from

South America four species all having the inverse position of the glumes, the furrowed lemma and the same vegetative characters. These species are: *A. leptochaeta* described from Paraguay, *A. acuminata* and *A. circinalis* from Rio Grande do Sul and *A. misionum* from Misiones. If we compare the types of these four species we find that the type of *A. circinalis* is the only „quite mature” plant, the lemmas are dark-coloured and the awns distinctly spirally curled

at the base, there is no beak and the ventral furrow reaches the insertion of the awns. The three other species mentioned are not quite mature and therefore not so easy to clear up. They are more or less beaked, *A. acuminata* but slightly so, the two others more distinctly. The lemmas are however furrowed all over and the so-called beak is not a beak in the morphological sense of the word, a true beak (*rostrum*) is always an entirely closed sterile part of the lemma, if such a beak is rather long, we call it a column (*stipes*). It may be and it is probable that the three species being quite mature do not differ in this character from *A. circinalis*. The straight awns also may become curled afterwards. *A. leptochaeta* is the only species of this group with bifid glumes but this character is by no means constant and although in many spikelets very distinct, it is less so in others from the same panicle.

EKMAN has already indicated the difficulties in his *Beiträge zur Gramineenflora von Misiones* (Arkiv för Botanik, Band 11. No. 4. p. 30), he was unable to separate *A. circinalis* and *A. acuminata* from the descriptions.

Because the four plants agree perfectly in the vegetative characters and characters of the glumes are not distinct enough to separate them, it is therefore better to unite the four plants in one slightly variable species, which must bear the earliest name *Aristida circinalis* LINDMAN.

***Aristida moandaënsis* Vanderyst.**

HYACINTHE VANDERYST; *Prodrome d'Agrostologie agricole, Bas et Moyen-Congo Belge, Bulletin Agricole du Congo Belge, Vol. XI. [1920] p. 114!*

Espèce délicate, en petites touffes, probablement annuelle; chaumes de 40 à 50 cm. de hauteur; entrenœud supérieur allongé.

AR, R, région agricole littorale et région agricole cristalline: Moanda, 11 avril 1913 (no. 40), sur le plateau, dans les chemins; Banana, 9 avril 1913 (no. 26), en sols sablonneux, assez abondant par place (probablement bonne espèce fourragère); Boma, octobre 1919 (no. 7,768).

The species described by Father VANDERYST is not in the Congo Herbarium at Brussels, nor among the plants from the Belgian Congo at Kew, it is probably in his own herbarium and thus

inaccessible. VANDERYST has described (mostly very insufficiently) many grasses from the Congo and many names are but nomina nuda (f. i. *Aristida lembaënsis*). As to the species *A. moandaënsis*, the description is very insignificant, we learn from it that the plant is a delicate annual, 40—50 cm. high with a long uppermost internode. An annual grass from the region is *A. Cumingiana* (= *A. delicatula*). I suppose however that VANDERYST's species is the same as *A. recta* FRANCHET, a species which is however distinctly perennial but few-noded, the uppermost internode long-exserted.

VANDERYST's work on agrostology demonstrates that an amateur doing field work alone is incompetent to describe new species. If he had collected and distributed the grasses of the Congo State, in stead of giving them new names with worthless descriptions, he would have done more for the knowledge of this family. Under these circumstances we have to neglect the species created by him.

***Aristida modatica* Steudel.**

E. G. STEUDEL; Synopsis Plantarum Glumacearum [1855] p. 139!

Radicis fibrosae fibris tomentosulis; culmis basi congestis divaricato-patentibus inaequalibus (4—9-pollicaribus) ad nodos inferiores plus minus quandoque refracto-geniculatis, vaginisque internodio brevioribus glabris; ligula brevissima ciliata; foliis subconvolutosetaceis (1—2-pollicaribus flexuosis vel curvatis) patentibus; paniculae (2—4-pollicaris) subpatentis radii 2—3-nis brevioribus a basi longioribus superius floriferis, capillaribus quandoque refracto-flexuosis; glumis inaequalibus obtusiusculis, sub lente validissima apice in setulas brevissimas solutis; superiore 3—4-lineali glabro, $\frac{1}{3}$ quandoque $\frac{1}{2}$ longiore inferiore dorso aculeolato-scabro; flosculo colorato 3—3 $\frac{1}{2}$ -lineali pedicello fasciculato-piloso, caeterum glabro in carina scabro non torto nec articulato; setis subaequalibus patentibus 5—6-linealibus. *A. mauritiana* Hochst. hrb. Abyss. un. it. nr. 1047. *Rich. Fl. Abyss. II. 392.* (non *Kunth.*) Provincia Modat Abyss.

Note: = *Aristida adscensionis* L.

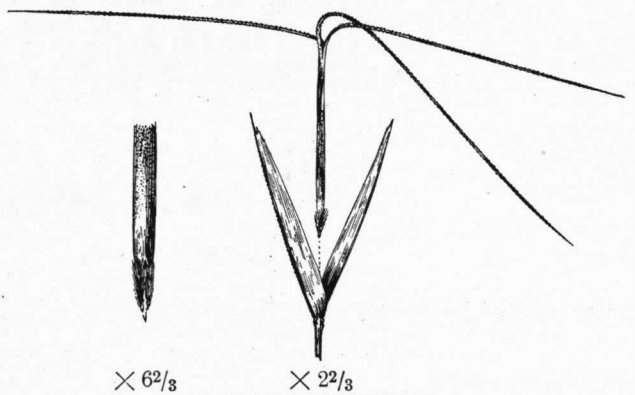
Aristida modatica was an other name for the plant described by RICHARD as *A. mauritiana* HOCHST. (see this revision p. 336). STEUDEL changed the name on account of KUNTH's species from the year 1829. The lemmas of the plants are quite smooth as already given in this revision (loc. cit. p. 336), the body is scaberulous only on the keel and but slightly longer than the upper glume.

There are no differences between these plants and the common forms of *A. adscensionis*.

Aristida Mohrii Nash.

GEORG V. NASH; Some new Grasses from the Southern States, in Bulletin of the New York Botanical Garden. Vol. I. [1900] p. 436!

A glabrous perennial. Culms very slender, leafy only toward the base, 5—7 dm. tall, erect; leaves 4; lowermost sheath distant from the others which are crowded and overlapping; ligule a scarious truncate ring about 1 mm. long; blades flat, erect, acuminate, usually 6—10 cm. long, and 1—2 mm. wide at the base, those on the innovations much smaller: raceme slender, long—exserted, 2—3 dm. long; spikelets scattered, shorter than the internodes, usually about one-half as long, appressed, the lower ones sometimes very distant; empty scales glabrous, e-



ARISTIDA MOHRII Nash.

From type locality.

Alabama, Spring Hill leg. Dr. Ch. Mohr.

equal in length, yellowish brown, acute, 1-nerved, 10—12 mm. long, the flowering scale shorter than the empty ones, 8—9 mm. long, its awns hispidulous, of equal thickness, widely spreading, flat and loosely spiral at the base, the spreading portion of the central one about 1.5 cm. long, that of the lateral ones a little shorter.

On sandy ridges, Alabama. Collected by Dr. Charles Mohr, in whose honor I take pleasure in naming it, at Spring Hill, Mobile Co., Oct. 4, 1886, and distributed as *A. simpliciflora*; also secured at the same place by B. F. Bush, Aug. 26, 1897, no. 5, and distributed as *A. stricta*. Related to *A. simpliciflora*, but abundantly distinct. In that species the spikelets are quite numerous and crowded with their empty scales smaller, the first scale strongly hispidulous, and the lateral awns of the flowering scale markedly more slender than the central awn.

The type is in the Herbarium of the New York Botanical Garden. A fragment of an authentic specimen, collected by Dr. CHARLES MOHR, was kindly received from Prof. A. S. HITCHCOCK. The species is hitherto known only from the type locality.

***Aristida mollissima* Pilger.**

Gramineae africanae, VII, in Engler, Botanische Jahrbücher XL. [1908] p. 80!

Culmorum partes superiores tantum mihi notae, plurinodes, partim a vaginis liberae, erectae, dense albido-tomentoso-lanatae; foliorum culmeorum lamina satis elongata, angustissima, filiformi-convoluta, erecto-patens, acutissima vix pungens, laevis, vagina glabra, laevis, arcte culmum amplectens, ligula corona pilorum brevissima; panicula parum exserta, angusta, densissima, rhachis aequae ac culmus lanata, rami numerosi perbreves, adpressi; spicularum glumae vacuae angustae, valde inaequales (inferior fere duplo superiore brevior), in aristam tenuem, brevem abeuntes; gluma florifera cum arista articulata, callo elongato tenui acutissimo breviter albido-piloso, arista satis elongata tenuis valde torta, rami aristae elongatae, aequilongae, scabrae.

Die Spreiten der Halmblätter, die trocken fadenförmig zusammengerollt sind, sind bis 30 cm lang, die des obersten Halmblattes 10—15 cm; die schmale dichte Rispe ist 15—20 cm lang; die Hüllspelzen sind 11—14 und 20—24 mm lang; der dünne, kurz behaarte, unten in eine scharfe kurze Spitze auslaufende Callus der Deckspelze ist etwas über 2 mm lang; der in vielen engen Windungen gedrehte, zierliche Fusz der Granne ist 2—2,5 cm lang, die auseinander spreizenden Äste der Granne ungefähr 5 cm.

Deutsch-Südwestafrika: Kalahari zwischen Senuma und Kooa (Dr. SCHULTZE n. 342i. — Blühend im Januar 1905).

Verwandt mit *A. Sieberiana* Trin., aber besonders durch den stark wolligen Halm unterschieden.

Prof. PILGER was unable to send me the type for study because Prof. MEZ, who has given a revision of the *Aristidas* in the Berlin Herbarium in the year 1920, was unwilling to return the plants on our request. I am sorry that I cannot give here a figure of the spikelet of this characteristic species, described so accurately by Prof. PILGER. See also my observations under *A. elymoides* MEZ on pag. 167—168 of this revision.

***Aristida mongholica* Trinius et Ruprecht.**

Species Graminum Stipaceorum, loc. cit. [1842] p. 133!

Nana, *vix semipedalis*; foliis planis glaucescentibus; panícula contracta, *linearis*, saepe colorata; gluma superiore $2\frac{1}{2}$ — $3\frac{1}{4}$ lineali, inferiorem *obtusam* lineâ dimidiâ l. integrâ superante; flosculo $3\frac{1}{2}$ lineali, *glabro*; seta media 4—6 *lineali*. — In arenosis et planitiebus deserti totius Mongholiae mediae. Julio et Augusto. (Bunge!)

Note: = *Aristida adscensionis* L.

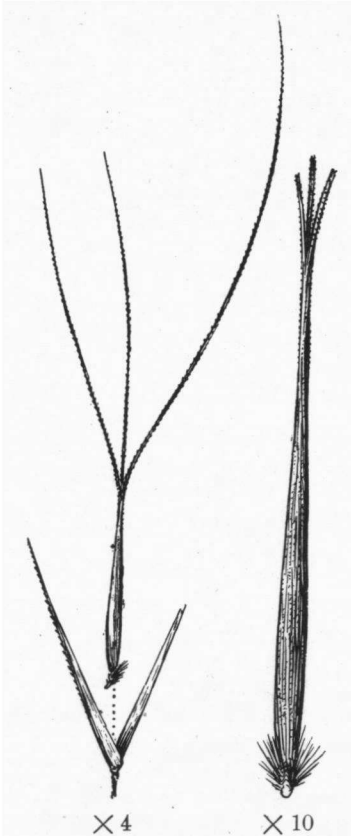
The same form was described in the year 1881 as *A. Heymanni* by REGEL; it is an annual plant, not differing from the common *A. adscensionis* where such contracted panicles are a common phenomenon. The Russian monographers call attention to the obtuse lower glume, but in the Asiatic forms of the species this glume is scarcely subobtuse and mostly subacute as in forms from other regions.

***Aristida monticola* Henrard**

nov. spec.

(Sectio *Chaetaria*). Perennis, caespitosa, innovationibus florendi tempore nullis; *culmi* stricte erecti, cum panícula 5—6 dm. alti, inferne simplices, e nodis superioribus ramos floriferos culmo breviores gignentés, graciles, teretes, diametro vix 1 mm., glauco-virides, glabri, laeves, leviter striati; *vaginae* internodiis circa dimidio breviores, arctae, teretes, leviter sulcatae, glaberrimae, nodis glabris; *ligula* abbreviata, subcartilaginea, dense sed breviter ciliato-barbata, auriculae longiuscule pilosae; *laminae* anguste lineares, convolutae vel inferne subplanae, glaucae, 5—7 cm. longae, vix 1,5 mm. latae, supra puberulae vel hinc inde pilis longis conspersae, subtus glaberrimae, marginibus incrassatis, sensim longe acuminatae; *panícula* sat parva, erecta, contracta sed sublaxa, ad 7 cm. longa, \pm 1 cm. lata, rhachi scaberula, ramis brevibus, subbinis vel superioribus subsolitariis paucispiculatis, erectis, spiculis longe pedicellatis, pedicellis scabris; *spiculae* angustae, fusco-purpureae, erectae, *glumae steriles* uninerves, lineares, glabrae, *inferior* longior, manifeste aristata, carina superne scabra, 8,5 mm. longa, *superior* carina laevis, apice bidenticulata, inter dentes aristata, circa 6 mm. longa,

gluma fertilis tubulosa, laevis, callo perbrevis obtusissimo, longe barbato, 6—7 mm. longa, sensim in stipitem brevem scabrum, distincte tortum, abiens; *aristae* inaequilongae, subpatentes vel suberectae, intermedia 16—18 mm., laterales 10—12 mm. longae.



× 4 × 10
ARISTIDA MONTICOLA
Henrard.

From type specimen.

Africa australis: Nātal, Mont aux Sources, 20. 4. 1919, legit A. O. D. Moqq. no. H 20634. From the National Herbarium, Pretoria. Typus speciei in Herb. Kew.

A very distinct species, to distinguish from all the African *Aristidas* of the section *Chaetaria*, by the inverse position of the glumes and the perfectly smooth sheaths and internodes.

Aristida Moritzii Henrard

nov. spec.

(Sectio *Chaetaria*). Probabiliter perennis, caespitosa, innovationibus paucis. *Culmi* erecti, 30—50 cm. alti, teretes, striati, subscaberuli vel laeves, e basi nodisque inferioribus dichotomo-ramosi; *vaginae* internodiis breviores, subcompressae, striatae, subscaberulae vel laeves, infimae hiantes, summae arctae; *ligula* brevissima, dense ciliata, auriculae distincte barbatae; *laminae* angustae, complicatae, glauco-virides, 1—2 mm. latae, 15—20 cm. longae, longe acuminatae,

marginibus subincrassatis, supra hirtellae, subtus sublaeves, inferne in pagina superiore pilis sparsis longis conspersae; *panicula* stricte erecta, angusta sed sublaxa, basi interrupta, ad 20 cm. longa, 0,5—1 cm. lata, rhachi angulosa, scaberula, ramis solitariis vel subbinis, brevibus, erectis, scabris, inferne nudis, dein ramulos brevissimos erectos paucispiculatos edentibus; *spiculae* pallidae vel subviolascentes, pedicellis scaberulis, spiculas aequantibus vel lateralibus paulo brevioribus; *glumae* subaequilongae, uninerves, acutatae et breviter aristatae, *inferior* 10—11 mm. longa, scaberula, carina scabra, *superior* 11—12 mm. longa, sublaevis, carina laevis, *gluma*

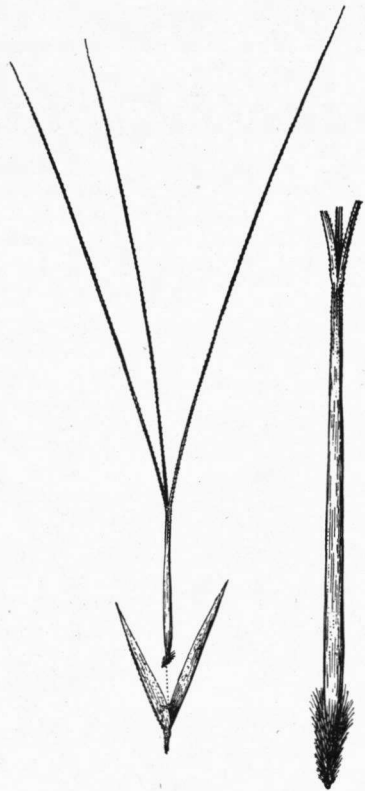
III. *fertilis*, callo dense barbato subacuto circa 1 mm. longo, 9—10 mm. longa, inferne laevissima vel minutissime punctulata, superne infra aristas scaberrima et leviter nodulosa, non torta, brevissime rostrata, *aristae* subaequilongae, erectae, scaberrimae, 30—35 cm. longae vel paulo breviores.

Venezuela: Maracaibo, leg. MORITZ no. 1522. Typus speciei in Herb. Berolin. Huc pertinet etiam:

Columbia: Santa Marta, leg. H. H. SMITH, (1898—1901) no. 136 pro parte. In Herb. Lugd. Batav. sub no. 921. 5—198.

On pag. 133 of this revision, I have already briefly indicated some characters of this species, which belongs to the group of the „*cognatae*” and is allied to *Aristida cognata* TRIN. et RUPR. and *A. Swartziana* STEUDEL. Both species differ however in the much shorter glumes and awns, in the smooth not scaberulous lower glume and in the lateral setae of the upper glume. The habitat on the South American continent is also noteworthy for a group hitherto only observed on the West-Indian Islands. The Columbian plant mentioned above is identical with the type, but the hairs on the upper surface of the blades near the mouth, although distinctly present in the type, are better and copiously developed. The number 136 of Smith’s Santa Marta plants in our collection consists of two different species, the number 136A

is a very distinct species with a well-developed column, an inverse position of the glumes and other striking characters. See for this plant afterwards my critical observations under *A. sorzogonensis* PRESL. *Aristida Moritzii* has somewhat the habit of the South-American *Aristida setifolia* H. B. K., which is however a totally different species with a long, twisted column, and an articulation just below the branching point of the awns.

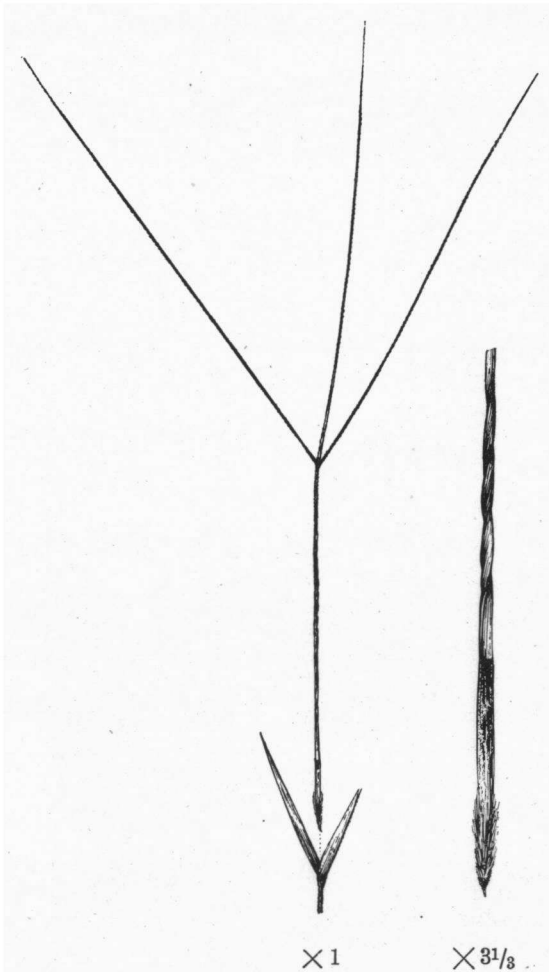


× 2 × 6½
ARISTIDA MORITZII Henrard.
From type specimen.

Aristida Muelleri Henrard

nov. spec.

(Sectio *Arthratherum*). Perennis, caespitosa. Culmi erecti, simplices, teretes, glaberrimi, scaberuli, leviter striati, cum paniculis ad 50 cm. alti, uninodes, nodo in $\pm \frac{1}{8}$ inferiore culmi sito; *vaginae* internodia subaequantur vel paulo superantes, arctae, striatae, scaberulae; *ligula* ciliata, abbreviata, auriculae longe barbatae; *laminae* lineares,



ARISTIDA MUELLERI Henrard.

From type specimen.

subplanae vel convolutae, haud rigidae, vix 1 mm. latae, glaucovirides, supra densissime hirtellae, subtus scaberulae, ad 15 cm. longae; *panicula* angustissima, longissima, stricte erecta, inferne interrupta, cum aristis ad 30 cm. longa, rhachi tereti, striata, scaberula, ventresulcata, ramis subbinis inaequalibus, primariis inferioribus longioribus, sine aristis et columna 4—5 cm. longis, bispiculatis, in $\frac{1}{3}$ inferiore nudis, reliquis brevioribus, unispiculatis, breviter pedicellatis, pedicellis angulosis scabris; *spiculae* pallide flavae vel stramineae, firmae, stricte erectae; *glumae* inaequales, uninerves, inferior dorso scaberula, 13—14 mm. longa, subchartacea, carina scabra, subdentata, inter dentes brevistaristata, gluma superior

22—24 mm. longa, angustior sensim acuminata, manifeste aristulata, carina laevis, *gluma fertilis* tubulosa, undique punctulato-rugulosa, pulchre nigro-maculata callo acutissimo pungente circa 2,5 mm. longo

densissime barbato, circa 9 mm. longa; articulatio manifesta, columna 4 cm. longa, firma, laevis, angulis scaberulis, valde torta, *aristae* scabrae parum inaequales, intermedia ad 7 cm., laterales ad 6 cm. longae.

Australia centralis: Powell's Creek, leg. D. MOLINEUT, anno 1894. Ex National Herbarium of Victoria, Melbourne. No. 8. Typus speciei in Herb. Lugd. Batav. sub no. 926.361—526.

Under *Aristida Browniana* on pag. 63 of this revision, I have already indicated some characters of the spikelets to distinguish the plant from *Aristida stipoides* R. Br. and on pag. 117 I observed that *A. contorta* belongs to *A. arenaria*, but that one of the types has shorter awns. In the following tabular review I give the dimensions (in mm.) of the spikelets from the different types, those of *A. contorta* are placed in parentheses.

	<i>A. arenaria</i> Gaudich. (<i>A. contorta</i> F. v. M.)	<i>A. stipoides</i> R. Br.	<i>A. Muelleri</i> Henr.
Lower glume.	10—11. (9—12).	8—9.	13—14.
Upper glume.	20. (18—20).	15—16.	22—24.
Lemma + callus.	6. (6).	8.	9 ¹ / ₂ —10.
Callus.	1,8. (± 2).	2 ¹ / ₂ .	2 ¹ / ₂ .
Column.	17. (18).	28.	39—40.
Central awn.	62. (37).	± 50.	67—70.
Lateral awns.	58. (35).	± 40.	59—60.

The characters of the lemmas and the columns are generally very constant but the length of the glumes and the awns is variable. I supposed already that BROWN's species was a hybrid between *Aristida arenaria* and *Aristida Muelleri* but it is possible that *A. arenaria*, *A. Browniana* and *A. Muelleri* are indeed three distinct species. The material I had at my disposal is not sufficient enough, an extensive field study and a documental herbarium is needed to bring more light in this question. From the characters of *Aristida Muelleri* it was however impossible to place this plant under BROWN's *Aristida stipoides*.

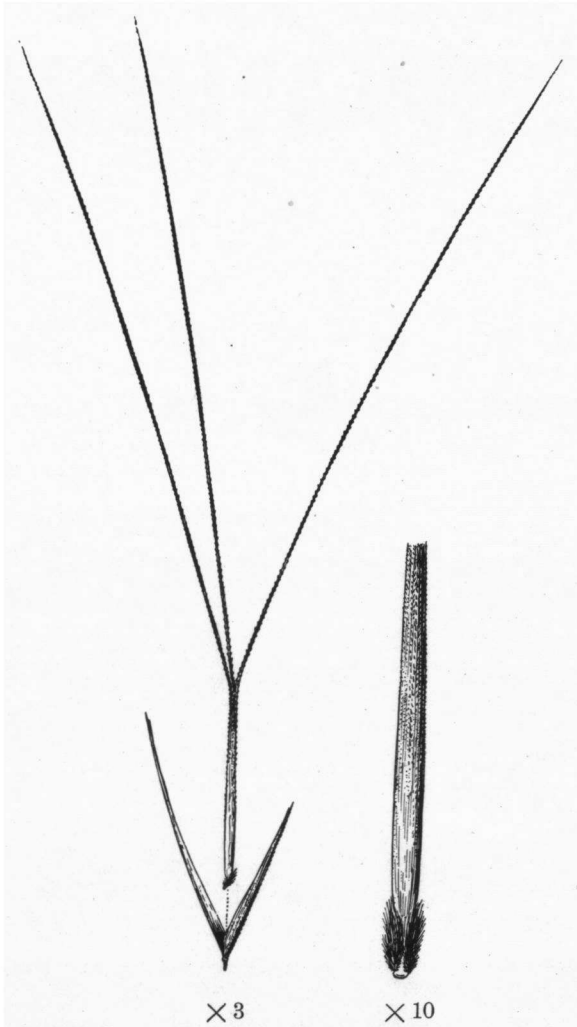
***Aristida muhlenbergioides* Fournier.**

EUG. FOURNIER; Mexicanas Plantas etc. Pars II. Gramineae, Paris, [1881] p. 79.

Planta annua? . . . culmo simplici, pedali; foliis parvis linearibus convolutis, flexuoso-arcuatis, ligula vix conspicua; paniculae exsertae

4-pollicaris radiis 3-nis brevibus divaricatis apice 1—2-floris; glumis acutis, superiore inferiorem duplam aequante, paulo breviora quam flosculus angustissimus scaber; setis divergentibus longis, flosculum fere duplum aequantibus.

San Luis de Potosi (VIRL. n. 1424); *Cañon de las Minas* (KARW. n. 1008).



ARISTIDA MUHLENBERGIOIDES Fournier.
From Karwinsky no. 1008.

Note: = *Aristida Roemeriana* Scheele.

I have studied the two specimens cited by FOURNIER. Virlet n. 1424 is in the Herbarium of the Jardin des Plantes at Paris, it was received for study from Prof. H. LECOMTE. The label bears the number 1424 and the data: „Herbier Eug. Fournier. Mexique. Prov. de San-Luis. Coll. Virlet d'Aoust —1851”, in the right corner of the label FOURNIER has written: „Canon de las Minas Victoria Karw. 1008”. This locality belongs to the authentic specimen in the Leningrad Herbarium, kindly received from Prof. B. FEDTSCHENKO. This specimen is labeled: „No. 1008. Karwinsky, Iter Mexicanum. 1841, 1842. Cañon de las Minas et Victoria.

Karwinsky. 1842” and bears the determination in FOURNIER’S hand.

If we compare the plants with FOURNIER'S description, we find that the diagnosis was prepared from the plants on both sheets. Because there are differences between the Virlet specimens and the Karwinsky specimens I will treat here both numbers briefly. The Virlet specimens have the following characters: glume I. = 6—6,5 mm., gl. II. = 8,5—9,5 mm., gl. III. + callus = 7—8 mm., callus = $\frac{1}{2}$ mm., beak of the lemma = 1—2 mm., the lemma is smooth with a scabrous keel, the awns are 20—22 mm. long, the central one mostly damaged. In these characters the specimens agree well enough with VASEY'S *A. micrantha*.

The Karwinsky specimens have the following dimensions: glume I. = 7,5—8 mm., gl. II. = 11—12 mm., gl. III + callus = 7 mm., callus = $\frac{3}{4}$ mm., there is only a trace of a beak and the lemma is slightly scaberulous upwards but not so distinct as in *Aristida Berlandieri*, the central awn is 30—32 mm., the lateral ones are 26—28 mm. long. In all the plants cited under *A. muhlenbergioides* the differences in length between the glumes are not so extraordinarily striking as in the *A. purpurea* and its varieties and it is impossible to unite *A. muhlenbergioides* with *A. purpurea*. Karwinsky 1008 agrees with *A. Roemeriana*.

Apart from *A. purpurea* and its allies there occurs thus a rather variable species, described as *A. Roemeriana*, *A. muhlenbergioides* and *A. micrantha*, these three species we must unite and we have to take up the earliest name, *A. Roemeriana*, for the species. To compare the different plants, described as species in course of time, with another and with *A. Berlandieri*, I give here a tabular review of the spikelet characters of the 5 different types I have studied.

	<i>A. Berlandieri</i> .	<i>A. micrantha</i> .	<i>A. muhlenbergioides</i> . Virlet 1424.	<i>A. muhlenbergioides</i> . Karwinsky 1008.	<i>A. Roemeriana</i> .
Lower glume.	6—7.	5,5.	6—6,5.	7,5—8.	9—10.
Upper glume.	12,5—13.	10.	8,5—9,5.	11—12.	13—14.
Lemma+callus.	9.	7,5.	7—8.	7.	7—8.
Callus.	$\frac{3}{4}$ —1.	$\frac{1}{2}$.	$\frac{1}{2}$.	$\frac{3}{4}$.	± 1 .
Beak.	± 1 .	2—3.	1—2.	$\pm \frac{1}{2}$.	$\pm \frac{1}{2}$.
Body of lemma.	scabrous upw.	smooth with scabrous keel.	smooth with scabrous keel	scaberulous upw.	smooth.
Central awn.	35—40.	20—25.	> 20.	30—32.	35—43.
Lateral awns.	35—40.	20—25.	20—22.	26—28.	35—40.

Aristida multicaulis Baker.

J. G. BAKER; Further Contributions to the Flora of Madagascar, in The Journal of the Linnean Society, London. Vol. XXII. [1887] p. 533!

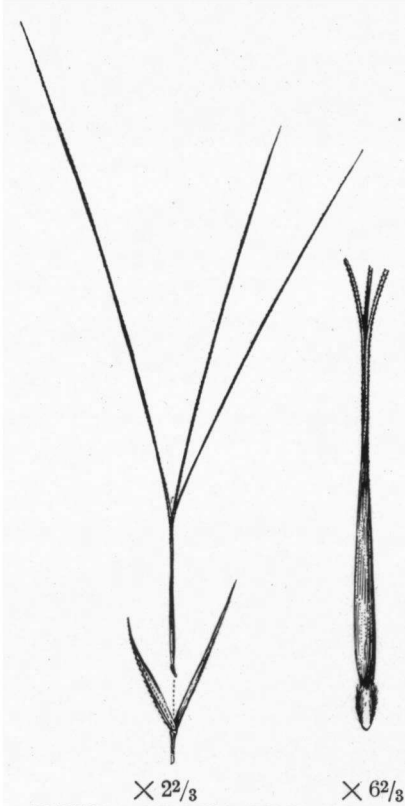
§ CHAETARIA.

A. caulibus elongatis erectis strictis teretibus ramosis, foliis superpositis lineari-subulatis glabris rigidulis, spiculis permultis purpureis

in paniculam amplam coarctatam ramis diu ascendentibus dispositis, glumis lanceolatis acuminatis arcte convolutis, florali in aristis tribus continuis longis scabris producto.

Stems stiffly erect, 3 feet long exclusive of the panicle. Stem-leaves 3—4, sheaths 3—4 in. long; blade $\frac{1}{2}$ —1 foot long, stiffly erectopatent. End-panicle a foot long; those of the side-branches smaller; branches short, slender; lower many in a whorl. Spikelets, including the awns, about an inch long; central awn twice as long as the glumes, all the three slender and erect.

— *Baron 4279! 4298!*



ARISTIDA MULTICAULIS Baker.

From type specimen.

The cited specimens are in the Kew Herbarium, I received them through the kindness of Dr. A. W. HILL. The description was prepared from both sheets, no. 4297 is accepted as the type, because these plants are the best developed ones, no. 4298 consists of broken culms

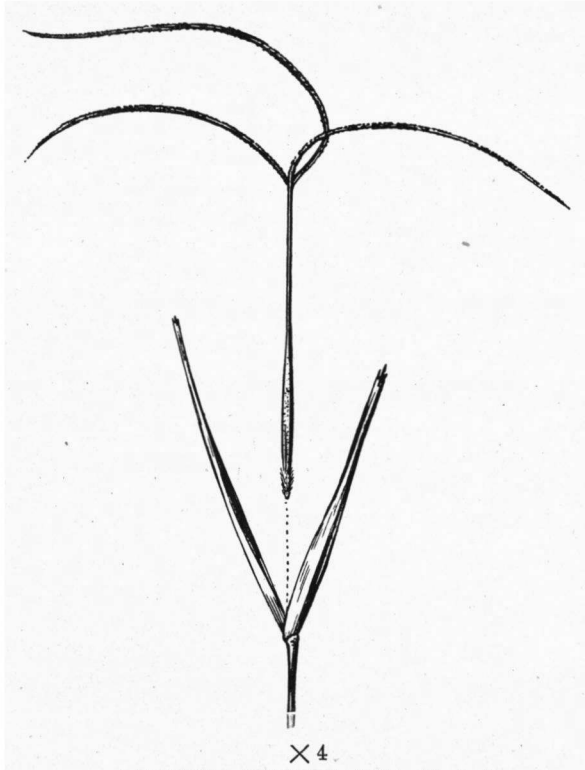
with lateral, shorter and narrower panicles. The description is not quite sufficient to recognize the species and some chief characters are not mentioned. Therefore it is necessary to give them here. The robust culms are up to 4 mm. in diam. with glabrous or scabrous internodes, the sheaths are hirsute or densely lanatepubescent with tubercle-based hairs, especially above and on the margins, the branches of the panicle are naked in the axils and the glumes are unequal, the lower is 6 mm. long, hirtellous and scabrous

on the keel. The callus is very peculiar, 0,8 mm. long, obtuse, rather sparingly and shortly pubescent, the hairs not exceeding the constricted base of the lemma. The column of awns is twisted. The species is allied to *A. rufescens* STAUD. from Northern Madagascar and the Comores, a species with a different habit, a different callus and a scarcely twisted, short, scabrous beak of the lemma.

***Aristida multiramea* Hackel,**

ap. STUCKERT; Tercera Contribución al conocimiento de las Gramináceas Argentinas, in Anales del Museo Nacional de Buenos Aires, Tomo XXI. [1911] p. 67! Tab. I. fig. a—e!

Perennis caespitosa, florendi tempore sine innovationibus. Culmi erecti, 20—30 cm. alti, subrobusti, teretes, glaberrimi, farcti, rigidissimi, 3—4 nodi, internodio imo omnium longissimo dimidium culmum aequante, non solum e basi sed etiam (saltem vetustiores) e nodis 2—3 ramosi, ramis fasciculatis 2—4nis elongatis erectopatulis floriferis, longioribus interdum ramulosis, ramulis brevibus foliiferis. Folia pro ratione plantae pauca, parva glaberrima glaucescentia. Vaginae internodiis 2-pluries breviores, plerumque a culmo solutae, teretes. Ligulae ciliis brevibus facta. Laminae anguste lineares acutae, saepius convolutae, rarius planae, 3—6 cm. long., 1,5 mm. (explacatae) latae, rigidae, extus laeves, intus prominenter crassinervis, scabra. Panicula linearis, spiciformis, 4—6 cm. long. paupera, rhachi laevi, ramis brevibus appressis, laevibus, inferioribus 2—3nis superioribus solitariis, in maxima parte unispiculatis, vel 3—4



ARISTIDA MULTIRAMEA Hackel.

From type specimen.

spiculatis, spiculis erectis, breviter v. longiuscule pedicellatis, sese invicem parum tegentibus. Spiculae lineares, sine arista circ. 10 mm. long., flavo-viridulae. Glumae steriles lineares, apice minute bidentulae, inter denticulos minutissime mucronulatae vel muticae, 1-nerves, prominenter carinatae. I. 5—6 mm. longa, in carina scabra. II. 9—11 mm. longa, carina laevi. Gluma fertilis sterilem superiorem aequans, linearis, tubulosa, callo brevissime barbulata, scabra, apice haud rostrata neque cum arista articulata, aristae ramis subaequalibus 10—12 mm. longis basi complanatis ibique semigyro tortis et angulo recto patentibus scaberrimis. Palea 1 mm. long. hyalina, obtusa. Antherae 3 mm. long.

Species peculiaris propter culmi ramificationes nulli nisi A. dichotomae Michx. comparanda, cujus culmi vero dichotomo-ramosi sunt i. e. rami solitarii, qui in nostra fasciculati. Ceterum A. dichotoma differt aristis lateralibus quam media pluries brevioribus, etc.

Stuckert, Herb. arg. no 16,806 (12. I. 1907) Capilla del Monte, Dep. Punilla, Prov. Córdoba, á 1,000 m. de altitud, remitido por el Sr. Mario Estrada.

St. no 18,455 (12. I. 1908) Ochoa, Dep. Sta. María, Prov. Córdoba á 1,000 m. de altitud.

St. no 19,570 (16. XII. 1908) Casa Bamba, Sierra Chica de Córdoba, á 800 m. de altitud.

The specimens cited by STUCKERT are in HACKEL'S Herbarium at Vienna, the type is the first specimen mentioned, the only one bearing the name in HACKEL'S script. It is numbered 16,807 and the number 16,806 cited, is a misprint.

The species is very characteristic, distinguished by the curious habit and the tips of both glumes, the lemma is distinctly beaked as shown in HACKEL'S figure e.

Aristida murina Cavanilles.

ANT. JOSEPHUS CAVANILLES; Icones et Descriptiones Plantarum, quae aut sponte in Hispania crescunt, aut in hortis hospitantur. Matritum, Vol. V. [1799] p. 44! Tab. 469. Fig. 1!

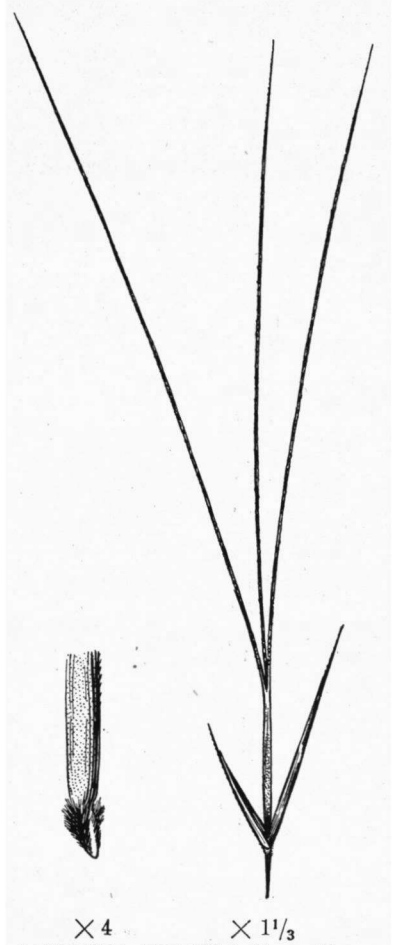
ARISTIDA panicula subspicata: ramulis alternatim binis, subquinquefloris; calicibus violaceis. Ex radice fibrosa culmi eriguntur palmares glabri. Folia culmum vaginantia, vagina pollicari, striata, in folium gramineum soluta, sensim angustius, tripollicare, apice convolutum.

Flores paniculati, panícula subspicata duos pollices longa, cuius rami alternatim bini, sensim versus apicem breviores, in quorum summitatibus flores subquinque fere umbellati, pedicellis brevissimis. Calicis valvulae violaceae, glaberrimae, acutissimae, quarum interior pollicaris, exteriore duplo longior. Corollae valvula terminatur aristis tribus subaequalibus, albicantibus, duos pollices longis. Reliqua ut in praecedentibus. Habitat in Mindanao insula prope Samboangan, floretque Decembri. Vidi siccam in eodem herbario.

Explic. tabulae quae integram sistit plantam. *a* Flos magnitudine naturali.

Described from the Philippines, the species was never found there and thus CAVANILLES' statement is an error. From his description and his figure the species is however to recognize at first sight as a rather common South American one, a species which is distinguished by the characters of the panicle and by the habit. The plant was already recognized by different agrostologists and taken up by NEES in his *Agrostologia Brasiliensis* in the year 1829 as a variety under *A. pallens*. He was followed by TRINIUS and RUPRECHT in the year 1842 and by DOELL in his work for the *Flora Bras.* *Aristida murina* differs however abundantly from *Aristida pallens*; it is characterized by the rigid but at the same time short culms with a strict dense abbreviate panicle, few-flowered short panicle-branches and bearded auricles of the sheaths.

The Australian *A. Behriana* F. v. M. was identified by MEZ in herbaria as *A. murina* but although slightly resembling the *A. murina* it is a quite different species differing from the South American plant in the totally different panicle, and in the leaves with bearded auricles with a peculiar very prominent villous line across the collar.

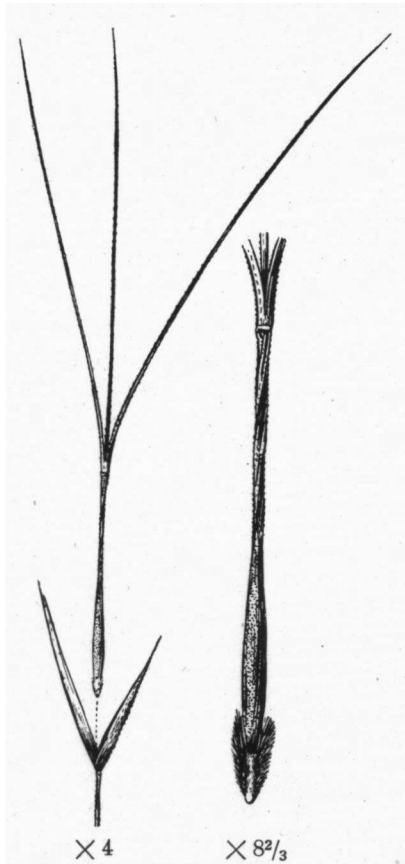


× 4 × 1/3
ARISTIDA MURINA Cavanilles.
From Uruguay, leg. Arechavaleta.

Aristida mutabilis Trinius et Ruprecht.

C. B. TRINIUS et F. J. RUPRECHT; Species Graminum Stipaceorum in Act. Academ. Imp. scient. Petrop. Ser. VI. [1842] p. 150!

Paniculae 3—6 pollicaris, fasciculiflorae, basi demum exsertae radiis solitariis, primum erectis, subsecundis, dein *divaricatis*, *bipollicaribus*, a basi *ultra medium nudis*, apice dense floriferis; gluma



× 4 × 8²/₃
ARISTIDA MUTABILIS Trinius
et Ruprecht.

var. AEQUILONGA Tr. et Rupr.
From type specimen.

superiore trilineali, *glabra*, apice bidentata et brevecuspidata, inferiore *scabra*, acuminato-cuspidata; flosculo 3¹/₂—4¹/₂ lineali, superne scabro, apice attenuato, laxe torto et cum basi aristae (vix sua sponte) solubilis articulado; setis subaequalibus, erectis l. erecto-patentibus, ¹/₂—1 pollicaribus.

a. aequilonga; glumis aequalibus; flosculo 3¹/₂ lineali; setis 6—7 linealibus. — Cordofan: in arena e saxis graniticis delitescens formata. (Kotschy! pl. exs. Aethiop. n. 103.)

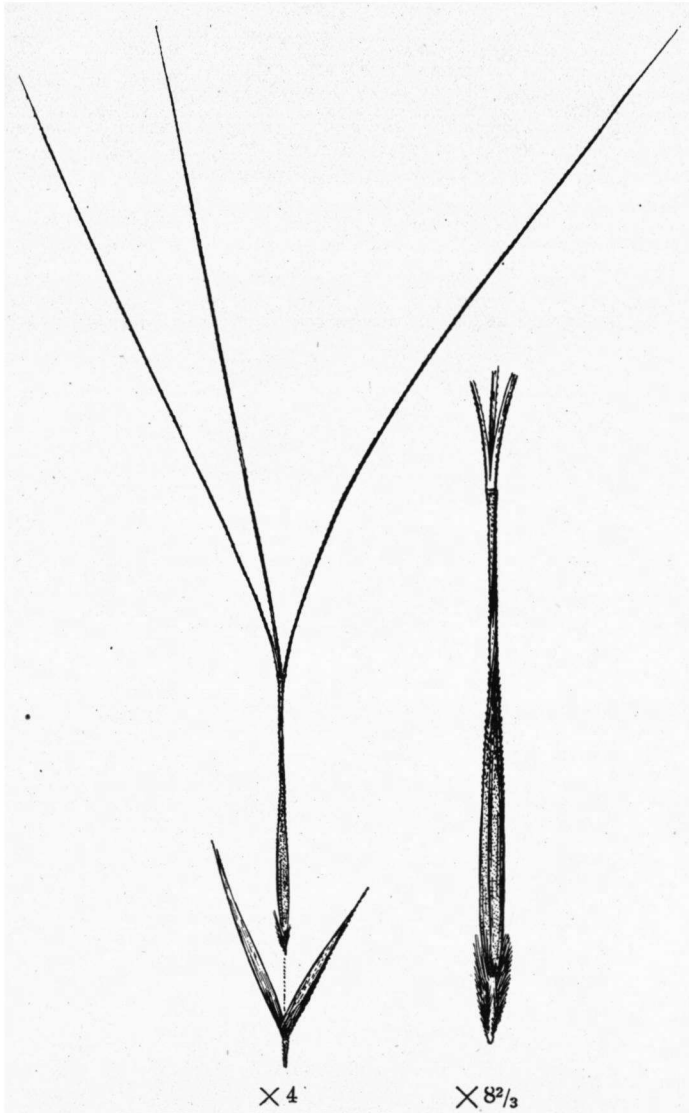
β. Dongalana; eadem ac *a*, sed gluma inferior linea dimidia brevior; panícula tantum 3 pollicaris; culmus semipedalis. — Dongala. (Ehrenberg!)

γ. longiflora; gluma superiore inferiorem linea ³/₄ excedente; flosculo 4¹/₂ lineali; setis pollicaribus; foliis planis; culmo minus ramoso. — Ad pagum Cordofanum Abu-Grad in solo arenoso sicco. Septembris (Kotschy! Un. it. n. 54.)

δ. senegalensis; ut *γ*, sed multo tenuior; folia longiora, semipedalia et culmus simplex. — Senegal. (Lenormand! mis. s. n. 114. 118.)

Radix in omnibus varr. fibrosa l. subrepens. *Culmus* 1—2 pedalis, in var. *a*. superne ramosissimus, pl. min. glaucus ut tota planta. *Vaginae* internodiis breviores, ore ciliatae. *Folia* plerumque convoluta, linearia, 3 pollices longa, patentia, satis rigida. Aristidaee barbicollis propius accedit quam *A. Meccanae*.

The species was edited in Kotschy's *exsiccatae* under the name of *Aristida meccana* HOCHSTETTER, a nomen nudum. The Russian



$\times 4$ $\times 8\frac{2}{3}$
ARISTIDA MUTABILIS Trinius et Ruprecht.
 var. **LONGIFLORA** Tr. et Rupr.
From type specimen.

monographers published a different rare species as *Aristida meccana* HOCHST. and they named Kotschy's plant *Aristida mutabilis*, dividing it into four varieties. No type is indicated and therefore Kotschy no. 103, the only specimen mentioned under the first variety is

accepted as the type. The variety *aequilonga* was described as having equal glumes (hence the name), but in the type they are somewhat unequal. The variety *Dongalana* is not different from the var. *a*. *Aristida mutabilis* is an annual species, in the characters of the spikelets it is rather variable and it belongs to the section *Pseudarthratherum* (articulation just below the branching point of the awns). The variety *aequilonga* has spikelets with the following dimensions: the first glume is acute, awned and distinctly pubescent, 5 mm. long, the second glume is glabrous, including the short awn, from a bifid apex, 6,5 mm. long, the long-hairy subobtuse callus is $\frac{3}{4}$ mm. long and the total length of the punctulate lemma, without the column is 4 mm., the strongly twisted scabrous column is about as long as the lemma, the scabrous awns are subequal the central is $17\frac{1}{2}$ mm., the lateral ones are 15 mm. long. We can neglect the variety *Dongalana*, there are no differences with Kotschy's plant. The variety γ is however rather different and a distinct variety. Agreeing in many characters with the variety *a*, the type of var. γ (Kotschy no. 54) differs especially in the longer glumes, the longer lemma, longer awns, but shorter column. This is demonstrated in both figures of the varieties *a* and γ given here, magnified 4 times. The dimensions of the spikelets of Kotschy's no. 54 are: lower glume quite as in var. *a* but 6 mm. long, upper glume $7\frac{1}{2}$ mm. long, the callus about 1 mm. long, more acute, the body of the lemma scaberulous upwards, including the callus about 6 mm. long, the column only 3 mm. long, the lateral awns $22\frac{1}{2}$ mm. long, the central one 25 mm. long. The variety *senegalensis* has the same characters as the var. γ and is quite the same plant, simple culms also occur in var. γ . The plant from the Senegal was described by STEUDEL as *Aristida longeradiata*. See the observations on pag. 303 of this revision. Another very distinct plant was described afterwards by HOCHSTETTER as *Aristida tenuis*. This plant belongs as to the vegetative characters to *Aristida mutabilis*, but differs in the column, which is much longer than the body of the lemma, in the more unequal glumes, the lower not pubescent, it approaches var. *longiflora* as to the length of the awns. The plant is annual and treated by me as a variety of *Aristida mutabilis*. See afterwards the figure and the observations under *Aristida tenuis*. Another plant from Tanga is described here as a new variety of *Aristida mutabilis*.

***Aristida mutabilis* Trin. et Ruprecht.**

var. *tangensis* Henrard

nov. var.

Habitu, foliis, inflorescentia convenit cum *Aristida mutabile* var.

aequilonga, sed differt characteribus dimensionibusque spicularum. Glumae glabrae, inaequales; inferior cum arista $1\frac{1}{2}$ mm. longa, 6 mm. longa, carina scabra; superior cum arista 1 mm. longa, 8 mm. longa, carina laevis; gluma fertilis, callo acuto 1 mm. longo et columna perbrevis circa $1\frac{1}{2}$ mm. longa, distincte torta, $5\frac{1}{2}$ mm. longa, aristae inaequales, 15—17 mm. longae.

Africa orientalis: in cultis prope Tanga, anno 1893, leg. C. HOLST no. 2021. Typus in Herb. Monacense sub no. 4771.

***Aristida namaquensis* (Nees) Trin. et Rupr.**

Spec. Gram. Stipaceorum, loc. cit. pag. 174!

= *Arthratherum namaquense* NEES AB ESENB.; Florae Africae australioris, I. Gramineae. [1841] p. 185!

Panicula erecta saepe contracta ramis superioribus solitariis racemosis, aristae laciniis subaequalibus a basi ad apicem plumosis media paulo longiori ad minimum semipollicari, stipite communi tubuloso valvulam aequante, glumis valvula subduplo longioribus acuminatis (albis), foliis distichis convoluto-subulatis pungentibus lanuginosis.

Steek Kweek Incolis.

α. Fruticuliforme, rigidius, erectum, vaginis totis aut margine orque lanuginosis.

β. Vagans, culmo elongato procumbente hinc inde prolifero, vaginis margine saepe subnudis (arista $\frac{3}{4}$ poll. longa, paniculaque longiori).

Var. *α.* Solo sabuloso alt. II. in regione Namaquensi, (Ecklon); inter montem Kamiesberg et Onderste Bokkefeld, in rupestribus inter Nieuwefontein et Platklip 3000—3500' alt. (Namaqualand), in planitie graminosa ad flumina Klipplaatsrivier et Garip alt. 3500', in vicinia Gamka fluvii ad Bitterwater alt. 2500', in alveo fluvii Kromrivier alt. 3000' et ad flumen Brakrivier (Nieuweveld) alt. 3000—4000', (Drège).

Var. *β.* ad Gamka fluvium (Stellenbosch?), Mundt in Herb. Reg. Berol.

Floret Novembri et Decembri. 5.?

Fruticulus (?) parvus, vix pedalis, basi divisus, habitu *Arthratheri* pungentis, quod quidem satis differt panicula multo ampliore patula, spiculis paulo maioribus, maximeque arista (breviori) usque ad

articulum fere divisa, stipite solido valvula multo brevior, tum vero aristae laciniis apice setaceis pilis plumae denique evanescentibus. Color utrinque varietati glaucus. Folia in var. α $1\frac{1}{3}$ —2 poll. longa, var. β 3—5 pollicum, vaginae his glabrae illis autem ad margines albo-lanuginosae. Caeterum var. β haud differt, nisi laxitate (fere monstrosa) partium, culmo fere bipedali, foliis culmeis magis dissitis,



ARISTIDA NAMAQUENSIS (Nees) Trin. et Rupr.
From type specimen.

panicula 6—7-pollicari, angusta tamen; spiculis paulo maioribus, quo proportio aristae mediae $\frac{3}{4}$ pollicis longae exaequatur.

Varietatem memorabilem spiculis nonnullis bifloris ad Platklip legit Drège.

The type, in the Nees Herbarium at Berlin, bears two labels, the left-hand label reads: „Arthratherum namaquense Namaqualand, Sandige Erde, 2e Höhe, Nov. Dec. Ab Arthrathero pungente diversum”. In the description we find these data under var. α . Solo sabuloso alt. II. in regione Namaquensi, where the collector is given as Ecklon.

The second label bears the number 39 and the data: „Arthratherum namaquense. N. a. E. In collibus carroideis terrae Namaquensis. Febr. Zeyher. Pr. b. sp. Hb. Nees”. The two varieties mentioned by NEES are rather insignificant.

***Aristida nana* Steudel.**

E. G. STEUDEL; Synopsis Plantarum Glumacearum [1855] p. 137!

Radice fibrosa; culmi ima basi caespitoso-ramosi ramis basi geniculatis ($2\frac{1}{2}$ —6-pollicaribus) nodisque purpurascentibus vaginisque glabris; ligula pilorum series; foliis planis angustissimis linearibus (vix $\frac{1}{2}$ ''' latis, $\frac{1}{2}$ — $\frac{3}{4}$ '' longis, vetustis convolutis curvatis), striatis, inter strias praesertim adpresse brevissime pilosulis; paniculae ($1\frac{1}{2}$ -pollicaris amethystino-purpurascentis) erectae radiis solitariis ad basin fere divisis, alternis supra basin floriferis; glumis inaequalibus superiore 4-inferiore 3-lineali utraque lanceolata acuta glabra, flosculo glumam superiorem aequante basi glabro apice elongato scabriusculo nec articulado nec torto, aristae setis subaequalibus glumas duplo superantibus. A. dispersa a. (*Rupr. Trin.*) Festuca? nr. 994. *Bert. hrbr.* ☉ Chili.

Note: = *Aristida adscensionis* L. var. *bromoides* (H.B.K.) Henrard.

The plant described by STEUDEL was edited in exsiccatae under the name of *Aristida festucoides* HOCHST. ET STEUD. with a printed label, reading: „In declivibus apricis collium Quillota Chili. Sptbr. 1829. Hrbr. Bertero nr. 994 (sub Festuca?) Unio itiner. 1835. STEUDEL changed the name afterwards on account of POIRET's homonym. The specimens are dwarf annual plants, agreeing in the different characters accurately with *A. bromoides* H. B. K. On pag. 63 of this revision I have already observed that *Aristida bromoides* is a distinct variety of *A. adscensionis*, limited to the High Andes. See also the figure on pag. 62. *Aristida nana* was mentioned already as a nomen nudum in STEUDEL's Nomenclator and technically published by TRINIUS and RUPRECHT under *Aristida dispersa*. See this revision p. 144. TRINIUS mentioned in his description the acutish glumes, his *A. dispersa* is however a mixture of true *A. adscensionis* and *A. adscensionis bromoides*.

***Aristida Nealleyi* Vasey,**

in JOHN M. COULTER; A Manual of the Phanerogams and Pteridophytes of Western Texas, in Contributions from the U. S. National Herbarium, Washington, Vol. II. [1894] p. 514!

= *Aristida stricta*, var. *Nealleyi* Vasey, n. var. in JOHN M. COULTER; Upon a collection of plants made by Mr. G. C. Nealley, in the region of the Rio Grande, in Texas, from Brazos Santiago to El Paso county. Contributions from the U. S. National Herbarium, Vol. I. [1890] p. 55!

Description given in the year 1890:

Culms cespitose, slender, erect, wiry, unbranched, 45 cm high: leaves erect, setaceous, 5 to 15 cm long, pungently pointed: panicle spike-like, very narrow, 10 to 15 cm long, two or three spikelets at each joint, one sessile, one or two short-pedicelled, appressed: spikelets about 8 mm long: lower empty glumes rather shorter than upper: upper one nearly equal to the flowering glume or to the furcation: flowering glume about 8 mm long beside the awns, scabrous, the short stipe pubescent: awns nearly equal, 10 to 12 mm long. — Chenate Mountains (Presidio county). Shorter and less rigid than the type.

Description given in the year 1894:

Culms slender, mostly simple, 4 to 6 dm. high: panicle 1 to 1.5 dm. long: spikelets about 8 mm. long; the floret nearly equalled by the second empty glume; the first one-half to three fourths as long; lateral branches slightly shorter, united in the tapering apex of the floral glume and twisted. — Among rocks, southwestern Texas.

Note: = *Aristida glauca* (Nees) Walpers.

Described by VASEY as a variety of *Aristida stricta*, it was given specific rank by him in the year 1894. The type in the U.S.N. Herb. was collected in Western Texas, Presidio County, Chenate Mountains, by G. C. NEALLEY, it bears the name in VASEY'S hand. There is a duplicate in Hackel's Herbarium, stamped with the Vienna number 15532. The characters of the spikelets agree rather well with those of the *A. glauca*, but the spikelets and the awns are shorter; the long, twisted, scabrous column, a distinct character of the species, is however present.

***Aristida Neesiana* Trin. et Ruprecht.**

Species Graminum Stipaceorum, loc. cit. pag. 113!

= *Chaetaria recurvata* NEES AB ESENB.! Agr. Bras. [1829] pag. 385. non R. et S.

= *Aristida recurvata* TRIN. Act. Petrop. [1836] p. 44. non H. B. K.

Description given by Nees in Agr. Bras. p. 385:

Ch. culmo simplici, foliis linearibus convolutis facie scabris, inferioribus planis contortis vaginarum collo nudiusculo, panicula ramosa coarctata, glumis aequalibus longe attenuatis flosculo lon-

gioribus, setis lateralibus parum brevioribus mediaque curvato-reflexis flosculum duplo superantibus.

Folia inferiora plana, retorta (non tamen vaginae revolutae, ut in Cl. Kunthii adnotatione proditum est); caulina 4—8 pollices longa, angusta, convoluta, curva neque stricta. Collum vaginae in plerisque imberbe. Panicula 5—8 pollices longa, spiciformis, inferne interrupta, ramis alternis, sed ad basin fasciculatim divisis. Glumae 4 lineas longae, longeattenuato-lanceolatae, fuscescentes, membranaceae, carina scabrae: superior paulo brevior et angustior. Flosculus lineas $2\frac{3}{4}$ longus, cinerascens, basi pilosulus, apice scaber. Setae basi arcuato-incurvae, scabrae, pallidae, laterales 5-, media 7-linearis.

Habitat in altis Adamantinis, Serro Frio dictis, prov. Minasurum. (Mart.) — In planitie Orinocina, amoeno gramine tecta, prope S. Thomas de la Angostura. (ab Humb.) — Floret Majo. 2. (Vidi in Herb. Reg. Berol.)

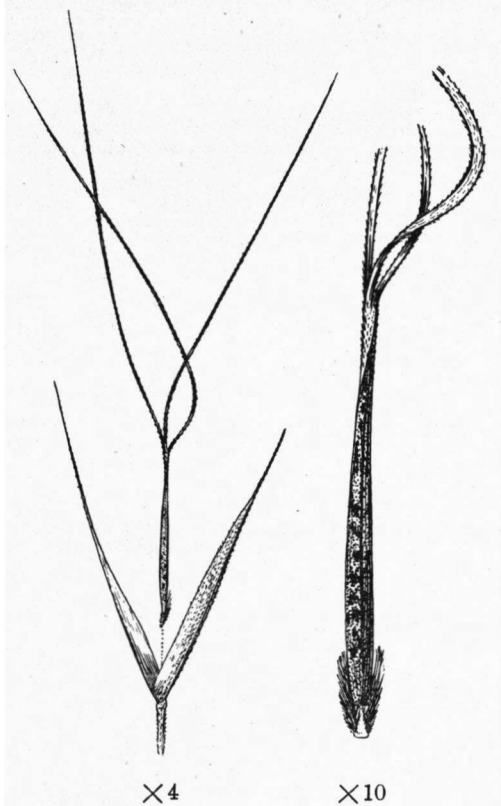
Description given by Trinius in Act. Petrop. [1836] p. 44:

Paniculae coarctatae radii subbinis, a basi divisis et mox supra basin floriferis; Glumis subulato-acuminatis, subaequalibus, flosculo 3-lineali $\frac{1}{4}$ et qu. exc. majoribus; Setae

squarroso-patentissimis flosculo duplo longioribus: media paulo majori; Foliis inferioribus planis, contortis, glabris.

Culmus pl. min. bipedalis, simplex. *Ligula* brevissima. *Folia* 4-8-pollicaria, caulina convoluta. *Panicula* 5-8-pollicaris, densa, inferne interrupta, fuscescens. *Glumae* 1-nerve.

Description given by Trinius et Ruprecht in Act. Petrop. [1842] p. 113: Paniculae 5—8 pollicaris, contractae, densiflorae, spiciformis, basi interruptae et longissime exsertae radiis 3—5-nis, abbreviatis, a basi



ARISTIDA NEESIANA Trin. et Ruprecht.
From type specimen.

floriferis; glumis subaequalibus, apice attenuato acuminatis, 4—5 *linealibus*; flosculo glabro, nigromaculato, apice *vix* (aut semel tantum) torto, $2\frac{1}{2}$ *lineali*; setis divaricato-patentibus, basi recurvatis, superne strictis, media 7—9 *lineali* lateralibus quidpiam longiore.

In altis Adamantinis Serro Frio dictis, prov. Minarum. (Martius).

Culmi simplices, ultra bipedales, erecti, nodis glabris. *Vaginae* internodiis plerumque breviores, glabrae. *Ligula* subnulla. *Folia* inferiora plana, retorta, caulina 4—8 pollices longa, lineari-convoluta, glabra l. supra pilis tantum paucis prope ligulam obsessa. A simillima *A. recurvata* HBK. differt culmo, panicula, glumis et aristis longioribus.

NEES described the species in the year 1829 and supposed that his plant was the same species as *A. recurvata* H. B. K., TRINIUS accepted HUMBOLDT'S name for the species in the year 1836. In the year 1842 the Russian monographers recognized the species described by NEES as different from the true *A. recurvata* and they named the plant, collected by MARTIUS, *Aristida Neesiana*.

The type of *Aristida recurvata* has been examined through the courtesy of Prof. H. LECOMTE and it is indeed different from the plant described by NEES. *Aristida Neesiana* is a rare Brazilian species, the differences with *A. recurvata* were already indicated by TRINIUS and RUPRECHT. TRINIUS has seen a duplicate of *A. recurvata* in the Willdenow Herbarium (no. 1801!). In the year 1842 the monographers described an *A. Riedeliana*, having a much longer inflorescence. They compared this plant with *A. gibbosa*, which is indeed very different, but their *A. Riedeliana* is, as to the authentic specimens, only a robust form of *A. recurvata*, agreeing with that species in the spikelet characters. See afterwards my observations under *A. Riedeliana*.

Aristida Neesiana is however distinct from *A. recurvata*. The type in the Munich Herbarium is labeled by NEES: „*Chaetaria recurvata* R. et Sch.“, it was collected by MARTIUS with the data as given by NEES. On the authentic label others have written: *Aristida Neesiana* Trin. and *Aristida recurvata* H. & Kth. Nov. gen. 1. 123. The plant bears the Munich number 4795. *Aristida recurvata* is the species with shorter glumes and lemmas but with comparatively longer column, *A. Neesiana* has longer glumes, longer lemmas and longer awns, but a rather short column.

***Aristida neglecta* Leon,**

ap. A. S. HITCHCOCK; The North American species of *Aristida*, in Contributions from the United States National Herbarium, Vol. XXII. [1924] p. 567!

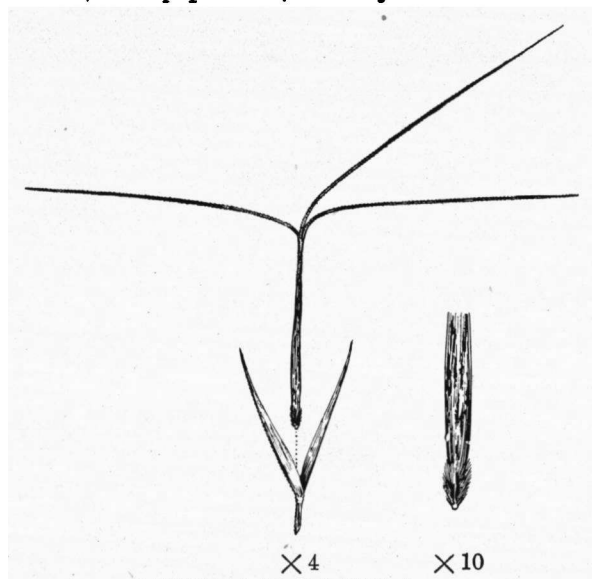
Plants perennial; culms loosely cespitose, erect, wiry, glabrous, 40 to 60 cm. tall; sheaths glabrous, much shorter than the internodes, distributed along the culm, villous at the throat, the hairs deciduous; ligule a ciliate membrane less than 0.5 mm. long; blades stiff and firm, soon involute, sharp-pointed, usually not over 5 cm.

long, often shorter, less than 1 mm. wide, glabrous beneath, scabrous-puberulent on the upper surface; panicle narrow, 5 to 10 cm. long, the branches distant, rather stiffly ascending, 1 to 2 cm. long, bearing 1 or 2 branchlets at base, few-flowered; glumes equal or the second a little longer, 7 to 9 mm. long, 1-nerved, acuminate or awn-pointed, the first scaberulous on the keel, the second glabrous;

lemma about 1 cm. long, the callus pilose, less than 1 mm. long, the body glabrous, terete, gradually tapering into a scabrous twisted beak 3 to 4 mm. long; awns about equal, divergent, finally nearly horizontal, 10 to 15 mm. long, slightly contorted at base.

Type in the U. S. National Herbarium, no. 1,064,517, collected on open grassy hills, called Jata Hills or „Lomas de las Jatas”, Guanabacoa, Province of Habana, Cuba, February 12, 1921, by E. L. Ekman.

This species differs from *A. curtifolia* in the twisted beak of the lemma and from *A. refracta* in the scarcely contorted awns, and from both in habit. In the former species the very short blades tend to be in pairs and in the latter they are clustered at the base. The leaves of *A. neglecta* are distributed uniformly along the culm and are not clustered at the base.



ARISTIDA NEGLECTA Leon.

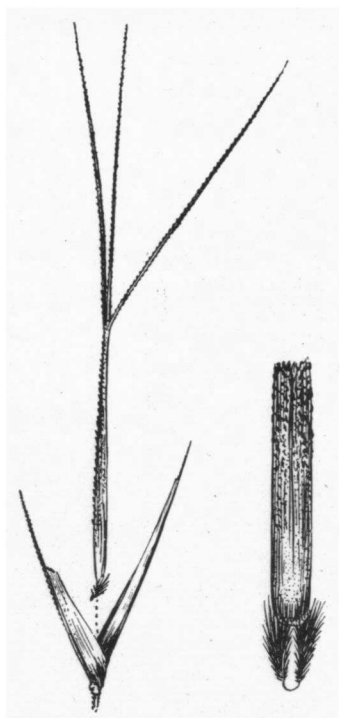
From type specimen.

A fragment of the type specimen, together with a duplicate of the type was received from Prof. A. S. ИТЧЕВСК. The differences with the allied species *A. refracta* and *A. curtifolia* are already indicated in the original description.

Aristida nemorivaga Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis, dense caespitosa, glauco-viridis, innovationibus intravaginalibus. *Culmi* stricte erecti cum paniculis 4—6 dm. alti, simplices, 2—3 nodes, teretes, glaberrimi, leviter striati; *vaginae*



× 4 × 10
ARISTIDA NEMORIVAGA
Henrard.

From type specimen.

arctae, inferiores leviter subcompressae vel subcarinatae, superiores teretiusculae, glabrae, striatulae, internodiis duplo breviores; *ligula* brevissima, distincte ciliolata, auriculae pubescentes vel breviter hirtellae, collo distincto, leviter incrassato; *laminae* e basi aequilata lineares, culmeae saltem inferne planae, ad 3 mm. latae ± 20 cm. longae, superne complicatae, sensim longe acuminatae, inferiores circinato-flexuosae, loriformes, supra subscaberulae, subtus sublaeves, multinervosae, marginibus incrassatis, innovationum angustiores, breviores, subcomplicatae; *panicula* contracta, subdensa sed haud spiciformis, stricte erecta, 8—10 cm. longa, 1—2 cm. lata, rhachi teretiuscula vel subangulosa, glaberrima, ramis binis vel solitariis, in axilla breviter pilosis, primario cum aristas circa 5 cm. lg., in 1/2 inferiore nudo, secundario basi breviter nudo paucispiculato, circa 3 cm. lg., stricte erectis, appressis, ramulis subangulosis, scaberulis, spiculis subcongestis, pedicellis hirtellis leviter clavatis; *spiculae* sordide flavo-violascentes vel

fuscescentes, brevipedicellatae; *glumae* inaequilongae, glabrae, unives, inferior carina scaberrima, apice abrupte subtruncata, aristata, arista scaberrima 2,5 mm. longa computata, 7 mm. longa, superior angustior, carina laevis, minute truncata, aristulata cum arista 1 mm. longa circa 8,5—9 mm. longa, *gluma fertilis* callo obtuso circa

$\frac{3}{4}$ mm. longo dense barbato circa 9 mm. longa, in $\frac{1}{3}$ inferiore sublaevis, superne scaberrima carina quasi serrulata, sensim angustata sed haud rostrata, non torta, *aristae* subaequales ad 10 mm. longae, *palea* minuta vix 1,5 mm. longa, striatula.

Angola australis: Open forest between Huilla and Quihila mission, 13. 5. 1909, legit H. H. W. PEARSON no. 2634. Percy Sladen Memorial Expedition in South-West Africa, 1908—1909. Typus speciei in Herb. Kew.

The species is very characteristic by the strap-shaped curled blades at the base of the stems, by the long-awned glumes and by the rather short awns of the lemmas. *Aristida Welwitschii* (*angustata*) differs in the well-developed, distinctly twisted and exerted column and in the pubescent lower glume, which is gradually narrowed into the awn; *Aristida denudata* differs in the vegetative characters (creeping rhizome), in the acute, shortly awned glumes and in the widely divergent awns; *Aristida surfuriosa* differs in the 1-noded culms, the less unequal glumes, the lower acute not awned, the upper shortly awned, in the narrower not curled blades and in the longer awns of the lemma; *Aristida junciformis* differs in the gradually awned scabrous-hirtellous glumes and in the compressed culms; *Aristida macilenta* has a very different habit without curled blades and shortly awned subequal glumes.

Aristida Niederleinii Mez.

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 150!

Perennis, gracilis. Vaginae culmi quam internodia breviores, glabrae; ligulae brevissime pilosulae nec margine barbatae; laminae tenuissime setaceo-convolutae, glabrae. Inflorescentia pauciflora, densiuscule 2-pinnata, spiciformis; ramulis usque ad 30 mm longis; pedicellis lateralibus usque ad 5 mm metientibus. Glumae lanceolatae, sensim nec auriculatim acutissimae, I. ad 13 mm longa 3-nervia, II. ad 16 mm metiens 1-nervia. Paleae unguis brevissimus obtususque, brevissime pilosulus; articulatio deest; rostrum insigniter nullum; setae nudaе, subaequaliter ad 0,1 m metientes. — Argentina, Sierra de Cordoba (Hieronymus); Misiones (Niederlein).

Through the courtesy of Prof. R. PILGER, I could study six sheets in the Berlin Herbarium, labeled by MEZ as *Aristida Niederleinii*. The plants on these six sheets belong to four different species and

the characters given in the description are taken partly from one of them and partly from the others. *Aristida Niederleinii* is not a valid species and omitted in my work. The publication of *A. Niederleinii* is once more an example of the unaccuracy of MEZ's work in agrostology and for the selection of the type it is rather indifferent which plant on the different sheets we take. I will briefly discuss them here.

The first specimen mentioned in the publication is Sierra de Córdoba, leg. Hieronymus. The sheet bears a label: HERBARIUM G. HIERONYMI. Species 167, written up by HIERONYMUS: „Aristida. Entre San José y San Ignacio, entre las dos Sierras de Córdoba, Rep. Argentina. 15. I. 1876. leg. G. Hieronymus.” It was from ENGLER'S Herb., now at Berlin. The specimen is rather bad and damaged. There is a very beautiful specimen of the same number in HACKEL'S Herbarium stamped with the Vienna number 15518, also written up by HIERONYMUS. Both specimens agree perfectly with another and answer to the description as to the vegetative characters and the rather few-flowered inflorescence with rather short pedicels of the spikelets but the spikelet characters widely differ from those given in the description. Glume I. together with the awn 17—19 mm. long, 1-nerved, generally with 2 very faint lateral nerves, gl. II. = 29—30 mm., 1-nerved, glume III. + callus = 11 mm., smooth, awns about equal, 10—10,5 cm. long. The specimens belong to *Aristida pallens* CAV., they agree with the data given by CAVANILLES and with the characters of *A. glaberrima* STEUDEL, which is typical *A. pallens*. The specimen in HACKEL'S Herb. is determined by him as *A. pallens* CAV.

The second sheet, also from ENGLER'S Herb. has a printed label: FLORA ARGENTINA leg. C. Galander. It is written up: „52 Cañada de Gomez; Prov. Santa Fé. 23. XII. 1877.” A specimen with quite the same label also in Herb. HACKEL with the Vienna number 16101. The specimens are also *A. pallens*, they perfectly agree with Hieronymus 167. The auricles of the sheaths are not bearded as is the case in *A. pallens genuina*, the awns are about 10 cm. long, mostly damaged.

The third sheet is labeled as the second one but bears the number 13. On this sheet there are 4 specimens, the two left-hand ones are *A. circinalis*, with inverse position of the glumes and curled leaves, the dimensions of the spikelets are: glume I. = 16—18 mm., gl. II. = 11—13 mm., lemmas = \pm 10 mm., the specimens are overmature and nearly all the lemmas are fallen off, here and there a perfect spikelet was found, the unbeaked lemmas have the furrowed ventral side as in *A. circinalis* and the awns are about 2,5 cm. long. The

dimensions are in accordance with the description given by MEZ, if we accept that MEZ has overlooked the inverse position of the glumes. The two right-hand specimens on the sheet belong to *A. venustula* ARECHAV., a very distinct species, characterized by the vegetative parts, shorter leaves, almost clustered at the base of the culms, distinctly bearded auricles and the curious nervation of the lower glume, the nerves anastomosing. The glumes of the two right-hand specimens have the following dimensions: gl. I. = 15—16 mm., gl. II. = ± 25 mm., gl. III. = 10—11 mm., the awns are 7—9 cm. long. In the specimens most of the lemmas are delapsd but a few perfect spikelets were observed. In HACKEL'S Herb. there is also Galander's no. 13, the sheet, with the Vienna number 16100, bears three specimens of *A. venustula*, quite identical with the two right-hand specimens in the Berlin Herbarium.

The fourth sheet labeled by MEZ as *A. Niederleinii* bears the same label as the third sheet and is numbered no. 16. On this sheet there is but one robust specimen, nearly all the lemmas are delapsd in course of time, some perfect spikelets were however observed. This specimen belongs to *Aristida Spegazzinii* ARECHAV., a species allied to *A. circinalis* but with a more pronounced inverse position of the glumes and much longer awns. The species has the same deeply furrowed ventral side of the lemma. The dimensions of Galander no. 16 are: gl. I. = 16—20 mm., gl. II. = 10—12 mm., gl. III. = 10—11 mm., the awns are 7—9(—10) cm. long. See afterwards the characters under *A. Spegazzinii* in this revision.

The fifth sheet is labeled: „Expedition nach dem Rio Negro. Patag. Stipa sp. Toscahügel bei Fuerte Argentina. 1. V. 1879. Prof. Dr. Lorentz et Niederlein. leg. G. Niederlein.” On this label is written: „Mit no. 167 n. 168 Córdoba id.” The plant is *Aristida pallens* and identical with Hieronymus 167 from Córdoba. The specimens are very bad and the spikelets much damaged, glume I. = 13—15 mm. with faint lateral nerves, gl. II. = 26—30 mm., gl. III. = 12 mm. long and quite smooth, the awns are broken and at least 4 cm. long.

The sixth sheet bears the specimen from Misiones, mentioned by MEZ in the description, it bears the data: „Deutsch-argentinische Misiones Expedition Rio Alto Paraná 1883. Santa Ana—Loreto. 14. Febr. leg. G. Niederlein.” Because the species was named by MEZ in honour to GUSTAV NIEDERLEIN, it could be accepted as the type (American method), although it is not the first specimen mentioned and does not agree with the description. The specimen on the sheet is quite different from *A. pallens* and belongs to *Aristida venustula* ARECHAV., it is depauperate and much damaged, glume I. = 13 mm.,

the nerves in the immature spikelets are sub-5-nerved, the short lateral ones anastomosing, gl. II. = 25 mm., gl. III. smooth, 12 mm., the awns at least 4,5 cm. long. The vegetative parts agree perfectly with *A. venustula*.

MEZ has not followed the exact method to give the collectors' numbers in stead of the names on the sheets and he generally has not indicated in which herbarium his types are preserved. We find in the collections studied by MEZ many specimens in his script that have not been published by him and there are many names published by him not corresponding to the plants so-named in herbaria. A critical revision of all the „species” published by MEZ and his students is one of the „problems” in future agrostology, even the genera MEZ used are in many cases incorrect. ¹⁾

Aristida nigrescens Presl.

J. S. PRESL; Reliquiae Haenkeanae, Vol. I. Praga. [1830] pag. 223!

A. culmo ramoso, tereti, foliis convoluto-setaceis, intus pubescentibus, margine scabriusculis, ligula truncata brevissima integerrima, glaberrima, paniculae secundae subsimplicis ramis subternis, glumis brevissime aristatis, superiore paleam inferiorem scabram aequante, aristarum sessilium, ramo medio longiore.

Hab. in Mexico. ☉

Radix fibris longis fuscescenti-albis. Culmus basi inferneque ramosus,

¹⁾ *Stipa verruculosa* was described by him from specimens collected by BALANSA near Buenos Aires in Argentina. I have seen a beautiful series of the plants in BALANSA's own Herbarium at Leyden. BALANSA's labels read: B. Balansa. Herbarium Platense. — 1874—1875. No. 7. Souche cespiteuse. Station de San-Vincente, chemin de fer de Buenos-Ayres à Chascomus. — Prairies naturelles à sol argileux. 5 Decembre 1875. Other specimens from the same locality, have no number and are labeled: Station de San-Vincente, près de Buenos-Aires, dans la pampa. All the specimens belong to a same species, but they do not belong to the genus *Stipa*. The curious palea and other characters of the lemmas and the caryopsis, place these plants in the genus *Piptochaetium* of PRESL. (*Oryzopsis* of SPAGAZZINI not MICHAUX). The species which must bear the name *Piptochaetium verruculosum* (MEZ) HENBARD, is an intermediate one between *Piptochaetium ovatum* (TRIN.) DESV. and *Piptochaetium stipoides* (TRIN. et RUPR.) HACKEL, more allied to the former, but distinct.

Another example is *Sacciolepis longissima* MEZ, also described from plants collected by BALANSA. The examination of the beautiful material in Balansa's Herb. has proved that it is not a *Sacciolepis* at all but a true *Panicum*, having the long contracted panicle of the genus *Sacciolepis* but the spikelets of true *Panicum*. The type of this curious species which has to bear the name *Panicum longissimum* (MEZ) HENBARD is Balansa no. 2985.

ramisque geniculatis elongatis teres, glaberrimus, minutissime striatus, ad infimum ramum paniculae 4—6 pollices altus, vix crassicie pennae columbinae. Vaginae paucae, inferiores ad ortum ramorum marcescentes, reliquae teretes laxiusculae, striatae, glaberrimae, striatulae. Ligula brevissima, truncata, integerrima, glaberrima. Folia angusto-linearia, convoluto-setacea longa, nec culmum aequantia, rigidula, intus pubescentia; margine scabra. Panicula erecta, secunda, subsimplex, 4—5—6-pollicaris, patula. Rami tres aut quator, fasciculati, tres uniflori inaequilongi, quartus multiflorus. Rhachis teretiuscula alternatim uno latere canaliculata, angulis scabriuscula; ramuli teretiusculi scabri. Locustae in ramis brevibus solitariae, in longiore binatae, una longius altera brevius pedicellata, absque arista 4 lineas longae. Glumae inaequales, membranaceae, straminae, inferior brevior, basi superiorem amplexans, lanceolata, carinata, uninervia, nervo scabra, seta brevissima scabra terminata, superior tempore antheseos paleam inferiorem fere tertia parte superans, post anthesim vero illam aequans, conformis inferiori, uninervia, nervo glabro, apice bidenticulata, aristam brevissimam scabram emittens. Palea inferior convoluto-subulata, superiorem involvens, extus ubique scabriuscula, margine aculeis scabra, florens pallida, seminifera nigrescens, nec prolongata in pedunculum contortum, sed ex apice immediate emittens aristas tres scabras media longiore, tempore antheseos palea sua longiores, post illam autem aequilongas.

Habitu affinis *A. depressae*.

Note: = *Aristida adscensionis* L.

On pag. 265 of this revision, I have already observed that there occurs in Mexico a form of *Aristida adscensionis* with interrupted open panicles. This plant was described by CAVANILLES as *A. interrupta* and *A. nigrescens* is the same plant. In habit it agrees with the Indian *Aristida depressa* as already observed by PRESL. From the long and accurate description given by PRESL it is already probable that his plant belongs to *A. adscensionis* and the examination of the authentic specimens confirms this. The name was given by PRESL on account of the dark lemmas, no measurements of the spikelets are given by PRESL and therefore I give them here to demonstrate that they are in accordance with those of the *A. adscensionis*. The type is in the National Herbarium at Prague, there are two duplicates in the Vienna Herbarium, one of them from the Reichenbach fil. collection, stamped with the Vienna number 239592.

There is also a duplicate in the Bernhardi Herbarium at the

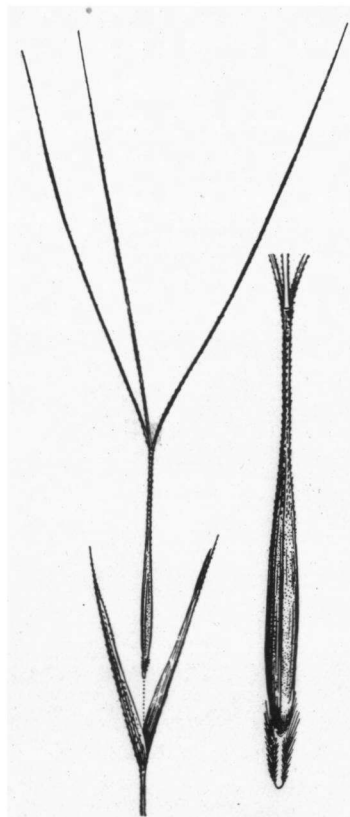
Missouri Botanical Garden, studied and figured by LAMSON-SCRIBNER, in Tenth annual report, (1899) p. 39, Plate 27. SCRIBNER states that it is the same as Palmer 501a from Mexico. Palmer's number 501a is from Jalisco, Rio Blanco. The figure given by SCRIBNER agrees perfectly with the authentic specimens in European Herbaria.

The dimensions of the spikelets of the type are: Glume I. = 6—7 mm., in the ultimate spikelets —9 mm., acute, glume II. = 8—9 mm., or in some spikelets 9—10 mm. long, the callus is $\frac{1}{2}$ mm., the lemma = 7—10 mm. long, scaberulous upwards, rough especially on the keel, the central awn is 20 mm., the lateral ones are 15 mm. long. In the shorter lateral spikelets the central awn is 15 mm. and the lateral ones only 13 mm. long. The upper glumes are subobtuse, emarginate with a mucro from the sinus.

Aristida nigritiana Hackel.

ED. HACKEL; Gramineae novae. VIII, in FEDDE, Repertorium specierum novarum regni vegetabilis. X. [1911] p. 166!

Perennis? Culmi ascendentes, e nodis 2—3 inferioribus ramosi, ramis in singulo nodo binis usque quaternis, patulis, omnibus floriferis uninodibus, inaequalibus, aliis ad 20 cm longis superne longe nudis fastigiatis, aliis brevibus usque ad paniculam foliatis, omnibus subfiliformibus teretibus glaberrimis. Vaginae inferiores culmi ope ramorum a culmo dejectae, ramorum arctae teretes, glaberrimae. Ligula breviter ciliaris. Laminae anguste lineares acutissimae siccando convolutae, 3—5 cm lg., 0,7 mm diam., rigidae, patentes, extus scabrae intus puberulae crassinerves. Panicula pyramidalis, laxa, 9—13 cm lg., ramis solitariis distantibus angulo recto patentibus v. subreflexis, tenui-filiformibus scabris, in $\frac{1}{2}$ — $\frac{2}{3}$ inferiore nudis, in $\frac{1}{2}$ — $\frac{2}{3}$ superiore propter ramulos secundarios brevissimos spiculasque dense confertas ramo appressas spiciformes, parte spiciformi 2—2,5 cm longa.



$\times \frac{42}{3}$ $\times 10$
ARISTIDA NIGRITIANA

Hackel.

From type specimen.

Spiculae sessiles lineari-lanceolatae 6 mm longae flavo-viridulae. Glumae steriles spiculam aequantes, aequilongae, lineari-lanceolatae, uninerves, carina aculeolato-scabrae, I. sensim, II. subito in mucronem 0,5—1 mm longum abiens, vel II ex emarginatura mucronata. Gluma fertilis steriles subaequans, 5 mm longa, lineari-subfusiformis, callo acuto brevissime sericeo-pilosa, ceterum glabra minute puncticulato-scaberula, apice in aristae stipitem cc. 2 mm longum laevem haud tortum abiens, cum stipite haud articulata, aristae rami erecto-patuli subaequales 10—12 mm longi tenuissimi, scabri. Palea parvula, ovalis, hyalina, enervis. Antherae 1,5 mm longi.

Africa occidentalis: In valle media fluminis Niger in missione de Gironcourt lectam mihi communicavit cl. Heim. ¹⁾

Verwandt mit *A. barbicollis* Trin. et Rupr., aber durch die starke, abstehende Verzweigung, kurze, eingerollte Blätter, und den nicht gewundenen Basalteil der Granne von ihr verschieden.

The plant belongs to the section *Pseudarthratherum*, it has a curious habit and is characterized by the perfectly straight not twisted, very short scabrous column, scarcely 2 mm. long. The equal glumes, the lower scaberulous all over, distinguish the plant from the perennial *Aristida barbicollis* TRIN. et RUPR., see the figure on p. 49 of this revision. HACKEL's species is more allied to *Aristida astroclada* CHIOV., an annual species with a distinctly twisted, longer column and a different geographical distribution, see this revision p. 44. From the type specimen in Hackel's Herb. it is not quite sure that *A. nigritiana* is a perennial plant. The type is labeled as given by HACKEL and bears the Vienna number 32155.

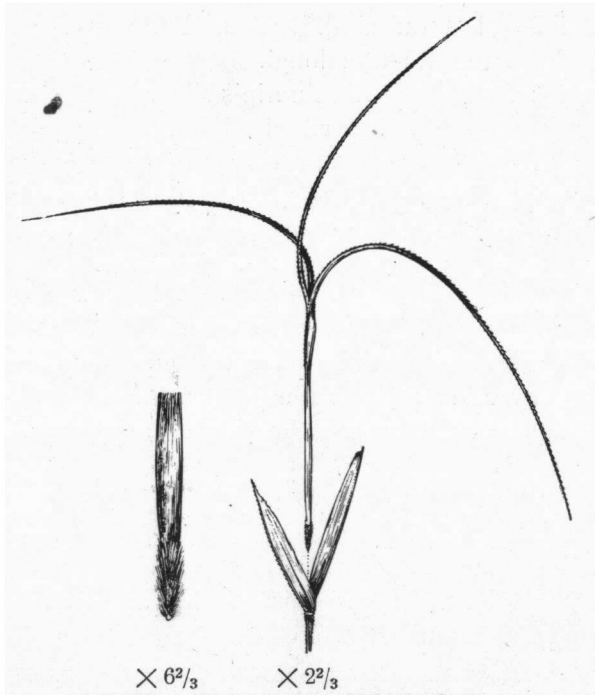
Aristida novae caledoniae Henrard

nov. spec.

(Sectio *Chaetaria*.) Perennis, caespitosa. Culmi stricte erecti, ad 50 cm. alti, graciles, teretes, glaberrimi, laeves, plurinodes, nodis subincrassatis, inferne ramosi, ramis fasciculatis, foliatis vel inferne saepe aphyllis; *vaginae* subarctae, glaberrimae, scabrae, internodiis paulo breviores vel iisdem aequilongae; *ligula* brevissima, truncata, ciliolata, auriculae longe barbatae; *laminae* e basi aequilata lineares, sensim acutissime acutatae, 15—20 cm. longae, vel superiores ad 6 cm. longae, involutae, subjunciformes, supra scabrae, subtus

¹⁾ The species was named, but not described, as *Aristida patens* by Prof. HENRI EVA. The exact locality is: Vallée du Niger Moyen, Haingoundji, dunes, leg. de Gironcourt 1908—1910. no. 74.

laeves; *panicula* contracta, angusta, ad 10 cm. longa, sat pauciflora, exserta, *rhachi* communi teretiuscula vel superne striato-angulata, *ramis* singulis, inferioribus maximis, superioribus brevibus, omnibus stricte erectis, paucispiculatis, ramis ramulisque scaberulis. *Spiculae* singulae, pedicellis scaberulis, nunc longius nunc breviter pedicellatae, 8—10 mm. longae, spiculae laterales brevissime pedicellatae. *Glumae steriles* inaequilongae. Gluma I. 5—6 mm. longa, sub-



ARISTIDA NOVAE CALEDONIAE Henrard.

From type specimen.

mucronata, subtrinervis, nervo extus scabro, gluma II. 8—9 mm. longa, uninervis, nervo glabro, apice bifida, inter lobos rotundatos, minute ciliatos, mucronulam emittens; *gluma* III. *fertilis* anguste linearis, laevis, arcte involuta callo barbato obtuso 1 mm. longo, plus minusve 10 mm. longa, in stipitem parvum, scabrum, minute tortum abiens, *aristis* scabris, intermedia maxima, 15 mm. longa, valde curvata, reflexa, la-

teralibus minoribus, 10 mm. longis, suberectis vel patulis, basi tortis. *Palea* minuta.

Nova Caledonia: in rupibus ad pedem montium „Poume”, ad sinum „Banaré”, maio 1871, leg. B. BALANSA no. 3083. Typus speciei in Herb. Lugd. Batav. sub no. 908.83—890—893—1201.

Allied to *Aristida pilosa* LABILL., a species also described from New Caledonia, which differs however abundantly in the simple culms with hairy internodes, in the acute awned glumes, in the pedicels having a distinct unilateral little tuft of hairs just below the glumes, in the wanting column and in the not recurved central

awn. More allied to the Australian *Aristida heterochaeta* HENR., which differs in the acute acuminate upper glume, longer, more twisted column, longer, very acute callus and distinctly heterogeneous awns. See this revision p. 228.

Aristida nutans Ehrenberg et Hemprich,

ap. TRINIUS et RUPRECHT; Species Graminum Stipaceorum loc. cit. [1842] p. 135!

Adnot. *Aristida nutans* Ehrenberg! et Hempr. cujus specimina arabica et culta Hort. Berol. coram sunt, est modificatio: foliis virescentibus, vaginis infimis purpurascensibus et paniculae magis effusae radiis omnibus secundis, nutantibus. — An quoque hujus loci: *Aristida paniculata* Forskål Fl. Aeg. Arab. (1775) p. 25. in Arabia felici reperta, cujus diagnosis ad omnes fere Aristidas aristis nudis praeditas quadrat. Ex sententia ill. Nees ab Esenbeck ad Chaetariam Forskålili amandanda.

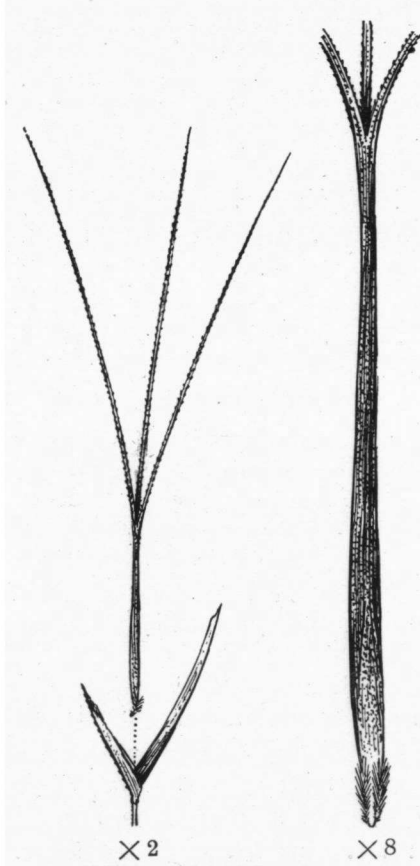
The plant was described in a note under *Aristida arabica*, which belongs to *A. coerulescens* DESF.. See this revision p. 33. *Aristida nutans* was a herbarium name and TRINIUS saw the specimens in the Berlin Herbarium. The type is a sheet with two plants, each of them bearing a label. The left-hand specimen exists of two panicles only and a leaf, the label reads: „*Aristida nutans* Ehrenb. Hort. Berol. Aug. 1829. Hb. Kunth.” The plants belong to the common *A. adscensionis*. The right-hand specimen is a well-developed plant without innovations. The label reads: „*Aristida nutans*. Abyssinien. G. Ehrenberg. Dhalac et ora Habess.” On this label is written in a different handwriting: „*A. Ehrenbergii* (Trin. Rupr.) Steud.” This is however not the *A. Ehrenbergii* as described by TRINIUS and RUPRECHT, which differs in the very curious tuberculate body of the lemma. See this revision p. 158. The right-hand specimen belongs to *A. adscensionis* var. *festucoides*, having the glabrous extraordinarily long lemma of this variety. See this revision p. 177.

Aristida obscura Henrard

nov. spec.

(Sectio *Chaetaria*): Perennis, laxe caespitosa, rhizoma crassum.

Culmi erecti, cum paniculis ad 25 cm. alti, multinodes, e nodis omnibus ramos solitarios brevibus gignentis, teretes, dense appresse striolato-pubescentes; *vaginae* subteretes vel subcompressae, striatulae, laxiusculae vel hiantes, internodiis longiores, manifeste scaberulae vel subpubescentes, marginibus albis hyalinis; *ligula* brevissima, ciliolata,



ARISTIDA OBSCURA Henrard.
From type specimen.

auriculae distincte barbatae; *laminae* e basi aequilata a vagina parum distincta, anguste lineares, sensim longe setaceo-acuminatae, inferne planae, superne subconvolutae, ad 2 mm. latae, ad 10 cm. longae, erectae, multinerves, supra scabriusculae et breviter pubescentes, subtus laeves, marginibus scabriusculis parum incrassatis; *panicula* parva, erecta, cum aristas 7—8 cm. longa, parum exserta, subcontracta sed haud densa, rhachi compressa, angulata, scabra vel hirtella, ramis solitariis vel subbinis, in axilla brevibarbatis, primo erectis dein subpatentibus vel divaricatis, brevissimis, altera 2—3-spiculata, altera 1-spiculata vel nulla, pedicellis brevissimis pubescentibus; *spiculae* suberectae vel subpatentes, viridulae et obscure violaceo suffusae; *glumae* glabrae, uninerves, acutae vix aristulatae, inaequales, *inferior* circa 6—8 mm. longa, carina scabra, *superior* 13—14 mm. longa, carina laevis, *gluma fertilis* callo subobtusio dense barbato circa

1 mm. longo, 12 mm. longa, superne parum angustata, sed haud rostrata, punctulata, aristae suberectae vel subpatentes, subaequales 25—30 mm. longae.

Australia: New South Wales, Bourke district, V. 1900. leg. D. W. J. HATTEN. Ex National Herbarium of N. S. Wales, Bot Gard. Sydney. Typus speciei in Herb. Lugd. Bat. sub no. 926.156—886. Dupl. in Herb. Kew.

New South Wales, Expedition II. leg. FRASER (anno 1829?) Cotypus

in Herb. Mus. Britt.. New South Wales, Warwick; III. 1911. leg.
J. L. BOORMAN (Herb. Zürich).

The branched culms, geniculate at all the nodes, give the plant a peculiar habit. A distinct species, allied to *Aristida Leichhardtiana* from Queensland, which differs however in the simple culms with glabrous smooth internodes, in the longer and broader panicle and in the distinctly awned glumes.

Aristida obtusa Delile.

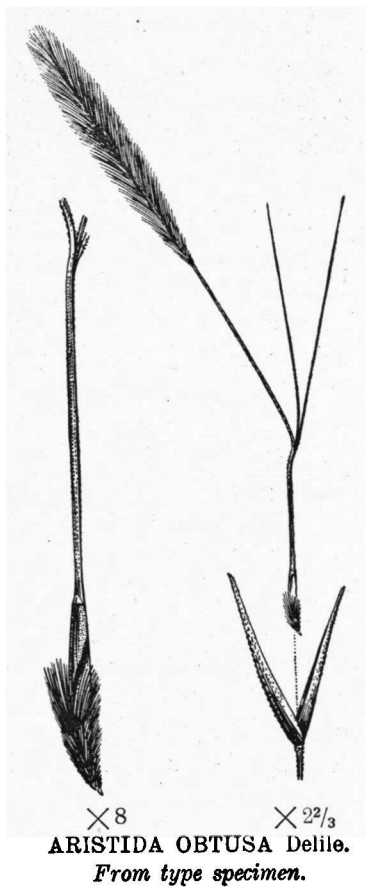
ALIRE RAFFENEAU DELILE; *Florae aegyptiacae illustratio* [1813] p. 53! (nomen); *Flore d'Egypte, Explication des planches* [1813] p. 31! (descriptio) pl. 13. fig. 3!

A. foliis capillaribus, striatis, radicalibus congestis; vaginis ore tomentosis; culmo filiformi, erecto, undique glaberrimo, monophyllo; calicibus subulatis; corollâ brevissimâ, obtusâ, bidentatâ; aristâ inter dentes erectâ, supernè trifidâ. ♀

La racine de cette graminée est fibreuse, en faisceau, perpendiculaire, dure, cotonneuse. Les feuilles sont capillaires, striées, canaliculées en dessus, ramassées en paquets serrés au-dessus de la racine: leurs gaines sont blanches et striées, glabres, excepté au sommet de leur ouverture, qui est un peu cotonneuse sur les côtés.

Les chaumes sont filiformes, droits, hauts de 10 à 25 centimètres [3 pouces et demi à 9 pouces], ne portant qu'une seule feuille insérée dans leur milieu sur un noeud glabre.

La panicule est terminale, longue de 5 à 10 centimètres [2 à 4 pouces environ]. Les épillets sont subulés-aigus, un peu striés, longs de 9 millimètres [4 lignes]; leur calice est à deux valves, dont l'extérieure est la plus longue et embrasse celle qui est intérieure. La corolle est de deux tiers plus courte que le calice, portée sur une base coriace velue, échancrée au sommet en deux lobes ou



dents latérales droites, obtuses, entre lesquelles naît une barbe trois ou quatre fois plus longue que le calice. Cette barbe se sépare en trois branches, dont une dorsale longue, plumeuse, et deux autres antérieures, de moitié plus courtes, glabres, capillaires. La branche dorsale de cette barbe ne se prolonge pas au-delà des cils qui la rendent plumeuse et qui forment une extrémité arrondie.

Les anthères sont beaucoup plus longues que la corolle; les stigmates épais, plumeux et violets.

J'ai cueilli cette nouvelle espèce d'*Aristida* dans le désert, sur le chemin du Kaire à Soueys, à la fin de janvier 1800.

Explication de la Planche 13, Fig. 2.

Aristida obtusa. (a) Un épillet dont le calice est ouvert; (b) corolle garnie de sa barbe trifide; (c) pistil détaché.

Through the kindness of Prof. Dr. CH. FLAHAULT, Director of the Institut de Botanique at the University of Montpellier, I received a beautiful part of the type specimen for deposit in our Herbarium, with a copy of the manuscript notes by RAFFENEAU DELILE. The species was first named by DELILE in his herbarium, *Aristida minuta*, this name we find also in the Willdenow Herbarium at Berlin. The cover is numbered 1826, but there is no description as is usually the case in Willdenow's collection. The sheet bears a small specimen of *A. obtusa* labeled *Aristida minuta* Delile, a second label in TRINIUS's hand bears the determination: „ad *Aristidam ciliatam*” (Trinius), there below is written by ASCHERSON: „minime! Est *A. obtusa* Del.” (Ascherson), and a! by CARL MEZ. It is curious that TRINIUS in the year 1842 recognized *Aristida obtusa* as a distinct species (Spec. Gram. Stipaceorum p. 167), he probably did not remember his determination in the Willdenow Herbarium and the name *Aristida minuta* is not cited by him.

The species is well-known and easy to recognize.

Aristida oligantha Michaux.

ANDREAS MICHAUX; Flora Boreali-Americana, Parisiis et Argentorati, Tom. I. [1803] p. 41!

A. culmis stricte erectis, subramosis: foliis convoluto-filiformibus, praelongis: floribus distanter alternis, solitariis: aristis tribus gluma longa longioribus.

HAB: in vastissimis pratensibus Illinoensibus.

The type is in the Michaux Herbarium at Paris. The species is a well-known annual, distinguished from all the other annuals by the branching culms, the long-awned glumes, both distinctly bifid at the apex and by the long equal awns, which are divergent at maturity.

***Aristida oligantha*
Michaux**

var. *nervata* Beal.

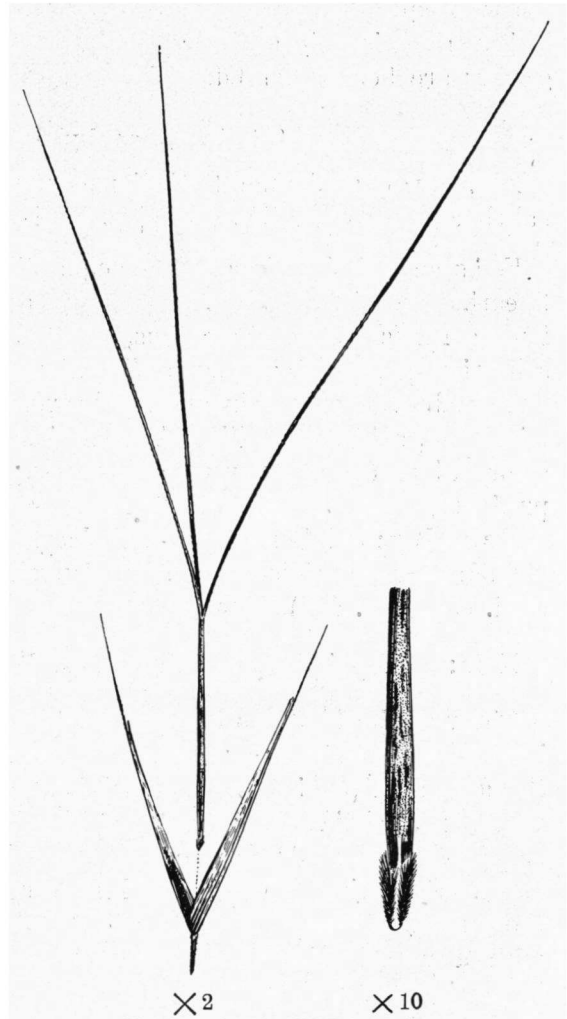
W. J. BEAL; Grasses of North America, Vol. II. [1896] p. 202!

Empty glumes shorter than the floret, first 7-nerved, the divergent awns 1—2 cm. long.

Oregon (Grant's Pass), Howell.

This plant has generally somewhat shorter awns, 2—2.5 cm. long and the lower glume is described as 7-nerved. In the many specimens of *Aristida oligantha* I could study, I found that the nervation of the

lower glume is rather variable, the upper glume is constantly 1-nerved, the lower however 3—5-nerved but in many specimens the lower glume is distinctly 7-nerved with 3 nerves on both sides, sometimes in the same panicle one of the lateral nerves is suppressed and the glume thus 6-nerved. A spikelet of KNEUCKER no. 563a figured here has such a perfectly 7-nerved lower glume. This character accepted by BEAL for a variety is not sufficiently



ARISTIDA OLIGANTHA Michaux.

From Illinois, Virg. H. Chase. Kneucker no. 563a.

constant and variable even in the same specimen and therefore we can neglect this variety.

Dwarf specimens were named by VASEY in herbaria var. *minor*. This variety is only a depauperate state of the plant, the lower glumes are here 5-nerved.

***Aristida oligophylla* Pilger.**

ROB. PILGER; *Plantae Stübelianae novae*, in ENGLER, *Botanische Jahrbücher*. Band. XXV. [1898] p. 711!

Foliis culmeis paucis culmum aequantibus, lamina angusta, longe lineari, convoluta, glabra, vagina angusta; panícula laxa, 30 cm longa; ramis longe distantibus, ad rhachim paniculae flexuosam solitariis, paucifloris; spiculis linearibus, unifloris; glumis vacuis 2 linearibus, 1-nerviis, in aristam brevem productis; gluma florente triaristata, aristis lateralibus duas tertias partes longitudinis mediae aequantibus (gluma florente 1 cm longa, arista media ad 1 cm producta).

Ecuador: Ad Loma de Canaballa provinciae Imbabura et locis vicinis; in locis aridis formationis Cangahua, alt. s. m. 2100—2300 m (coll. ecuad. n. 153).

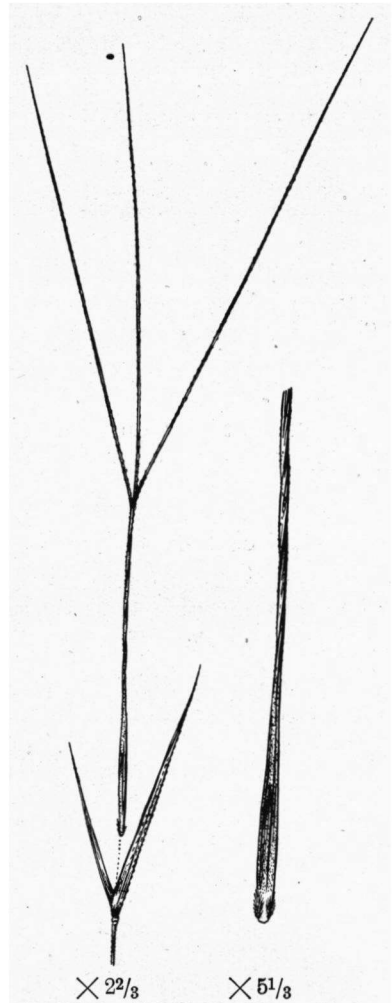
Note: = *Aristida Jacquiniiana* Tausch.

Through the kindness of Prof. R. PILGER I could study the type in the Berlin Herbarium, bearing the name in Pilger's hand and the data as given in the description. On the sheet Prof. MEZ has written: „*Aristida longiramea* Presl”. From the rather short description the plant is not to recognize, it much resembles indeed at first sight the *A. longiramea* PRESL, see this revision p. 310, but the glumes have an inverse position and the upper one a bifid apex with a well-developed awn from the sinus. The specimen thus belongs to the rather rare *A. Jacquiniiana* TAUSCH. See this revision p. 268—269. In the type of *A. oligophylla* the column is shorter than in *A. Jacquiniiana*, but the spikelets are not quite mature in PILGER's specimen. The spikelets of *A. oligophylla* are glabrous, the glumes 1-nerved, the lower 10—12 mm. distinctly awned, the upper 9 mm. long, including the awn from the bifid apex, the total length of the lemma, the column and the callus is 12 mm., the awns are unequal the central at least 12 mm., the lateral at least 7 mm. long, but they are damaged and probably all the awns are slightly longer as given here. The characters and dimensions of the glumes perfectly agree with those of *A. Jacquiniiana*.

***Aristida oligospira* (Hack.) Henrard**

nov. spec.

(Sectio *Chaetarin*). Perennis, caespitosa, innovationibus intravaginalibus. Culmi erecti, robusti, diametro inferne 3 mm., cum paniculis 1—1,3 m. alti, paucinodes, nodis tumescentibus, nodo superiore prope $\frac{1}{3}$ internodii sito, teretes, glaberrimi, infra paniculam leviter asperuli; *vaginae* internodiis longiores, inferiores hiantes, subcompressae, superiores arctae, teretes, glaberrimae, superne striatae; *ligula* minutissima, ciliolata, auriculae barbatae; *laminae* longissimae, inferne planae, 3—4 mm. latae, superne convoluto-complicatae, sensim longe setaceo-acuminatae, 60 cm.—1 m. vel plus longae, subcurvatae, utrinque laeves, marginibus scaberrimis parum incrassatis; *pannicula* stricte erecta vel superne inclinata, densa, spiciformis, ad 20 cm. vel plus longa, 2—3 cm. lata, inferne interdum paululum interrupta, fusco-purpurea vel atroviolacea, rhachi inferne tereti, scaberrima, superne subcompressa, ramis appressis ramulosis multispiculatis, solitariis, mox supra basin divisis, 7—8 cm. longis, circa $\frac{1}{2}$ cm. latis, superne sensim decrescentibus, pedicellis quam spiculae brevioribus scabris; *spiculae* pulchre coloratae, erectae; *glumae* inaequales, acutae, aristatae, setis lateralibus nullis, *inferior* longior, uninervis, vel interdum nervo laterali praedita, tota superficie scabra, carina scaberrima, ad 13 mm. longa, *superior* laevis, 9 mm. longa, *gluma fertilis* callo brevissimo obtusissimo, vix $\frac{1}{2}$ mm. longo, appresse barbato et columna scaberrima gracili, spiraliter torta, circa 8—9 mm. longa, circa 15 mm. longa, leviter punctulata, haud articulata, *aristae* erectae, inferne leviter curvatae. parum



ARISTIDA OLIGOSPIRA (Hack.)
Henrard.

From type specimen.

inaequilongae, centralis 25—30 mm. longa, laterales 20—25 mm. longa, *palea* minutissima.

Argentina borealis: Gobernacion de Formosa, in campis altis, aestate 1916, leg. Dr. L. R. PARODI no. 2835 (unicum). Typus speciei in Herb. Lugd. Bat. sub no. 925.260—295.

DISTRIBUTION:

Brazil: Minas Geraes, Antonio Justiniano, 17 km. south of Oliveira, alt. 875 m. 16. III. 1925, leg. A. CHASE no. 8891 (in Herb. Lugd. Bat. sub no. 925.260—200).

Paraguay: Cordillera de Altos in palude Tucangua, HASSLER no. 3825, (Vienna Herb. 3298.)

In regione cursus superioris fluminis Apa, Dec. 1901, HASSLER no. 8321 (Herb. Vienna sub no. 643; Herb. Hack. sub no. 15942).

In altaplanitie et declivibus „Sierra de Amambay”, leg. T. ROJAS, Dec. 1907, Herb. HASSLER no. 9963 (Vienna Herb. no. 981).

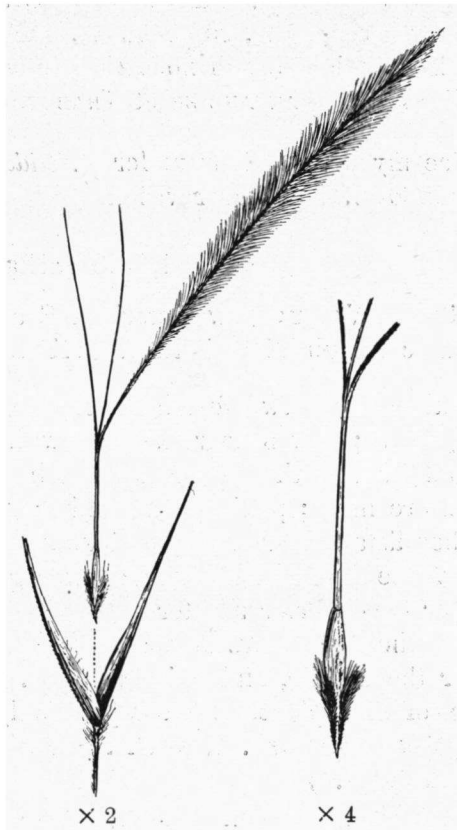
Argentina: Formosa. Herb. L. R. PARODI no. 2835, (in Herb. Leyden).

The species was described by HACKEL as a variety of *Aristida riparia*, but it is very distinct by the obtuse very short callus and other characters given in my description. In the group of the „*ripariae*” it is immediately recognized by this character. The „*ripariae*”, containing about 7 South American species, all with a long twisted column, have rather the same aspect, on account of the dense spike-like panicle. *A. chapadensis* only has an open panicle, the other species were generally misunderstood, even by competent agrostologists. The study of the types has shown distinct characters to separate them (position of the glumes, shape of the callus). *Aristida riparia* is the only American species hitherto known with a bifid callus and therefore easy to recognize. Another species is *A. megapotamica (implexa)*, distinguished by many characters of the spikelets and the curious callus (see this revision p. 256). All the remaining species have a very acute callus. *Aristida Ekmaniana* is more allied to *A. riparia* but differs moreover in the lower glume, shorter than the upper (see this revision p. 160). *A. macrantha* has an inverse position of the glumes, these together with the column and the awns extraordinarily long (see this revision p. 320). To this group also belongs *Aristida Trinii*, from Brazil, a new species I will describe afterwards.

***Aristida oranensis* Henrard**

nov. spec.

(Sectio *Stipagrostis*). Perennis, laxe caespitosa, rhizomate crasso, subrepente, lignescente, squamoso, innovationibus extravaginalibus, basi vaginis vetustis dense tunicatis. *Culmi* simplices, teretes, striatuli, geniculato-erecti, graciles, binodes, nodis glabris, cum paniculis ad 2 dm. alti, internodiis inferioribus dense tomentoso-lanuginosis, superioribus glaberrimis; *vaginae* arctae, internodiis breviores, inferiores margine albo-hyalino, dense crispo-lanato-tomentosae, infimae squamiformes, superiores glabrescentes vel laeves; *ligula* dense albo-lanata, auriculae floccoso-barbatae, collo subpubescente; *laminae* rigidae, convolutae, curvatae, utrinque dense lanato-tomentosae, angustae, vi explanatae vix 1 mm. latae, pungentes, 2—3 cm. longae; *panicula* exserta, angusta sed sublaxa, rhachi angulata scabra, ramis binis vel superne subsolitariis, brevius scaberrimis a basi ramulosis, ramulis 1—3-spiculatis, pedicellis spicularum scaberrimis, apice fasciculo pilorum munitis; *spiculae* erectae, appressae, violaceo vel fusco coloratae; *glumae* inaequales, *inferior* brevior, margine hyalino, in medio distincte pilosa, 3-nervis, nervis lateralibus ultra medium productis, carina scabriuscula, acuta, haud aristata, ad 14 mm. longa, *superior* distincte 3-nervis, nervis lateralibus percurrentibus, mediano valde approximatis, glabra, acuminata, carina laevis, ad 18 mm. longa; *gluma fertilis* laevissima, cum callo acuto pungente, praesertim superne longe densissime barbato, 2 mm. longo, 5 mm. longa, apice articulata, columna recta, glaberrima haud torta, 6—7 mm. longa, *aristae* inaequilongae, intermedia patula



ARISTIDA ORANENSIS Henrard.

From type specimen.

ad. 3,5 cm. longa, longe denseque fere a basi albo-plumosa, in $\frac{1}{10}$ inferiore nuda, apice breviter excurrens, scabra, ambitu acuta, setae laterales intermedia plus duplo breviores, tenuissimae, glabrae; *palea* minuta.

Africa borealis: Tunis; prov. Oran, Aïn Sefra, jun. 1888, leg. L. TRABUT no. 260, sub nom. *A. lanuginosa*. Typus speciei in Herb. Hackel Vindobon. sub no. 22116 (etiam sub no. 22117).

Exsiccatae: BATTANDIER et TRABUT. Pl. d'Algerie sub no. 498.

See my observations under *Aristida lanuginosa* BATT. et TRAB. on pag. 286—287 of this revision.

Aristida Orcuttiana Vasey.

GEORGE VASEY; New American Grasses, in Bulletin of the Torrey Botanical Club. New York. Vol. XIII. [1886] p. 27!

Culms about two feet high, stout below, above becoming slender, very leafy; leaves near the base with loose open sheaths and rather broad blades, the upper narrow, becoming involute, 5 to 8 inches long or more; panicle long and open 4 to 5 inches long; branches rather distant, mostly single, flexuous, the lower ones about 3 inches long, the lower half naked; lower glume about 5 inches long, the upper one-quarter shorter; flowering glume with the awn 9 lines long, the lateral awns obsolete or nearly so; the main awn bent near the middle, and twisted below. The panicle is small for the size of the plant, and comparatively few flowered. It approaches *Aristida Schiedeana*. Southern California, C. R. Orcutt; Arizona, M. E. Jones. *)

The species described by VASEY was placed by HITCHCOCK in his revision under *A. Schiedeana* TR. et RUPR.. In my work it is however treated as a distinct species. The type, collected near Hansen's Ranch, Lower California, 6000 feet alt. by C. R. ORCUTT no. 507 in the year 1883, is in the U. S. Nat. Herbarium. A duplicate of the type was sent by VASEY to HACKEL, it is in the Vienna Herbarium and bears VASEY's handwriting, the sheet is stamped no. 15955.

HITCHCOCK says in his revision (p. 526) that it differs from the average specimens of *A. Schiedeana* in having smaller narrow panicles, the branches only about 5 cm. long. The blades are firm and

*) In Vasey's publication the name *A. Schiedeana* is always given as *A. Schiediana* by misprint.

closely involute. The Jones specimens from Arizona are similar. Important is HITCHCOCK's observation: „Most of the specimens from the south-western United States are more like this form, but it seems scarcely worthy of specific rank.”

In my introduction I have already observed that intermediate specimens do not invalidate two related groups as species on account of the hybrids that occur between them and we have here a good example. *Aristida Orcuttiana*, described from Lower California and Arizona is the species with perfectly smooth glumes, only the keel of the lower one is scabrous, the glumes have an inverse position and a distinctly bifid apex with a short mucro from the sinus. *Aristida Schiedeana* was described from Southern Mexico (State of Vera Cruz). This is the species with pubescent glumes, at least the lower one and the lower is slightly shorter than the upper; they are distinctly awned without lateral setae. The distinctive characters are supported by a different geographical distribution. Both species are rather widely distributed, where they meet there occur forms which are not so easy to determine, because the characters, constant in the region of the species, become variable, the differences in length between the glumes are not always so obvious and the pubescence of the glumes becomes more or less indistinct. The material of the two species I could study is rather scanty. In HITCHCOCK's Revision many specimens are listed under *Aristida Schiedeana*. Intermediate forms are rare in herbaria but field study will show that they are more common, we have to look for them especially in the American boundaries between Mexico and North America. *Aristida Orcuttiana* I saw especially from Arizona where the species is very uniform. *Aristida Virletii* FOURN. and *A. flexuosa* FOURN. belong to *A. Schiedeana*, *Aristida hypomegas* is typical *A. Orcuttiana*.



ARISTIDA ORCUTTIANA Vasey.
From duplicate type specimen.

Aristida orizabensis Fournier.

EUG. FOURNIER; Mexic. Plant. etc. Pars II. Gramineae, Paris, [1881] p. 78!

Culmo striato, stramineo, glabro; foliis planis, lineari-lanceolatis, siccitate convolutis, pilosulis; ligula brevi membranacea; paniculae

3—4-pollicaris exsertae strictae radiis 1—3 brevibus appressis saepius a basi floriferis; glumis stramineis subaequalibus acutissimis; flosculo violaceo glumas superante v. interglumas incluso, angusto, laevi; setis aequalibus divergentibus, media 5-lineali.

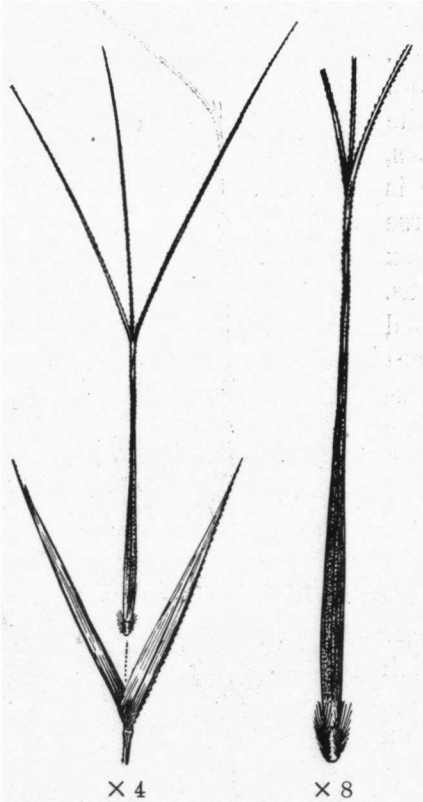
Valle de Orizaba (SCHAFFN. n. 136 in herb. FRANQ., F. MÜLL. n. 2103).

The two specimens cited by FOURNIER I could study. Müller no. 2103 is in the Leningrad Herbarium, it was received from Prof. B. FEDTSCHENKO, duplicates of this number are in the Vienna Herbarium and in the Rijks-Herbarium at Leyden. Schaffner no. 136 in the Paris Herbarium, I received for study from Prof. H. LECOMTE.

The specimens were doubtfully referred to *A. arizonica*

by HITCHCOCK in Contrib. U. S. N. Herb. Vol. XXII. Part 7, p. 568, they belong however to a different species. *A. arizonica* is a species of more northern distribution, with longer glumes, 17—19 mm. long and longer lemmas 15 mm. long, including the about 5 mm. long column. *Aristida orizabensis* has shorter about equal glumes, 10 mm. long, the lemmas, including the 3 mm. long, twisted, column are about 10 mm. long. The lower glume appears to be 3-nerved under a lens but in transmitted light it is but 1-nerved.

Aristida orizabensis is more allied to *Aristida appressa* VASEY,



ARISTIDA ORIZABENSIS Fournier.
From type specimen.

which differs however in the much longer column of the awns and in the different habit of the interrupted panicle with long appressed branches, naked at the base. The variety *brevior* of *A. appressa* has a short column, but in the panicle characters it agrees with the type of *A. appressa*.

Aristida pallens Cavanilles,

ANT. JOSEPHUS CAVANILLES; Icones et Descriptiones Plantarum, quae aut sponte in Hispania crescunt, aut in hortis hospitantur. Matritum, Vol. V. [1799] p. 43! Tab. 468. Fig. 2!

ARISTIDA panícula pauciflora: pedicellis alternis brevibus bifloris: aristis elongatis.

Ex eadem radice fibrosa culmi exsurgunt plures basi fasciculati, tectique vaginis foliorum, teretes pedales et amplius, terminati panícula pauciflora, ornatique uno aut duobus foliis. Folia radicalia numerosa, culmo paulo breviora, acutissima et filiformia ut in *Stipa tenacissima*, attamen tenuiora et minus rigida; in culmo observantur saepe duo quae ipsum longe vaginant, vagina terminata in folium radicalibus consimile. Florum panícula pauciflora, tres pollices saepe longa, pedicellis alternis, bifidis, bifloris. Calicis valvulae carinatae, acutissimae, glabrae, quarum interior pollicem longa, exterior dimidio brevior. Corollae valvula oblonga, longitudinaliter connivens, basi hirsuta, terminata apice aristis tribus, tres pollices et amplius longis. Staminum filamenta tria quae prodeunt per rimam valvulae corollinae prope basim. Reliqua ut in praecedente.

Habitat in chilense oppido Cucha-cucha, floretque Ianuario. Vidi siccam in memorato herbario.

Explic. tab. A Genitalia cum valvula corollina et aristis. B Eadem valvula aucta ut appareat tomentum in eius base.

Obs. Tota planta pallet. Ad *Aristidam* hystricem Linnaei accedit, licet diversa sit, rachide recta, culmo erecto, pedicellis solitariis, et corolla quae calice est brevior.

Aristida pallens, as accepted by me in my work, is a rather variable species and thus we have in the first place to study the plant from the type locality, because the actual type in the Madrid Herbarium was not at my disposal. CAVANILLES's good description and plate give us already some distinct characters we can compare with the plants from Chili collected by PHILIPPI. STEUDEL described the same species as *A. glaberrima* from a specimen collected at Conception in Chili (see this revision p. 201). From CAVANILLES's

figure A which is the natural size we find that all the characters given by him are in full accordance with the specimens collected at Conception by D'URVILLE and those collected by PHILIPPI in the province of Colchagua and we therefore may accept these plants as the genuine *Aristida pallens*. From CAVANILLES's plate the glumes are 20 and 30 mm. and the lemma is 12 mm. long, the awns about 8 cm. long. Some further characters worthy to memorate are the basal parts of the plants with the somewhat flabellate compressed lower sheaths, the auricles which are pubescent only and not bearded. The lower glume is sub-3-nerved with one very prominent nerve and two faint shorter lateral ones, the body of the lemma is quite smooth. The lower blades are rather short, somewhat pungent, they scarcely reach the base of the panicle or they are shorter. NEES and TRINIUS recognized the species and the latter named the plant described by CAVANILLES var. *genuina*. The typical form is not so very common in herbaria, it is mostly limited to the andine regions of Chili and Argentina and is replaced in the lower regions by other varieties of the species, but I have seen the var. *genuina* also from Tandil in the prov. of Buenos Aires (Parodi no. 2837), from Tornquist (Parodi no. 1851), and from Santo Tomé in the prov. of Santa Fé (Parodi no. 3283). No figure is given here, compare the figure on pag. 200 of this revision.

***Aristida pallens* Cavanilles.**

var. *filifolia* Arechavaleta.

J. ARECHAVALETA; NUEVAS *Aristidas* del Uruguay, in Anales del Museo Nacional de Montevideo. Tom. IV. [1903] p. 72!

Panojas estrechas, erectas, de pocas espiguillas. Glumas violadas, I^{ra} de 16 mm \pm sub-3-nerviada, apenas escabrosa en su nervio medio: II^{da} de 33 mm \pm 1-nerviada, puntiaguda ó subalesnada lisa: III^{ra} de 20 mm, comprimida, lisa, sin dientes en su ápice ó cuando existen, menores.

Forma β , *filifolia*. loc. cit. pag 75!

Pajas aproximadas juntas, delgadas, estriadas, erectas. Vainas abiertas cerca del ápice, estriadas, lisas. Lígula mínima, pestañosa generalmente; lámina estrecha, estriada, erecta, más corta que la panoja. Panoja estrecha, erecta, con pocas espiguillas, 7—10—12, eje anguloso, estriado, liso; ramas secundarias gemelas ó solitarias, con 1 ó 2 espiguillas. Glumas: I^{ra} de 18—20 mm, 3-nerviada, nervio

medio apenas áspero, los laterales algo borrados; II^{da} de 30 mm ±, 1-nerviada, nervio liso, ambas violadas, alesnadas, con márgenes pálidas; III^a comprimida, lisa inferiormente, poco áspera en su ápice, grisácea; arista de ramas amarillo-pálidas, rectas, poco abiertas subiguales, de 10—15 cm de largo, poco escabrosas.

Vive en terrenos pedregosos, entre peñascos, sierras de Minas y otros puntos análogos. Florece en noviembre.

In ARECHA VALETA'S Herbarium, the three different varieties described by him, were formerly accepted as species. ARECHA VALETA says on p. 70 loc. cit. „En nuestra colección particular existen varias aristidas rotuladas con los nombres de *A. jubata*, *A. rubelliana* y *A. filifolia*, esta última comprendida en las „Gramíneas Uruguayas”.

I have seen a fine series of var. *filifolia* in HACKEL'S Herb., received from ARECHA VALETA and labeled in his hand. One sheet is labeled: „*Aristida filifolia* Arech. Colinas pedregosas de Minas Nov^b 1886”. This is the locality cited in the description. On the sheet HACKEL has written: „*A. pallens* Cav. var. *filifolia* Ar.” The specimen is well-developed and mature. A second sheet is labeled: „Colinas pedregosas de Minas, La Caronilla, Noviembre 1890”, this specimen is not quite mature, the third specimen received from the Museo de Historia Natural without ARECHA VALETA'S determination is labeled: „No. 35. Mont^v Nov^{br} 1891, in fissuris rupium” and is also not quite mature.

ARECHA VALETA, who could not find characters, sufficiently distinct to distinguish his plant, was obliged to accept that it belonged to the type of *Aristida pallens*, but in the field he found it very different. He says that *Aristida filifolia* occurs in rocky places, that the culms with the enveloping leaves are strictly erect and that, on account of the little weight of the few-flowered inflorescence, they are not inclined towards the ground.

The plants described by ARECHA VALETA have an erect panicle, the branches are not drooping, and the leaves rather short, as in typical *A. pallens* but they have distinctly bearded auricles. ARECHA VALETA gives the ligule as „pestañosa generalmente”, the ligules are however always very shortly ciliate but the auricles are „pestañosas”. ARECHA VALETA'S plant is not identical with the var. *tenuifolia*. ARECHA VALETA describes the lemma on pag. 72 as „lisa” but on pag. 75 he says „lisa inferiormente, poco áspera en su ápice”. In all the specimens from ARECHA VALETA I have studied, I found that the lemmas are scabrous, not so manifestly as in the var. *jubata*, but very distinctly

rough. In all the varieties described by NEES and TRINIUS the lemmas are smooth and I have accepted the var. *filifolia* in my work.

***Aristida pallens* Cavanilles.**

var. *genuina* Trinius et Ruprecht.

Spec. Graminum Stipaceorum, loc. cit. pag. 116!

Culmo pedali et longiori; foliis radicalibus culmo parum brevioribus, filiformibus, tenuissimis; paniculae (exceptis setis) 3 pollicaris, pauciflorae, lucidae radiis *solitariis*, *bifloris*; gluma superiore *pollicari*; setis *tripollicaribus*. — *Aristida pallens* Cavan. Icon. 5. (1799) p. 43. tab. 468. fig. 2. In oppido Chilensi Cucha-cucha. Januario. (Nee); Conception. (Brogniart)

The different characters to distinguish this variety are already given under *Aristida pallens* CAV. on pag. 398 of this revision. The lower glume is 15—20 mm. long, the upper one 30—35 mm. sometimes still longer, the smooth lemma is 10—12 mm. long, the awns are 7—8 cm. long, the spikelets erect. NEES was the first who tried in 1829 to distinguish varieties, he united *A. murina* and *A. pallens* in his *Chaetaria pallens* and described 4 varieties. His var. α . is *A. murina* CAV., only his var. δ . received the name *tenuifolia* (see afterwards this variety). His var. β . and γ . were described as follows:

β . culmo pedali et altiore apice longe nudo, foliis culmum subaequantibus laxioribus recurvis, vaginis culmeis ore nudis paniculae ramis longioribus, spiculis pluribus glumis similibus ac in α ., setis quadripollicaribus patentibus;

γ . culmo foliis paniculaque praecedentis, gluma superiore $1\frac{3}{4}$ —2 pollices longa, inferiore flosculum semper $\frac{1}{3}$ saltem superante, setis 6—7 pollices longis parallelis;

Barba de bode, *Brasiliensibus*. (*Trin. auct. Langsdorff.*)

Var. β . was named afterwards var. *patula* (see this revision p. 405), var. γ . is var. *Tragopogon* of the Russian monographers (see p. 409 of this revision).

In the year 1836 TRINIUS accepted the 4 varieties in Graminum Supplementa, Mém. Acad. Imp. St. Pét. Tom. IV. p. 47, but no names were given to them. Var. α) is *Aristida murina* CAV., the other correspond to the varieties β , γ and δ of NEES and are described as follows:

b) sub-bipedalis; Foliis longis, laevibus; panicula laxa (non comput. setis spithamaea); Setis flosculo 6-lineali octies longioribus, patentibus.

c) sub-bipedalis; foliis longis, laevibus scabriusculisve; panicula paulo densiori; setis flosculo 5-lineali 18^{ies} longioribus, contractis (genuina *Ar. pallens* Cav.)

d) pl. min. spithamaea; foliis quam in *b* et *c* brevioribus, tenuioribus; panicula laxa, lucida (non comput. setis palmari-spithamaea); setis flosculo 5-lineali sexies longioribus, patentibus.

Var. *c* is given as the true *A. pallens* CAV, this is however not in accordance with CAVANILLES's description and figure. In the year 1842 the Russian monographers recognized the true *A. pallens*, they described 6 varieties including *A. murina* under *A. pallens*. See the different varieties in this revision under the names TRINIUS and RUPRECHT have given to them.

***Aristida pallens* Cavanilles.**

var. genuina Trin. et Rupr.

forma breviaristata Hackel.

ap. T. STUCKERT; Tercera Contribución al conocimiento de las Gramináceas Argentinas, in Anales del Museo Nacional de Buenos Aires, Tom. XXI. [1911] p. 69!

Differt a typo aristis brevioribus, ad A. complanatam Trin. vergens.

St. no. 18,327 (18. XII. 1907) Colonia Benites, Chaco (N. R. A.).

Note: = *Aristida venustula* Arechavaleta.

The type is in HACKEL'S Herbarium at Vienna stamped 16096. The label bears in HACKEL'S hand the data: „*pallens* Cav. forma aristis brevioribus, ad *A. complanatam* Trin. vergens.” On the label is written: „18327 *Aristida* leg. N. Rojas Acosta Colonia Benites Chaco Austral 18. XII. 1907.” On the sheet there is a well-developed specimen, differing at first sight from *A. pallens* in the basal parts, the sheaths not flabellate and the mode of growth thus very different. The plant has the following striking characters: the blades are firm, very scabrous especially on the margins, the auricles of the sheaths are long-bearded, the panicle is contracted but rather loose and the spikelets are purplish, the glumes are acute and distinctly awned, the lower 3-nerved, 14 mm. long, between the nerves short lateral nerves, arched and anastomosing with the mid-

nerve (a very distinct character in *A. venustula*), the upper glume is 1-nerved, about 20 mm. long, the lemma is smooth with a scabrous keel, 13—14 mm. long including the about 1 mm. long callus, the awns are about 6—6,5 cm long. The plant belongs to *A. venustula* but differs from the type in being more robust, having firmer, junciform, very scabrous blades. These characters agree with the description of *A. venustula* var. *scabrifolia* HACKEL (see afterwards this revision under this variety). Unfortunately I could not find this variety in HACKEL'S and STUCKERT'S collections. *Aristida complanata (laevis)* is a very different species with 1-nerved glumes and a different shape of the panicle.

***Aristida pallens* Cavanilles.**
var. *intermedia* Trin. et Rupr.

Species Graminum Stipaceorum, loc. cit. pag. 116!

Eadem ac praecedens ¹⁾, at culmus parum altior (10 poll.); nodi plerumque obtecti; glumae subcoloratae; setae 5 pollicares, erectae, versus apicem coloratae. — Monte Video (Sellow!); Chile. (Lindley!)

This is not a very distinct variety, it agrees in many characters with the genuine *A. pallens* and with *A. glaberrima* STEUDEL. The variety *intermedia* represents an intermediate form between STEUDEL'S *A. glaberrima* and HACKEL'S var. *macrochaeta*. See afterwards my observations on pag. 405. It agrees also rather well with ARECHA-VALETA'S var. *rubelliana* which has 8—10 cm. long awns. See that variety afterwards on pag. 406 of this revision.

***Aristida pallens* Cavanilles.**
var. *jubata* Arechavaleta.

J. ARECHA-VALETA; NUEVAS *Aristidas* del Uruguay, in Anales del Museo Nacional de Montevideo. Tom. IV. [1903] p. 72!

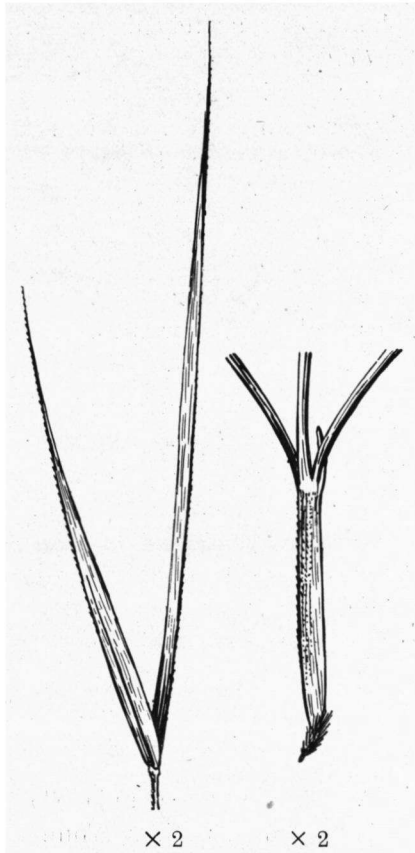
Panoja cabizbaja ó suberecta. Gluma I^{ra} 1—3 nerviada, de 25 mm ± de largo; II^{da} 1-nerviada de 40—50 mm de largo, nervio medio escabroso, prolongado á veces en punta alesnada, III^{ra} de 15 mm ± de largo, grisácea, comprimida, escabrosa en su parte media superior y sobre el dorso principalmente, ápice prolongado en un diente lanceolado-agudo, hialino, en cada lado de la arista y recostados

¹⁾ i. e. var. *β. tenuifolia*.

uno contra la rama de la arista lateral correspondiente, retorcido el segundo ó doblado hácia abajo. Arista de ramas casi iguales, de 15—20 cm de largo.

Forma *a jubata*. Lam. I. loc. cit. p. 74!

Pajas de 20—30 cm de alto, erectas, cilíndricas, delgadas estriadas, con pocos nudos en la base, cuyos internudos no miden arriba de 2—8 mm. El último que se termina por la panoja, llega á 15—20 cm, de largo, vestido en su mitad inferior, por las vainas foliares correspondientes, estriadas, poco abiertas en el ápice; lígula casi nula, con pincelito de pelos en los costados; lámina de 10—20 cm más estrecha que su vaina, fuertemente estriada en la haz y un poco áspera. Panoja con sus espiguillas aristadas de 25—35 cm de largo, cabizbaja; eje breve, anguloso, escabroso en su extremidad superior, ramificaciones subcapilares, simples, largas y bastante espaciadas con 2—5 y á veces 6 espiguillas grandes. Glumas desiguales: la I^a de 35 mm \pm de largo, 3-nerviada, nervio medio escabroso, los laterales lisos y medio borrados; II^a de 45—50 mm, 1-nerviada, lisa, ambas apergaminadas, de



ARISTIDA PALLENS Cav.
var. JUBATA Arechav.
From type specimen.

color pajizo oscuro, prolongadas en punta alesnada y márgenes subhialinas; III^a de 12 mm \pm , grisácea y escabrosa, sobre todo en el dorso, á lo largo de la nervadura; el ápice lleva dos dientes membranosos, derechos y arrimados á las ramas de la arista, á veces, uno de ellos replegado. Arista de 15—20 cm de largo, ramas subiguales, rectas poco abiertas, ásperas, de color pajizo, lustrosas; IV, membranácea en su parte media superior, apergaminada en su

base, sub—2—nerviada. Glumelillas lanceoladas hialinas, casi tan altas como el huevecillo.

I could examine a very beautiful authentic specimen of this variety in HACKEL'S Herbarium, bearing the Vienna number 15517 and a label in ARECHA VALETA'S handwriting: „Aristida jubata Arech. Campos de Tacuarembó en terrenos aralto arenosos noviembre.” The plant so accurately described by ARECHA VALETA is not a form of *Aristida pallens* but a very characteristic variety or probably a subspecies. I will call attention to different very striking characters already given in the description. The panicle is large and drooping, the glumes are very long, the second is 5 cm. long, the lemmas are comparatively short, 12—15 mm. long and very scabrous especially in the upper half and the awns are extraordinarily long, about 20 cm. long. ARECHA VALETA mentioned in his description a very curious character, the margins of the lemma are hyaline and have just below the awns an erect prolongation, thus we find there two membranaceous teeth which are more or less appressed to the lateral awns. This character was also observed by me when I studied the var. *Tragopogon* TRIN. et RUPR., where the lemmas are however quite smooth and the awns are shorter. A figure of the var. *jubata* with only the lower parts of the awns is given here to demonstrate this curious character. I have seen this variety also from Argentina, Misiones, Santa Inés, Posadas, where a beautiful series was collected by DR. L. R. PARODI (no. 4045, 4102, 4237, 4301, 5434). According to DR. PARODI it is called there „Espartillo.”

***Aristida pallens* Cavanilles.**

var. *macrochaeta* Hackel,

apud T. STUCKERT; Segunda Contribución in Anales del Museo Nacional de Buenos Aires, Tom. XIII. [1906] p. 452!

Aristis longissimis (ad 14 cm. longis) distincta.

STUCKERT: Herb. arg. no 14795 (28. XII. 1904) cerca de Marcos Juárez, Prov. Córdoba.

Esta variedad es la predominante en los campos del Brasil.

The specimen is not in HACKEL'S Herbarium. In STUCKERT'S Herb. at Geneva, kindly received for study from Dr. J. BRUQUET, I found the specimen cited by STUCKERT, it bears a label in STUCKERT'S hand with the indication that it was determined by Prof. HACKEL.

The specimen represents a large form of *Aristida pallens*, the auricles are not bearded, the panicles and the spikelets are strictly erect, the lemmas are quite smooth, 15 mm. long and the awns are spreading at an angle of 45°. The awns are said to be about 14 cm. long, in the specimen most of the awns are damaged, some of them are however about 13 cm. long. STUCKERT's statement that this variety is predominant in the Brazilian campos is not correct, the common plant in the campos of Brazil is the variety *Tragopogon* with drooping panicles and still longer awns.

Aristida pallens is such a variable species that we can distinguish a great many varieties, which are however united by many intermediate forms, so that it is rather impossible to limit distinct varieties. The var. *macrochaeta* much resembles TRINIUS's variety *intermedia*, which is also connected with the type by intermediate forms.

***Aristida pallens* Cavanilles.**

var. *patula* Trin. et Rupr.

Species Graminum Stipaceorum, loc. cit. pag 117!

Ut δ , 1) sed setae patentees, 4 pollicares; paniculae radii inferiores longiores patuli l. adscendentes. — *Chaetaria pallens*. β . N. E. l. c. et *Aristida pallens* var. *b*. Trin. l. c. — Inter Monte Video et Rio grande do Sul versus Paraguay et circa Monte Video urbem (NE.)

On pag. 400 of this revision, I have already given the description of the plant NEES called *Chaetaria pallens* var. β . To get a right idea of this variety, I have placed together all the plants from the Sellow collection so-named in the Berlin Herbarium and the specimens distributed from Berlin to other Herbaria (Herb. Vienna, Herb. Delessert, Herb. Leyden). The different sheets proved to belong to three different forms of the *Aristida pallens*. In the Berlin Herb. there are three sheets with well-developed specimens, agreeing with another, they all bear the same label *Chaetaria pallens* N. ab E. var. β , but one of them bears Sellow's small number d 1837. A duplicate in the Rijks-Herbarium, received in the year 1833 from Berlin, perfectly agrees with Sellow 1837, it was labeled *Chaetaria pallens* β Nees ab Esenb. fl. bras.!

All these plants agree with the descriptions given by NEES and TRINIUS. They are very robust, with exserted panicles and long leaves about as long as the culms. The culm-blades have pubescent

1) l. e. var. *Tragopogon*.

auricles but those of the innovationshoots have bearded auricles, the branches of the panicles are rather long, ascendent or somewhat spreading, the lemmas are smooth and the awns are about 10 cm. long and spreading. TRINIUS and RUPRECHT have given the same characters in a somewhat abbreviate diagnosis, they copy the locality from NEES. The three sheets in the Berlin Herbarium are accepted by me as authentic specimens of var. *patula*.

In the Berlin Herb. there are moreover two sheets labeled as the sheets mentioned above, one of them with the Sellow number 1895; the specimens are overmature, all the lemmas are delapsed and the panicles are strictly erect with short branches. The leaves are rather short, filiform and about half as long as the culms. The auricles of the sheaths are prominently bearded and the vegetative characters of the basal parts are totally different from those of the *Aristida pallens*, the specimens belong to *Aristida venustula* ARECH., they have the characteristic nervation of the lower glume of this species. NEES described a var. *tenuifolia* with bearded auricles of the sheaths but his plants in the Berlin Herb. belong to two different species, only one sheet agrees perfectly with the description and only these plants belong to *A. venustula*. NEES has unfortunately not exactly indicated the plants he described as varieties, but we can only accept as types those specimens which agree with the descriptions given by authors, a rule I have continually accepted in my work.

Many plants distributed from the Berlin Herb. as var. β , have the long drooping panicles and the very long not divergent awns of the var. *Tragopogon* and it was from such plants that TRINIUS and RUPRECHT described their variety. See afterwards the observations under var. *tenuifolia* and *Tragopogon* in this revision.

Aristida pallens Cavanilles.

var. *rubelliana* Arechavaleta.

J. ARECHAULETA; NUEVAS *Aristidas* del Uruguay, loc. cit. p. 72!

Panojas abiertas, subcabizbajas, rojo-violadas, de pocas espiguillas. Glumas: I^{ra} de 25 mm, 3-nerviada, casi lisa, II^{da} de 35 mm \pm , 1-nerviada lisa; III^{ra} de 18 mm \pm de largo, comprimida, lisa. Arista de 8—10 cm de largo; ramas casi iguales, capilares.

Forma δ , *rubelliana*. Lam. II. loc. cit. pag. 75!

Rizoma breve ascendente. Paja terminal de la panoja de 20 cm \pm de largo, finamente estriada, cilíndrica. Vainas abiertas, estriadas,

lisas; lígula mínima sin pestañas; lámina estrecha, convolutada, llegando hasta la panoja, estriada, lisa. Panojas de pocas espiguillas, 3—8, y entre ellas algunas casi sentadas. Glumas rojizo-violadas, Ira de 25 mm ±, 3-nerviada, puntiaguda; IIra de 35 mm, 1-nerviada, prolongada en punta, ambas lisas, sin aspereza en los nervios; IIIra de 20 mm, comprimida, lisa ó apenas un tanto áspera hácia el ápice. Arista de ramas extendidas, capilares, algo escabrosas.

Through the courtesy of Dr. L. R. PARODI I received a portion of the type from ARECHA VALETA'S Herbarium, labeled: „Campos gramínicos del Uruguay Noviembre 1889.” Ejemplar typo!, ex Herb. Mus. Nac. de Montevideo. I studied moreover a very beautiful specimen in HACKEL'S Herbarium, stamped with the Vienna number 16098, it bears in ARECHA VALETA'S hand the label: „*Aristida rubelliana* Arech. Campos gramínicos, noviembre.” On the label HACKEL has written: „*A. pallens* Cav. var. *rubelliana*”. ARECHA VALETA'S variety is a beautiful plant with dark purplish glumes, 8—10 cm. long awns and filiform leaves with pubescent not bearded auricles. The variety is not identical with NEES'S variety *tenuifolia*. See my observations under that variety.

Aristida pallens Cavanilles.

var. *tenuicula* Hackel.

apud T. STUCKERT; Segunda Contribución in Anales del Museo Nacional de Buenos Aires, Tom. XIII. [1906] p. 452!

Differt a typo chilensi spiculis brevioribus tenuioribus, accedit ad A. venustulam Arech.

Stuckert: Herb. arg. no 12,022 (10. XI. 1902) Colonia Ruiz Videla, por Villa del Rosario, Dep. Río II. Prov. Córdoba.

St. no 14,430, 14,437 (25. X. 1904) y no 14,796 (28. XII. 1904) Colonia Marcos Juárez, Dep. de id. Prov. Córdoba.

Note: = *Aristida Spegazzinii* Arechavaleta.

HACKEL found afterwards that the plants described as var. *tenuicula* belonged to *Aristida Spegazzinii* and the corrections were published in STUCKERT'S Tercera Contribución on pag. 70, where no. 12022 is mentioned under var. *pallens* and no. 14437 under var. *genuina* of *Aristida Spegazzinii*. In HACKEL'S Herbarium I examined two sheets of no. 12022. One of them (Vienna number 15975) is labeled

by HACKEL: „*Aristida Spegazzinii* Ar. v. *pallescens* Hack. Rio Segundo.” The second sheet of no. 12022 (Vienna number 15980) was labeled by HACKEL: „*Aristida pallens* Cav. v. gen.”, the name was crossed out and replaced by: „*Spegazzinii* Arech. v. *pallescens* H.” This number is therefore the type of *Aristida Spegazzinii* ARECH. var. *pallescens* HACKEL, see afterwards the observations under this name. The second number in HACKEL's Herbarium is Stuckert no. 14437 (Vienna number 15978), it was labeled by HACKEL as *A. pallens* Cav., afterwards changed into *Spegazzinii* v. *pallescens*, but the name *pallescens* was also crossed out. The three plants in HACKEL's collection are correctly referred by him to *A. Spegazzinii*, a species allied to *A. circinalis*, with the same, but more pronounced inverse position of the glumes and much longer awns. *A. Spegazzinii* has the same curious character of the lemmas, the margins are inrolled and the ventral side is deeply furrowed all along. The same numbers in HACKEL's collection were also examined in STUCKERT's Herbarium at Geneva and I studied in this collection the two other numbers, cited in the description. No. 14430 is indeed *A. Spegazzinii* but no. 14796 is a quite different species with a very characteristic nervation of the lower glume, which is much shorter than the upper one. It belongs to *Aristida venustula* ARECHAVALTA.

Aristida pallens Cavanilles.

var. *tenuifolia* Nees ab Esenb.

apud TRINIUS et RUPRECHT; Spec. Gram. Stipac. loc. cit. pag. 116!
= *Chaetaria pallens* Nees *δ. tenuifolia* Nees, in *Agrostologia Brasil.*
loc. cit. [1829] p. 381!

Culmo spithamaeo vel parum altiore gracili ad paniculam usque folioso, vaginis omnibus ore barbatis, foliis capillaribus patentincurvis, racemo basi composito apicem versus simplici, pedunculis geminis altero longiore, glumis flosculisque ut in var. *α.*, glumis vero pallidis, flosculi setis violaceis.

Habitat δ. ad Monte Video. (Sellow. — *Vidi in Herb. Reg. Berol.*)

Description given by Trinius and Ruprecht l. c. p. 116!

Culmo spithameo l. parum longiori; vaginis ore barbatis; nodis exsertis; foliis capillaribus, curvulis, 4 pollicaribus et brevioribus; paniculae 2—4 pollicaris, pauciflorae, lucidae radiis *geminis*, 1—2 *floris*; glumis pallidis: superiore 10—13 lineali; flosculo 5 lineali; setis 2—2½ pollicaribus, coloratis, patentibus. — *Chaetaria pallens* *δ.* NEES l. c. et *Aristida pallens* var. *d.* Trin. l. c. — Monte Video. (Sellow!)

Note: = *Aristida venustula* Arechavaleta.

This is the only variety named by NEES. In the Berlin Herb. I examined two sheets, one is labeled: „*Chaetaria pallens* variet. δ *tenuifolia* N. a E, Bras. p. 380 Sellow Brasilia”. The specimens on the sheet belong to *A. pallens* but they are very immature. There are duplicates of these plants in different European Herbaria. All the specimens examined have rather long leaves and the auricles are not bearded but pubescent only. The plants do not agree at all with the descriptions given by NEES and by TRINIUS and RUPRECHT and they cannot be accepted as the type of var. *tenuifolia*.

The second sheet in the Berlin Herb. labeled: „*Chaetaria pallens* δ *tenuifolia* N. a E. Bras. p. 381 Sellow Brasilia” bears some specimens which are at first sight quite different from all the other plants belonging to *A. pallens* and it is at once clear why NEES described only these plants as a variety, giving it the name of *tenuifolia*. The auricles are here manifestly bearded, all the characters given by NEES agree perfectly with these specimens and with these specimens alone. The vegetative characters are very different from those of the *A. pallens*, the shape of the panicle and the spikelet characters are also quite different, the awns are much shorter (TRINIUS gives them as 2—2½ pollices) and the lower glume has the striking nervation of the species described by ARECHAVALETA as *A. venustula*. The localities on the labels are incorrect, SELLOW collected the plants certainly at Monte Video as given in the descriptions by NEES and TRINIUS.*)

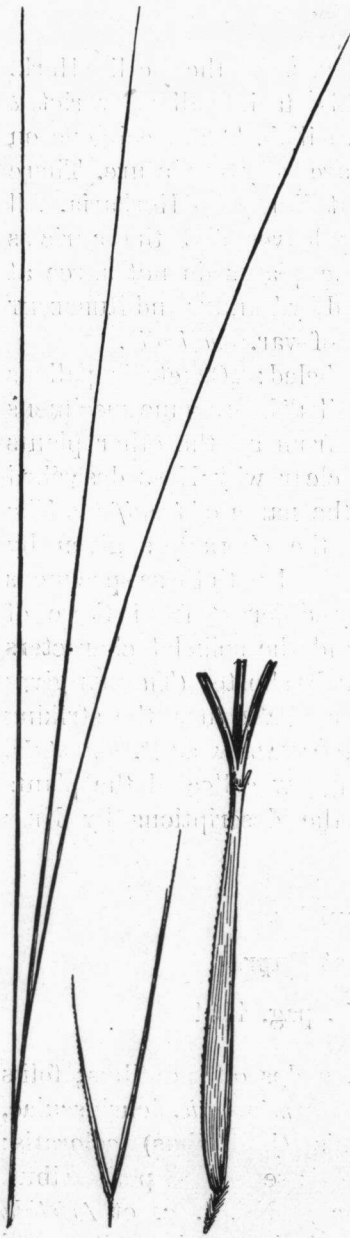
Aristida pallens Cavanilles.

var. *Tragopogon* Trin. et Rupr.

Species Graminum Stipaceorum, loc. cit. pag. 116!

Culmo subbipedali; vaginis ore nudis, nodos obtegentibus; foliis laxis culmum subaequantibus; paniculae *subsemipedalis*, densiusculae, linearis radiis *geminis plurifloris*; glumis (junioribus) coloratis: superiore 1½—2 pollicari; flosculo 5 lineali; setis 6—8 pollicaribus, erectis, subcoloratis. — *Chaetaria pallens* γ . NE. l. c. et *Aristida pallens* var. *c*. Trin. l. c. — In campis siccis provinc. St. Pauli frequentissima et molestissima (Langsdorf!); in campis Taubaté Ytu. Novembr. (Riedel!). Lusitanorum „Barba de bode”.

*) On the authentic sheet there are 3 specimens of *A. venustula* and a sterile part of a different grass, belonging to the *Andropogoneae*.



× 1 × 1 × 6
 ARISTIDA PALLENS Cav.
 var. TRAGOPOGON Tr. et Rupr.
 From type specimen.

NEES described a variety under *Chaetaria pallens* as var. γ , but it received no name. See Agrost. Bras. p. 381 and the citation on p. 400 of this revision. The locality was unknown to NEES but the plant was probably collected by SELLOW near Montevideo or in Southern Brazil. The type of NEES'S variety γ is in the Berlin Herb., it bears in NEES'S hand the name *Chaetaria pallens* γ and a second small label with the number d. 1530. *)

NEES'S specimens were not mentioned by TRINIUS and RUPRECHT under their var. *Tragopogon*, thus the variety γ of NEES is not the type of var. *Tragopogon*. There is in the Berlin Herb. a second sheet numbered d. 1530 with a printed label: „Brasilia Sellow”, on which is written the locality Montevideo. The two plants of NEES do not belong to the typical var. *Tragopogon*, they are intermediate between var. *patula* and var. *Tragopogon*.

As the type of var. *Tragopogon* I have accepted the specimen from S. Paulo, collected by LANGSDORFF, the first specimen cited. I have seen a beautiful duplicate of it, exactly agreeing with the description. This variety has smooth lemmas, the auricles of the sheaths are distinctly bearded. (TRINIUS says „vaginis ore nudis” which is only the case in some of the older leaves), the lower glume is 3-nerved with one strong mid-nerve and two faint lateral ones, the spikelets are long-pedicelled and drooping at maturity, the awns are 15—16 cm. long and the lemma has the curious hyaline appendages mentioned by ARE-

*) SELLOW'S plants bear generally such small labels with the letter d and a number.

CHAVALETA in his var. *jubata*, which differs however in the scabrous lemmas and longer awns.

In the Berlin Herb. there are some good specimens of this variety, showing more distinctly the bearded auricles, there is a specimen in the Nees Herb., it bears in NEES'S hand the determination: „*Chaetaria pallens* (*Aristida*) Cav. (N. ab Esenbeck).” There is also a specimen labeled by SPRENGEL as *Chaetaria pallens* P. B. with the number 1273 and the locality S. Ignatio.

Aristida pallens Nuttall.

THOMAS NUTTALL; The Genera of North American Plants and a Catalogue of the Species to the year 1817. Philadelphia [1818] p. 57!

Nomen nudum.

It was probably meant for *A. pallens* CAV. as given in PURSH. NUTTALL says in his preface that the „brief catalogue of species offered may be considered supplementary to the Flora of North America by Frederick Pursh.”

From the locality given, „in depressed situations, near Fort Mandan on the Missouri”, (now in North Dakota) I judge that NUTTALL'S specimen is *A. longiseta*, which is found in North Dakota, while *A. oligantha*, so far as we know, only reaches the southern part of South Dakota. Besides, PURSH'S description says the culm is simple, true for *longiseta*, not for *oligantha*. Therefore, in spite of TRINIUS' statement „teste specim.”, that this is *oligantha* I think that it must be *longiseta*. I think it likely, also, that NUTTALL'S specimen „near Fort Mandan” is the same collection as PURSH'S „in upper Louisiana.” All the Missouri river region had belonged to the French colony Louisiana. Since PURSH gives CAVANILLES as author of *A. pallens* and NUTTALL is evidently quoting PURSH we regard *A. pallens* PURSH as misapplication of a name not as publication of a species. The length of the awn is variable in both *oligantha* and *longiseta*. *A. oligantha* is a branching annual; *A. longiseta* a perennial bunch grass with simple culms. (A. CHASE, communication by letter.)

Aristida pallens Pursh.

FRIEDRICH TRAUOGOTT PURSH; Flora Americae septentrionalis, London, Vol. II. [1814] p. 728!

A. culmo erecto simplici, foliis filiformibus, radicalibus culmo

brevioribus, panicula pauciflora, pedicellis alternis brevibus bifloris, aristis elongatis. — Cav. ic. 5. t. 468. f. 2.

In Upper Louisiana, Bradbury. 21. V. S. in Herb. Bradbury. About a foot high; the awns more than three inches high.

Note: = *Aristida longiseta* Steudel.

The description points to *A. longiseta*. See the observations given by Mrs. AGNES CHASE under *A. pallens* NUTT. on pag. 411.

Aristida pallida Steudel.

E. G. STEUDEL; Synopsis Plantarum Glumacearum [1855] p. 143!

Radicis fibris crassis tomentosis; culmo ad nodos tumidos ramoso ($1\frac{1}{2}$ —2-pedali) uti tota planta pallide glaucescente, glabro, basi vaginis emarcidis vestito; vaginis internodio brevioribus; ligula brevissima ciliata; foliis basi planis superne convolutis (6—8" longis, basi $\frac{1}{2}$ " latis); paniculae (8—10-pollicaris) diffusae flaccidae longe exsertae radiis elongatis, inferioribus geminis, superioribus solitariis longiuscule ($\frac{1}{2}$ — $\frac{5}{4}$ ") supra basin floriferis, plus minus nutantibus; glumis inaequalibus, superiore (cum subula) 12—15-lineari ad carinam subpatenti-pilosa, apice profunde divisa et subula 5-lineali instructa (ita ut gluma apice 3-setosa — dentibus vero quandoque ita adpressis ut simpliciter longe acuminata videatur) inferiore acuminato-cuspidata 7—8-lineari, brevissime bidentata glabra; flosculo 5—6-lineali basi piloso apicem versus scabro albo, (genitalibus tantum per pellucidam membranam conspicuis parum obscuriore) non torto sed cum stipite aristae (demum) deciduae sursum laxo contorto 1— $1\frac{1}{3}$ -pollicari articulatim conjuncto; setis patentibus 3—4-pollicaribus parum inaequalibus. A Sieberiana β pallida Trin. Rupr. (l. c. 161.) A. stipaeformis Hochst. hrb. nub. 55. Nubia.

The species was edited in exsiccatae with a printed label: „Kotschy iter Nubicum. 55. *Aristida Sieberiana* Trin. Ad pagum Cordofanum Abu-Gerad in sabulosis elatioribus d. 24. Sept. 1839. U. i. 1841." The Russian monographers described this plant in the year 1842 as *Aristida Sieberiana* β *Nubica* and not as β *pallida* as given by STEUDEL. Their description begins with the word *Pallida*, which may have induced STEUDEL to call the plant *Aristida pallida*. The type in STEUDEL'S Herbarium at Paris was studied through the courtesy of Prof. H. LECOMTE. It is Kotschy's no. 55 with the

printed label as given above, upon it STEUDEL has written: „*Aristida pallida* Steud. Sieberiana β pallida. Trin. Rupr.”

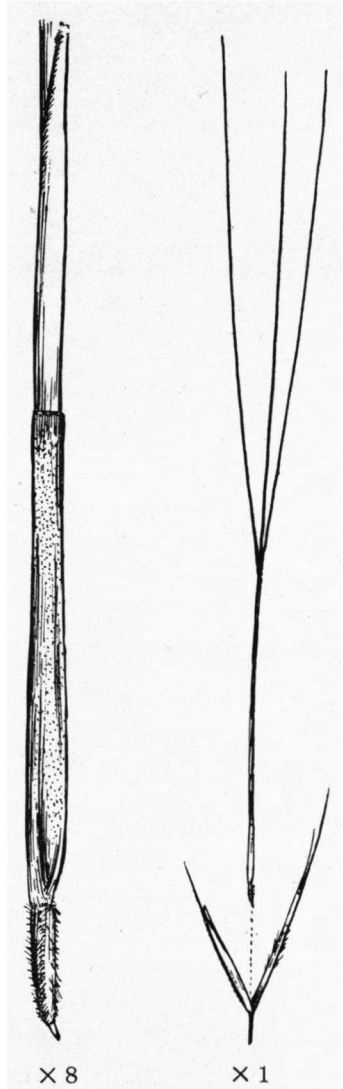
Aristida pallida is a member of the section *Arthratherum* allied to *A. longiflora* SCHUMACH. but characterized by the central part of the upper glume which is more or less pilose with long spreading scattered white hairs. Also allied to the endemic Palestine *Aristida Sieberiana* which has the same hairs on the upper glume but differs in the lower glume which is not bifid at the apex and only shortly awned (awn 2–2.5 mm. long). The total length of the first glume is 16 mm. and the column of the lemma is 18–20 mm. long. *Aristida pallida* has a shortly bifid apex of the lower glume which is, including the 5–6 mm. long awn up to 22 mm. long, the upper glume, including the 14 mm. long awn is up to 32 mm. long with very fine 7–8 mm. long lateral setae and the lemma has a longer, 25–32 mm. long column.

Aristida Palmeri Vasey.

GEORGE VASEY; Two new Species of Grasses in Bulletin of the Torrey Botanical Club, Vol. X. [1883] p. 42!

Culms erect, slender, 1½ to 2 feet high, smooth, simple or branched at the base; radical leaves very short, setaceous; cauline leaves 4 or 5, somewhat equidistant, 2 to 4 inches long, ligule a ring of short ciliate hairs; panicle 6–10 inches long, erect, the branches mostly in pairs, 2 to 3 inches

long, becoming divergent, below sheathed in the upper leaf, sparingly flower-bearing above the middle, branches and pedicel slightly scabrous; spikelets, including the awns, 9–10 inches long; glumes 4 to 5 lines long, nearly equal, narrow, 1-nerved, acuminate, slightly

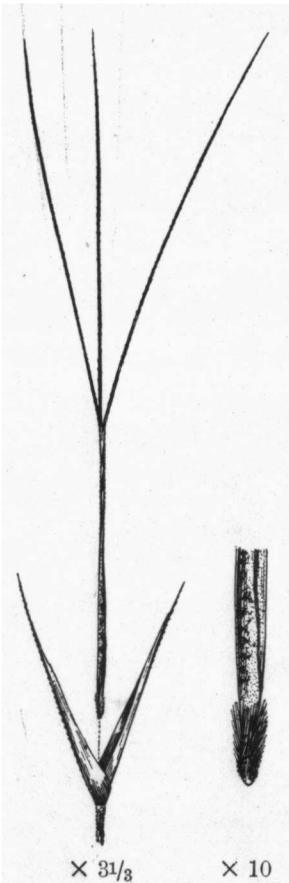


× 8 × 1
ARISTIDA PALLIDA Steudel.
From type specimen.

scabrous on the keel, rather shorter than the flowering-glume, which is 5 to 6 lines long, including the short pubescent stipe, narrow, smooth, the awns nearly equal, 5 to 6 lines long, erect.

Collected in Southern Arizona in 1869 by Dr. E. Palmer.

Note: = *Aristida divaricata* Humb. et Bonpland.



ARISTIDA PALMERI Vasey.
From duplicate type specimen.

The type is Palmer no. 1 in the U. S. Nat. Herbarium. I have seen a duplicate received by HACKEL from VASEY. The specimen differs from the common form of *A. divaricata* only in the not so strongly divaricate, rather short branches and less appressed ascending branchlets and pedicels. In all the other characters it agrees with *A. divaricata* especially as to the dimensions of the spikelets. The plant closely resembles the type of *A. Lemmoni* SCRIBN.. See my observations on p. 295 of this revision.

Aristida palustris Vasey.

GEORGE VASEY; Monograph of the Grasses of the United States and British America, part I., in Contributions from the United States National Herbarium. III. [1892] p. 45!

= *Aristida virgata* TRIN. var. *palustris* CHAPMAN.

A. W. CHAPMAN; Flora of the Southern United States; containing abridged descriptions of the flowering plants and ferns of Tennessee, North and South Carolina, Georgia, Alabama, Mississippi, and Florida.

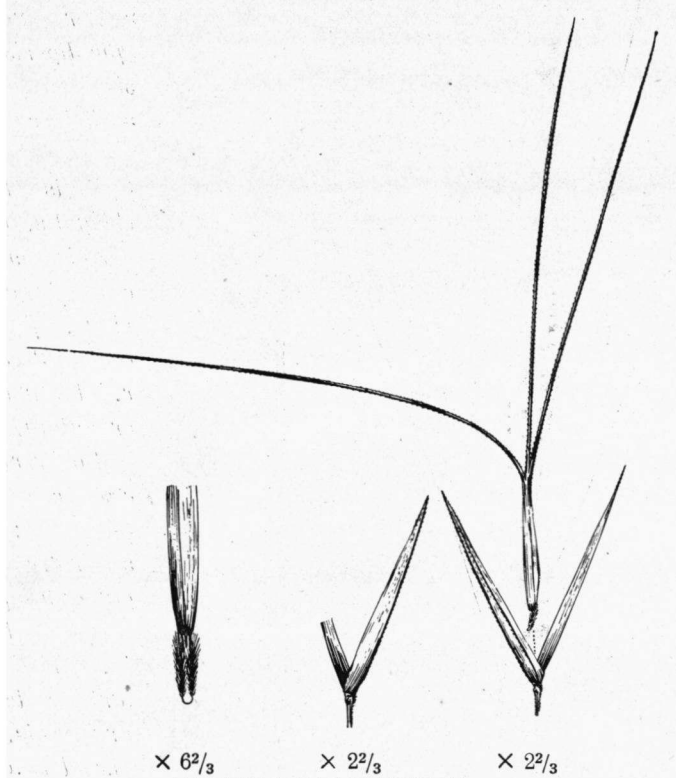
New York. [1860] p. 555!

Description in Chapman's Flora:

A. virgata, Trin. Culms (2°–3° high) branched near the base; leaves flat, rigid; panicles (1° long) loose; glumes nearly equal; middle awn spreading, twice as long as the erect lateral ones, and four times the length of the short (2" long) lower palea. — Dry soil, Florida to North Carolina.

Var? *palustris*. Every way larger (3°—5° high), with the panicle $1\frac{1}{2}^{\circ}$ — $2\frac{1}{2}^{\circ}$ long, and the straight awns nearly equal. — Margins of pine-barren ponds, West Florida Aug. and Sept.

The species was described as a variety of *A. virgata*, and although somewhat agreeing with it, it is however characterized by the more



ARISTIDA PALUSTRIS Vasey.

From duplicate type specimen.

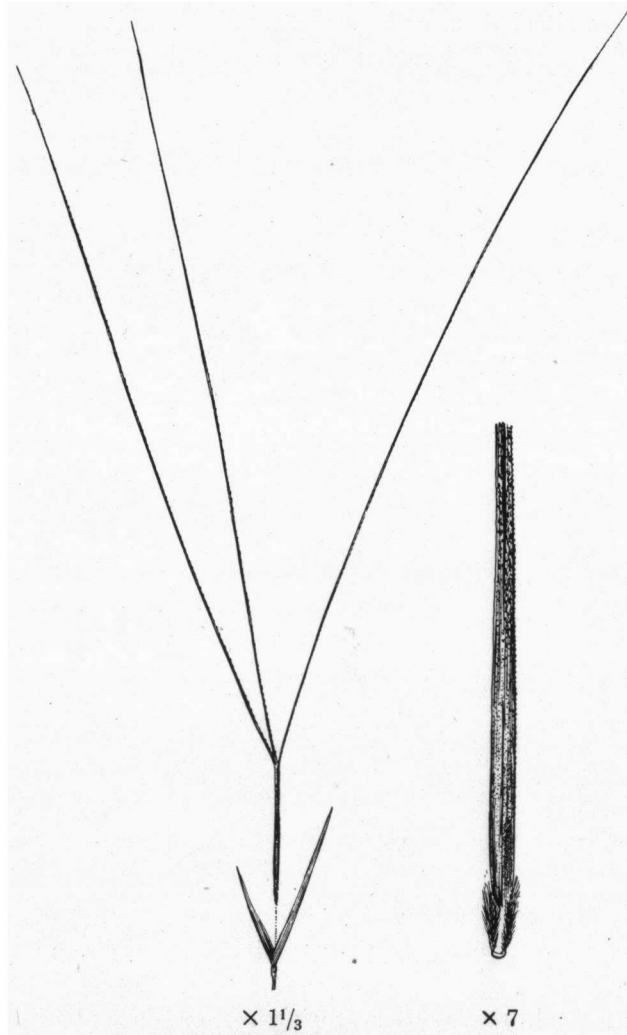
robust habit and the different shape of the panicle, it differs especially in the much longer glumes, twice as long as in *A. virgata*. The nervation of the first glume is characteristic, there is a distinct nerve on one side of the glume, thus the lower is two-nerved only.

Aristida pampeana Spegazzini.

CARLOS SPEGAZZINI; Contribucion al Estudio de la Flora de la Sierra de la Ventana, La Plata. [1896] p. 62!

Perennis, pallide virens, coespitosa; culmis breviusculis erectis subvaginatis teretibus gracilibus vix asperulis; foliorum vaginis relaxatis

striatulis glabris, apice hiantibus, ligulis brevissimis albo-velutinis, limbis breviusculis non v. vix subrigidulis, filiformibus, teretibus, erectis v. leniter flexuoso-subcircinatis, apice acutissimis glabris laevibus; paniculis erectis,



ARISTIDA PAMPEANA Spegazzini.
From type locality.

modice ampliatis 15—20-floris relaxatis, a basi ramosis, ramulis 1—4-spiculigeris, tenuissimis angulosis vix scabriusculis apiceque subclavulatis. Spiculis linearibus elongatis, glumis 1-nerviis membranceis relaxatis linearibus, infera longiore apice 3-denticulata v. integra et vix mucronulata, supera tertio breviora apice conspicue acuteque 3-dentata; valvula superiore filiformi glumam superam vix excedente tenuiuscula, aristis 3 non tortis tenuissimis praelongis, centrali vix longiore; valvula infera minuta hyalina.

Bastante rara en las barrancas mas secas á lo largo del arroyo.

OBS. — Planta delicada elegante de un verde pálido; el rizoma corto y delgado produce á la superficie de la tierra un gran número de brotos cortos y tupidos, cada uno de los cuales lleva varias ramas dispuestas dísticamente casi en abanico, de las cuales las inferiores producen solo manojos de hojas y algunas de las superiores

són fértiles; las vainas externas son anchas foliaceas y sueltas, las superiores ó internas son mas angostas y se abrazan mas ó menos estrechamente, pero todas son lampiñas y con delgadas estrias longitudinales; las ligulas son muy poco aparentes y están formadas por un simple anillo aterciopelado de pelos cortos y blanquecinos; las láminas son todas bastante largas, las inferiores algo mas cortas (5 á 10 cm. de long.), superan las cañas y alcanzan la mitad de la panoja, son cilíndricas delgadas, bastante blandas, agudas en la punta, verdes lampiñas y apenas escabrosas. Las cañas ó tallos son derechos vaginados y superan de poco las hojas (20—30 cm. de alt.) delgados, cilíndricos, lampiños, algo escabrosos. La panoja muy poco distinta del conjunto de la planta, es derecha y poco ensanchada (12—15 cm. de long.) sobresaliendo por mas de la mitad de su largo, lleva de 15 á 20 espiguillas flojas sostenidas por ramitas derechas ó abiertas, delgadas, angulosas y escabrosas, hallándose en grupos de 3 ó 4 en las inferiores de 1 ó 2 en las superiores. Las espiguillas poseen un pedúnculo triangular escabroso subclaviforme y son todas de color verde muy pálido; sus glumas son papiraceo-membranceas 1—nerviadas verdes delgadas lanceolado-lineares, sueltas, carinadas y escabrosas en la parte superior del dorso, obtusas y lisas inferiormente; la inferior mas larga (17—18 mm. de long. por 1, 5 mm. de ancho basal) se adelgaza en una punta á veces entera y aguda, á veces con tres denticulos, de los cuales el mediano mas rígido y largo toma al aspecto de un mucron; la superior mucho mas corta y angosta (11 mm. de long. por 1 mm. de ancho) termina siempre obtusamente en tres dientes cortos delgados y agudos; la glumela ó paleta inferior es cilíndrica delgada, membranacea (10 mm. de long.) derecha provista en la base de un callo ó pié corto triangular agudo vestido de pelos cortos y tupidos blanquecinos y se prolonga superiormente en tres aristas rectas finisimas escabrosas de las cuales la central es algo mas larga (85—90 mm. de long.) de las laterales (75—80 mm. long.); la paleta inferior es muy corta delgada y transparente.

Esta especie se parece mucho á la *A. pallens* Cav., pero se reconoce pronto por la longitud relativa de las glumas que la acercan á la especie anterior, á la *A. riparia* Trin. á la *A. implexa* Trin. y á la *A. Jacquiniana* Tausch. de las cuales se diferencia y por las glumas denticuladas en la punta y por la longitud de las partes de la flor.

Note: = *Aristida Spegazzinii* Arechavaleta.

The type has not been studied. Through the courtesy of

Dr. L. R. PARODI, I received some specimens collected by SPEGAZZINI on the Sierra Curru-Malal in the province of Buenos Aires in the years 1898 and 1899. One of the specimens (Herb. Parodi no. 1848), collected in 1898 is a robust form and agrees exactly with the plant described by HACKEL as *Aristida Spegazzinii* var. *abbreviata*, having an exserted panicle. On the label of no. 1848 Dr. PARODI has written: „Este ejemplar procede de la localidad original de donde fué descrita la *A. pampeana* por C. Speg. Coincide bien con la descripción.” The specimen has all the striking characters of *Aristida Spegazzinii*, described by ARECHAULETA in the year 1895, the pronounced inverse position of the glumes, the furrowed ventral side of the lemma and the long awns. Another specimen collected by SPEGAZZINI in the year 1899 (Herb. Parodi no. 1954) is a smaller, 10—15 cm. high plant with a shortly exserted panicle, it agrees with *Aristida Spegazzinii* var. *genuina* HACKEL. Authentic specimens of *Aristida Spegazzinii* were studied in HACKEL'S Herbarium at Vienna. See afterwards my observations under that species.

***Aristida paniculata* Forskål.**

Flora Aegyptiaco-Arabica, loc. cit. [1775] p. 25!

88. ARISTIDA PANICULATA; *spiculis linearibus, oblongis; arista cujusvis flosculi triplici, glabra.*

In Arabia felici.

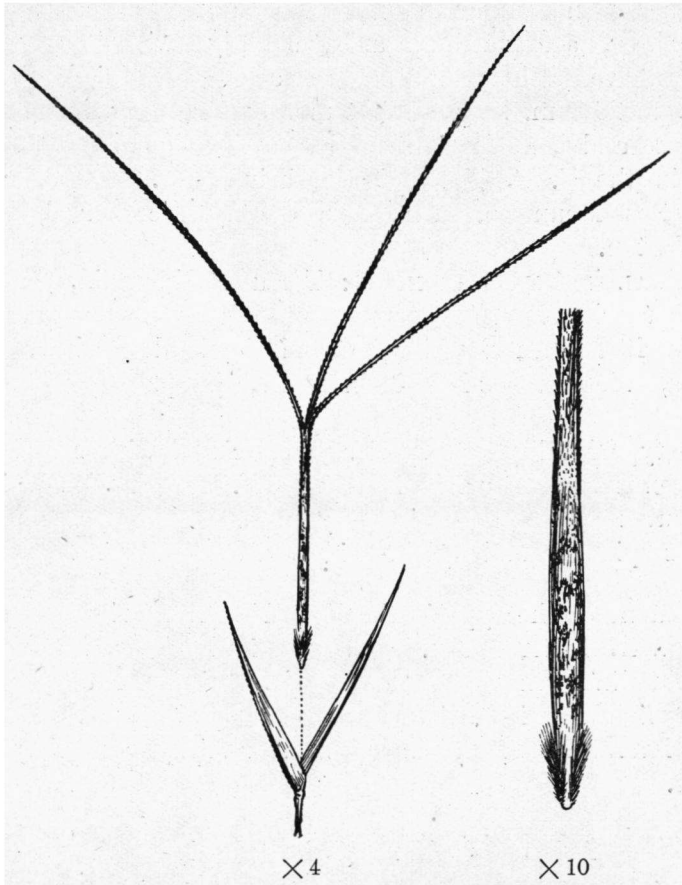
- No type or authentic specimen was found in the different herbaria studied by me. The description is too imperfect to recognize the species. *Aristida adscensionis* and *A. coerulescens* both occur in Arabia and one of them is the species described by FORSKÅL. It may be that FORSKÅL'S plant belongs to *Aristida coerulescens* and if an authentic specimen in FORSKÅL'S hand could be found and it proved to belong to the species described by DESFONTAINES, the latter has to bear the name given by FORSKÅL. In absence of such a specimen I am obliged to omit FORSKÅL'S name.

TRINIUS has doubtfully placed FORSKÅL'S plant under *A. arabica* and *A. nutans*, see pag. 385 of this revision. *Aristida arabica* distinctly belongs to *A. coerulescens*, but he observes that FORSKÅL'S diagnosis agrees with nearly all the *Aristidas* with naked awns. The discovery of the type of *A. paniculata* only can throw more light upon the subject.

***Aristida pansa* Wooton et Standley.**

E. O. WOOTON and PAUL C. STANDLEY; Descriptions of new plants preliminary to a Report upon the Flora of New Mexico, in Contributions from the United States National Herbarium. Vol. XVI. [1913] p. 112!

Erect, caespitose perennial, 25 to 40 cm. high, forming tufts 10 cm



ARISTIDA PANSA Wooton et Standley.
From type specimen.

or more in diameter; culms simple, rigid, though slender, minutely puberulent, glabrous in age, somewhat striate; leaves mostly basal, narrowly linear, involute, striate, puberulent throughout, more or less curled; sheaths of the basal leaves overlapping, 1 to 2 cm. exposed, those of the culms 4 to 5 cm. long, closely investing the

culms; ligule a tuft of very fine, white hairs encircling the sheath both inside and out; blades 5 to 15 cm. long, those of the upper culms shortest; panicle at first strict, 10 to 20 cm. long, bearing many more or less crowded spikelets, at last spreading, the branches rigidly ascending, mostly in pairs; rachillae slender, almost capillary, bearing several crowded small spikelets; glumes slightly unequal, the first shorter, glabrous, narrowly lanceolate, acuminate, 1-nerved, the nerve sometimes slightly produced, purple when young, yellowish in age, the second glume about the length of the lemma; this 8 to 10 mm. long, attenuate upwards, slightly twisted at maturity, scabrous above, callous and bearing a tuft of white hairs; awns short, 10 to 20 mm. long, at first merely spreading, in age twisted at the base and bent at right angles to the glume.

Type in the U. S. National Herbarium, no. 690259, collected on Tortugas Mountain, Dona Ana County, October 6, 1904, by E. O. Wooton.

ADDITIONAL SPECIMENS EXAMINED: Tortugas Mountain, October 22, 1892, *Wooton* 1087.

Lloyd's 195, from foothills near Hacienda de Cedros, Mazapil, Zacatecas, Mexico, collected in 1908, is probably the same species.

In the type locality the species is associated with several others of the genus. It somewhat resembles *A. Vaseyi*, with which it is found, but may be recognized by the spreading panicle with its numerous spikelets and by the widely divergent awns.

A fragment of the type in the U. S. Nat. Herbarium was received from Prof. A. S. HITCHCOCK. The species is allied to *Aristida imbricata* HENR., but differs in the about 2 mm. long beak of the lemma which is slightly twisted, in the more unequal glumes, both acute without lateral setae, and in the shorter stiffly ascending panicle-branches.

Aristida Paoliana (Chiovenda) Henrard

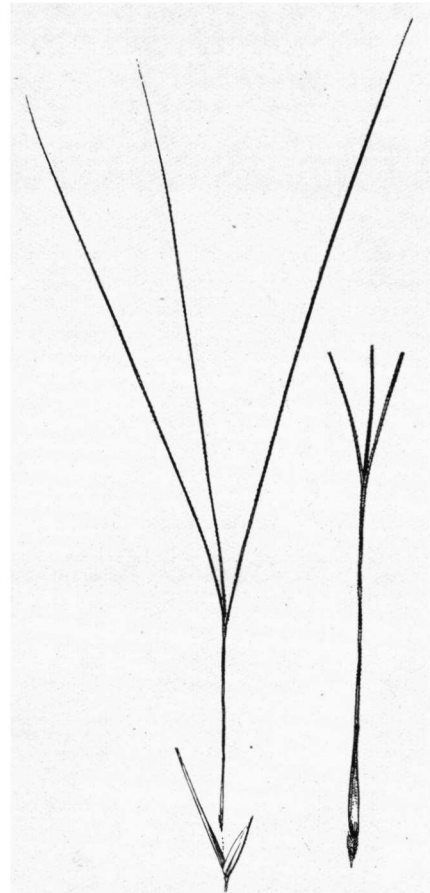
nov. spec.

(Sect. *Arthratherum*). Perennis, radice crassa, squamosa; culmi erecti, robusti, cum panicula 80—100 cm. alti, 3 mm. circa crassi, basi vel e nodis inferioribus ramosi, plurinodes, ramis floriferis. *Internodia* aequilonga, striata, pruinosa, inferiora nuda, (vaginae emortuae), semiteretia, ventre appanata; *vaginae* fuscae, internodiis breviores, laminis delapsis, summae iis longiores, nodis culmorum

tumescens; *laminae* angustae, convolutae, vel inferne planae, circa 30 cm. longae, erectae, utrinque scabrae, longe setaceo-acuminatae; *ligula* abbreviata, dense ciliata, auriculae longe barbatae; *panicula* laxissima, circa 30 cm. longa, ramis binis vel semiverticillatis, subangulosis, patentibus, apice nutantibus, in parte inferiore nudis, ramulis paucifloris appressis, alternis, subcapillaribus, subangulosis, scaberulis, iterum divisis, spiculas breviter pedicellatas gerentibus; *spiculae* glabrae; *glumae* steriles valde inaequilongae, inferior 3-nervis, circa 7 mm. longa, carina scabra, superior angustior 1-nervis, carina laevis, circa 15 mm. longa, apice leviter bifida, inter dentes mucronata; *gluma fertilis* callo acutissimo, dense barbato, circa 1,5 mm. longo, 7 mm. longa, fusiformis, superne angustata, scaberulaque, columna a glumella articulata, gracilis, scaberula, torta circa 12 mm. longa, aristae subaequales, scaberulae, centralis 6,5 cm., laterales 6 cm. longae.

Somaliland: Boscaglia di Mogadiscio lungo la strada di Afgoi fra il 4° e 5° km., 26 Maggio 1913, leg. G. PAOLI no. 115bis. Typus speciei in Herb. Musei Florentini.

A very distinct species, easy to distinguish from the allied *Aristida stipoides* LAM., by the very acute, not bifid callus and by the wanting tuft of wool at the mouth of the sheaths. Through the courtesy of Prof. E. CHIOVENDA I received the specimen for study, it has been named by Prof. CHIOVENDA: *Aristida stipiformis* LAM. var. *Paoliana*, indeed there is some resemblance with the species described by LAMARK as *A. stipoides* but the characters given above are striking enough to recognize the new species.



× $1\frac{1}{3}$ × $2\frac{2}{3}$
ARISTIDA PAOLIANA (Chiovenda)
Henrard.

From type specimen.

Aristida papposa Trinius et Ruprecht.

Species Graminum Stipaceorum, loc. cit. pag. 173!

Culmo, nodis vaginisque superioribus glabris; ligulis *longe* ciliatis; paniculae oblongo-linearis, contractae, 4—5 pollicaris, basi exsertae



ARISTIDA PAPPOSA Trinius et Ruprecht.
From type specimen.

radiis *subfasciculatis*, *erecto-adpressis*, paullo supra basin floriferis; glumis parum inaequalibus, glabris, apice attenuatis, *acutatis*: superiore 4 lineali inferiorem lineâ dimidiâ superante; flosculo (sub anthesi) *lineam* longo, apice truncato et emarginato pro stipite aristae deciduae bilineali, laxè torto, superne ad divi- suram *barbato-piloso*; setis lateralibus patulis, 4—5 linealibus, nudis, media 13—15 *lineali*, parum geniculata, basi ad 2—3 lineas nuda; mucronulo apicali *nudo*, $\frac{1}{4}$ — $\frac{1}{2}$ lineali.

α. Niliaca; virescens; culmi debiliores, simpliciusculi, duplo tenuiores ac *A. uniplumis*; folia convolutosetacea, glabra, superiora circiter bipollicaria. — In graminosis ad litus Nili sinistrum prope Chartum m. Martio. (Kotschy! pl. nubicae Un. itin. n. 430.)

β. Senegalensis; flavescens; culmi ramosi, rigidi. — Senegalia pr. Richard-Tol.

(Lelievre in Hb. Kunthii!)

The plant was edited in exsiccatae with a printed label; „Kotschy iter Nubicum. No. 430. Aristida uniplumis Lichtenst. In savannis ad littus Nili sinistrum prope Chartum. U. i. 1841. Martio 1840.” The

Russian authors recognized this plant as different from the South African *Aristida uniplumis*, their variety β . *Senegalensis* is scarcely a distinct variety. *Aristida uniplumis* is an allied species, much resembling the *A. papposa*, but with a central awn plumose above the middle to the very tip, the feathery part thus obtuse in outline: *A. papposa* has a central awn with an exerted naked tip, the feathery part acutish in outline. The two species have moreover a different geographical distribution.

Aristida paradisea Edgeworth.

M. P. EDGEWORTH; Journal of the Asiatic Society of Bengal, Vol. XVI. [1848] Part second, p. 1219.

Aristida (Subgenus *Stipagrostis*) *Paradisea*, glabra, nodis glabris, vaginis arcte amplexicaulibus striatis ore pauce barbato ligula ciliato-pilosa, lamina subulata convoluta, panícula strictiuscula, (1—2-pedali), glumis glabris membranaceis acuminatis flore plus duplo longioribus (inferiore 8 lin: superiore 6 lin: longo) palea exteriore arcte convoluta, apice integro articulatum aristata, arista basi torta, 3 partita, ramis lateralibus brevibus setaceis medio longissimo plumoso basim versus nudiusculo, (3—4-pollicari, 6—9 lin:) palea interiore brevior ovata apice 3-dentata, lodiculis 2 hyalinis lanceolatis acutis, semine cylindraco, callo pilis albis barbato obconico; stylis brevibus crebre plumosis.

I have named this *paradisea* from its resemblance to a plume of the bird of Paradise, not from its growing at Aden. It approaches *A. ciliata* and *A. lanata*, but differs in its smooth joints from the former, and smooth culms, etc. from the latter, and from both in the proportions of the awn, as given in Trinius and Ruprecht's elaborate exposition of the Stipaceae in the memoirs of the Petersburg academy, 1843.

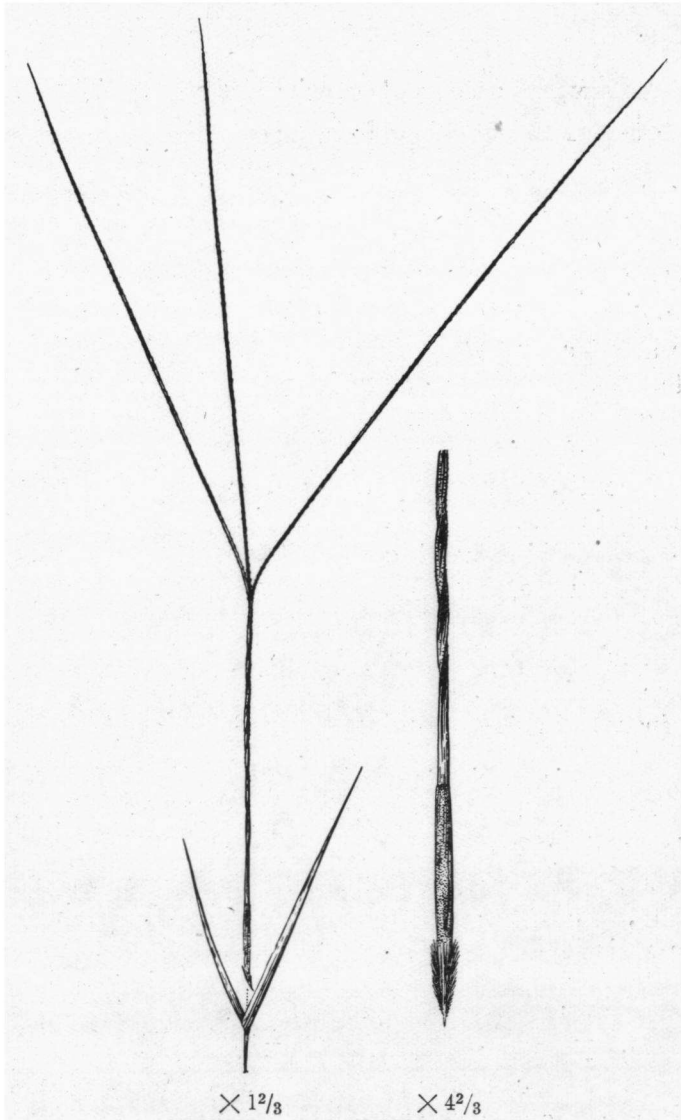
The type of this species is not in European Herbaria, it is probably in the Calcutta Herbarium and was not accessible to me. From the description and from the locality (Aden), we can however recognize the species very well. It is a quite glabrous plant, all the internodes are smooth, the glumes have a distinctly inverse position and the central awn is long-plumose nearly all along. The same species was described by JAUBERT and SPACH, but EDGEWORTH'S name has priority. See the observations given under *Aristida caloptila* on pag. 70 of this revision. No figure is given here, see the figure on pag. 68. *Aristida Raddiana* SAVI is an allied species with a densely hairy lowest internode and a different geographical distribution. *Aristida paradisea* is hitherto only seen by me from Somaliland and from

Southern Arabia, no intermediate forms were observed and I have therefore accepted both as species.

***Aristida paradoxa* Steudel,**

ap. J. A. SCHMIDT; Beiträge zur Flora der Cap Verdischen Inseln, [1852] p. 140!

Radice fibrosa densissime caespitifera, caulibus ramulosis demissis



ARISTIDA PARADOXA Steudel.

From type specimen.

(vix ultra bipollicaribus) totis tectis vaginis striatis imbricatis pilosis ex apice obtuso cauli adpresse foliiferis; foliis distiche patulis sparse pilosis glaucis subconvolutis subpungentibus ($1\frac{1}{2}$ — $1\frac{1}{2}$ " longis, vix $\frac{1}{2}$ " latis); paniculis nunc terminalibus ex ramulorum apice, nunc fere ex basi caulis ortis simplicissimis subracemosis paucifloris culmos superantibus; glumis angustissimis lineari-lanceolatis acuminatis hyalinis uninerviis, flosculo scabriusculo brevioribus; aristae setis subaequalibus (ultra pollicaribus) flosculum subaequantibus scabriusculis.

Hab. 1) In collibus apricis ins. S. Vincentii Janr. 1851! 2) In rupestribus ins. S. Antonii Mart. 1851!

G. V. Den Cap Verdischen Inseln eigenthümlich.

Note: = *Aristida funiculata* Trin. et Rupr. var. *paradoxa* (Steud.) Henrard.

The type is in STEUDEL'S Herbarium at Paris, it was received for study from Prof. H. LECOMTE. The plant is labeled in STEUDEL'S hand: „In Insul. Promon. Viridis legit J. A. Schmidt." Duplicates of the type in many European collections. It is an annual plant belonging to the section *Arthratherum*, with an inverse position of the glumes, it agrees with *A. funiculata* and has the same length of the awns but a shorter column, only 3 cm. long. On pag. 386 of this revision I have already given some observations, unfortunately the locality was given by error as the Canaries. The plant is however from the Cape Verd Islands and endemic there. On account of the very different distribution and the absence of intermediate specimens, I have taken up this plant as a variety.

Aristida paraguayensis Lindman.

C. A. M. LINDMAN; Beiträge zur Gramineenflora Südamerikas in K. Sv. Vet.-Ak. Handl. Bd. 34. No 6. [1900] pag. 14! Taf. VII, B.

Species (sect. Schoenatheron) *culmo* elato gracili, *foliis* longis, perangustis, plurimis setaceo-convolutis, *panicula* contracta, lobata, lobis (ramis) mox contortis implexis, *spiculis* maioribus, *gluma* utraque longe setaceo-cuspidata, inferiore superiorem longe superante, *arista* longissima, glumas bis terve superante, gyris permultis torta, *ramis* aristae angulatim flexuosis alio aliis implexo, parte aristae indivisa brevioribus.

Descr.: *Culmi* arcte caespitosi, erecti, stricti, cum *panicula* 0,7—0,8 m alti, infime crassitie pennae columbinae, sub *panicula* usque ad crassitiam pennae passerinae attenuati, teretes, laeves,

nōdis numero 4—5, occultis, glabris. *Vaginae* basales circa basin culmi incrassatam dilatatae, ceterae arctae, laeves glabrae, subtilissime striatae. *Ligula* subnulla, villōsitate densa brevissima indicata. *Lamina* foliorum innovationum stricta, setacea, 3—5 dm longa, pallide caesio-glaucā; lamina foliorum culmi basaliū anguste linearis, 2 mm lata, marginibus convolutis canaliculata vel subplana, 2—3 dm longa, mox reflexa, deinde (marcescens) spiraliter flexuosa vel circinata; laminae summae convoluto-setaceae, circa 1,5 dm longa. *Panicula* erecta, anguste contracta, parum densa, basi lobata, 2—3 dm longa, rhachi scabra, ramis basi spiculigeris erectis, mox inter se ope aristarum implexis. *Spiculae* magnae. *Glumae* lineari-lanceolatae setoso-cuspidatae, dorso lateribusque scabrae (inferior saltem), plerumque valde inaequales, inferior longior, cum cuspidē longissimo setaceo usque ad 4 cm longa (in spiculis minoribus saltem 2,5 cm longa), quam superior (quae brevius cuspidata) dimidia parte usque fere duplo longior. *Valvula inferior* linearis, saepe spiraliter torta, callo albo-sericeo, deinde glabra, apice scabra, deinde in *aristam* validam producta; *aristae* pars indivisa cum valvula 4—6 cm longa, gyris 25—40 contorta (et quidem in partem ei oppositam, qua valvula inferior gaudet); glumas longe (bis terve) superans; *rami* aristae breviores, intermedius longior partem aristae indivisiam subaequans, omnes basi pluries argute angulati, saepe in eandem partem inflexi.

Inter species *Aristidae* in Flora Brasiliensi ultimo loco enumeratas — *ripariam* TRIN., *implexam* TRIN., *chapadensem* TRIN. — collocanda est haec nostra species; ab omnibus vero nonnihil distincta est;

Aristidae ripariae (Flora Brasil., fasc. 79, tab. 6) proxima est culmo et foliis, a qua differt panicula implexo-contorta et gluma inferiore superiorem longissime superante;

ab *Ar. implexa* differt culmo gracili, foliis tenuioribus circinatis, panicula pauperiore laete straminea, glumis magis inaequalibus longius cuspidatis;

ab *Ar. chapadensi*, differt culmo gracili, foliis tenuioribus circinatis, panicula implexa;

ab omnibus differt parte aristae indivisa valida longissima, glumas longe excedente et forsā semper gyris pluribus torta.

Hab. in Paraguay, in colle saxoso Cerro Peron prope Paraguari, „lieux rocailleux”, mens. Martio (anno 1875), BALANSA n. 187; Altos (prope Villa Rosario), solo arido saxoso vel argillaceo-sabuloso, mens. Ian. florens, mens. Martio matura, „Caapii-yahá” guaranice, ENDLICH n. 51 et 51^{1/2}.

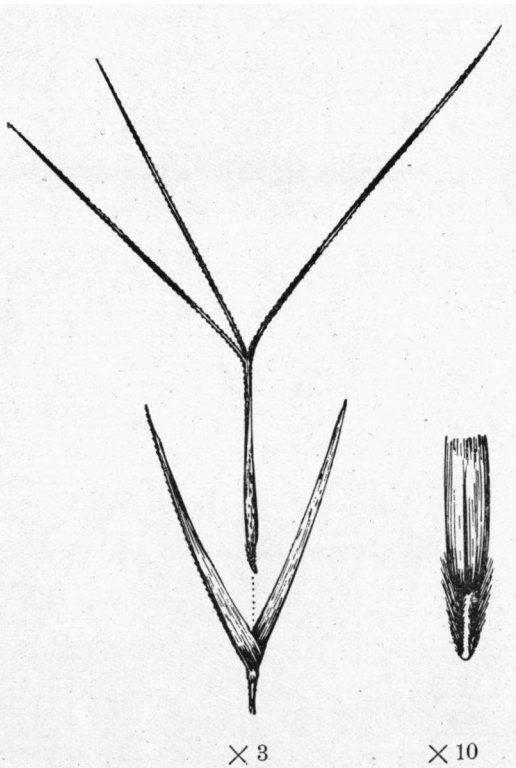
Note: = *Aristida megapotamica* Sprengel.

I examined the types in the Stockholm Herbarium through the courtesy of Prof. C. A. M. LINDMAN. A beautiful series of Balansa was studied in the Herbarium at Leyden. All the specimens have the unilaterally developed very curious callus of the species, which was earlier described by TRINIUS as *A. implexa* and by SPRENGEL as *A. megapotamica*. See the figure under *A. implexa* on pag. 256 of this revision. For the use of the name *A. megapotamica*, see my detailed explanations in this revision on pag. 340—342.

Aristida Parishii Hitchcock

ap. WILLIS LINN JEPSON; A Flora of California. Part III. [1912] p. 101!

Perennial; culms tufted, 1 to 2 feet high, smooth; sheaths smooth, ciliate at the throat; blades ascending, firm, flat or more or less involute, scabrous on the uppersurface, smooth below or scabrous toward the tip, $\frac{1}{2}$ to 1 line wide, 6 to 12 inches long; panicle narrow, about 6 inches long, the branches rather stout, ascending or appressed, the lower 1 to 2 inches long; glumes somewhat unequal, short-awned, smooth or scabrous on the keel, 1-nerved or the first 3-nerved, the second a little longer, 6 lines long; lemma a little shorter than the second glume, very scabrous on the upper half, the neck rather stout, not twisted, the awns ascending, the central about 10 lines long, the lateral a little shorter. — (Perennis, caespitosa, 1—2 ped. alta, glabra; vagina ore ciliata; laminae firmae planae vel



ARISTIDA PARISHII Hitchcock.

From type specimen.

plus minus involutae, supra scabrae, $\frac{1}{2}$ —1 lin. latae, 6—12 poll. longae; panícula angusta, circa 6 poll. longa, ramis ascendentibus; glumae subaequales, breviter aristatae, 1-nerviae vel prima 3-nervia; lemma glumis brevius, parte superiore scaberrimum, aristis ascendentibus, intermedia circa 10 lin. longa, quam ceteris brevior)

Type in the U. S. National Herbarium, collected by S. B & W. F. Parish at Agua Caliente, Colorado Desert, Apr., 1882 (no. 1029a). Other specimens referred to this species are: San Diego, *Cleveland*; Coahuila Creek, San Jacinto For. Res., *Leiberg* 3188; Jurupa Hills, *Wilder* 1047 $\frac{1}{2}$. Differs from *A. divaricata* chiefly in the shape of the panicle, the branches being short and appressed instead of long and divaricate.

A fragment of the type in the U. S. Nat. Herb. was received through the courtesy of Prof. A. S. HITCHCOCK. The species is rather robust, it has a very distinct habit, widely different from *A. divaricata* and is not at all allied to that species.

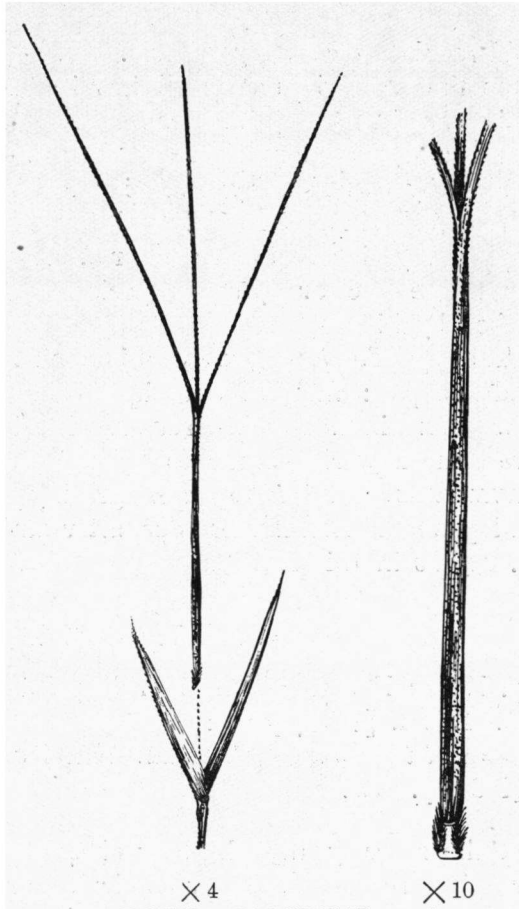
Aristida Parodii Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis. *Culmi* erecti, simplices, graciles, ad 60 cm. alti, teretes, glaberrimi; *vaginae* teretes, arctae, striatulae, glaberrimae, internodiis longiores; ligula obsoleta, minutissime ciliolata, auriculae haud barbatae; *laminae* anguste lineares, sensim longe acutatae, convolutae, subflexuosae, 20 cm. vel plus longae, glabrae, subtus laeves, supra marginibusque scaberulae, rigidulae; *panícula* circa 25 cm. longa, stricte erecta sed laxiuscula, rhachi praesertim in parte superiore scaberula, ramis rhacheos internodiis multo longioribus, suberectis, solitariis vel binis, scabris, ad 15 cm. longis, basi ad $\frac{1}{2}$ usque nudis, spiculis arcte appressis, imbricatis, breviter pedicellatis; *spiculae* lineares, glabrae; *glumae steriles* subaequales, lineari-lanceolatae, acutissimae, 1-nerves; gluma I. 7 mm. longa, carina scaberrima, gluma II. 8—8 $\frac{1}{2}$ mm. longa, carina laevis, *gluma* III. *fertilis*, anguste linearis, arcte convoluta, 8—8 $\frac{1}{2}$ mm. longa, callo obtusissimo, truncato, brevissime barbulo, vix $\frac{1}{2}$ mm. longo, minutissime punctulata, apice haud torta neque articulata in stipitem scabrum, perbreve, vix vel semigyro tortum abiens, aristis scabris, erectis, basi haud tortis, intermedia maxima 14 mm. longa, lateralibus 11 mm. longis.

Argentina: Tucuman, Martio anno 1917, leg. S. VENTURI, Herbario LORENZO R. PARODI no. 1129, (Typus speciei in Herb. Lugd. Batav. sub no. 925.70—84).

The plant, described here, is a perennial. I have not seen innovationshoots and the few blades have pubescent auricles only; it may however be that the auricles of the leaves of the innovations are bearded. STUCKERT gives *A. divaricata* as a species from Argentina, I have seen his plant in the Vienna Herbarium labeled by HACKEL: „*Aristida divaricata* Willd. forma humilior”, (Vienna number 15627), it was collected by LILLO in Tucuman. The specimen probably belongs to *A. Parodii* but it is small and depauperate, the auricles of the innovation blades are bearded and there is only a scarcely twisted beak as in *A. Parodii*. In habit STUCKERT's specimen agrees somewhat with the Bolivian *A. Asplundii* which has a well-developed twisted column.



ARISTIDA PARODII Henrard.

From type specimen.

Aristida parviflora Steudel.

E. G. STEUDEL; Synopsis Plantarum Glumacearum [1855] p. 140!

Caule erecto simplici vel ramoso tenui (1—2-pedali) cum tota planta glabro, excepta ligula brevissima pilosa; foliis convolutis erectis rigidulis 1—2-pollicaribus; panícula subsimplici, radiis alternis remotis solitariis vel binis inaequalibus brevibus ($\frac{1}{2}$ —1-pollicaribus) paucifloris; glumis subaequalibus subcoloratis acutis flosculo subduplo-

brevioribus; setis subaequalibus (2—3-linealibus) gluma brevioribus. *Urville* legit. in N. Holl.

Note: = *Aristida vagans* Cavanilles.

Through the courtesy of Prof. R. VIGUIER, I received the *Aristidas* from the Herbarium at the University of Caen (Calvados) for study. This collection is very important because it contains the Lenormand Herb. and the Herbarium of Dumont-d'Urville, both collections studied by STEUDEL. Type specimens of STEUDEL, not found in the Paris Herbarium were detected in this Herbarium and I wish to express my sincere thanks to Prof. VIGUIER for his kindness. Thus I am able to clear up some species of STEUDEL, insufficiently described by him.

The type of *Aristida parviflora* is labeled: „Port-Jackson (Australie)” and stamped: „Institut Botanique de Caen. Hb. Dumont-d'Urville.” The determination is in STEUDEL's handwriting. On the sheet there are some flowering-branches belonging to the species described by CAVANILLES as *Aristida vagans*, agreeing perfectly with the description and plate of CAVANILLES. See afterwards the observations under *A. vagans* in this revision.

Aristida patula Chapman,

ap. NASH; Notes on some Florida plants in Bull. Torrey Bot. Club, Vol. XXIII. [1896] p. 98!

= *Aristida scabra* CHAPMAN non KUNTH, Flora South. U. S. Ed. 2. [1884] p. 663!

Culm scarcely any, the long ($1\frac{1}{2}^{\circ}$ — 3°) peduncle arising from a creeping rootstock; leaves radical, setaceously attenuate; panicle large, patulous, the branches 2—5 in a cluster; spikelets appressed; glumes awn-pointed, the lower one longer; awns straight, the lateral ones very short; stamens 2. — Sandy coast, Florida.

In the year 1884, CHAPMAN misapplied the name *Aristida scabra* KUNTH for this distinct very different species, which is limited to Florida, but he recognized his species afterwards, giving it the manuscript name of *Aristida patula*, a name published by NASH in the year 1896. :

I have seen an authentic specimen received by HACKEL from CHAPMAN in the year 1884 (no. 79), stamped with the Vienna number 15951. It agrees perfectly with a fragment of an authentic

specimen in the U. S. Nat. Herb., received from Prof. HITCHCOCK. In his work, Prof. HITCHCOCK gives the glumes as nearly equal 12—15 mm. long, but in all the specimens studied the glumes are unequal and the first is longer than the second one.

The species belongs to the group of the „*divaricatae*” but is distinguished by the scarcely beaked, not twisted lemma, the short lateral awns and the inverse position of the glumes. It resembles in habit the South American *Aristida longifolia* TRIN. which has not an inverse position of the glumes. Most allied it is however to *Aristida gentilis* HENR. and especially to the var. *breviaristata* of that species, *Aristida patula* differs however in being more robust, in the very long panicle more than half as long as the whole plant and in the very long lower culm blades which are erect, not curved, flat, and about 3 mm. broad.

Aristida pauciflora Buckley.

S. B. BUCKLEY; Descriptions of Plants N^o. 3. Gramineae, in Proceedings of the Academy of Natural Sciences of Philadelphia „1862” [1863] p. 92!

Radice fibrosa; culmo rigido erecto 1½—2 pedali ad nodos ramoso et subgeniculato; foliis radicalibus convolutis filamentis culmum aequantibus vel superantibus glabriusculis; ligulis nullis aut brevissime pilosis; panícula pauciflora glumis inaequalibus apice setaceis flosculum superantibus scabriusculis; flosculo glabro compresso vel angulato apice non torto; aristis 3 inaequalibus 1½—2 polycaribus; radiis unifloris solitariis 2—4 lin. longis.

Northern Texas.

It has abortive stems and leaves at the joints, which are often not sheathed at the base; upper leaves mixed with the panicle, which has 5—8 solitary flowers; lower glume strongly 3-nerved; nerves green, or slightly tinged with reddish brown; the midrib of both glumes is prolonged into bristles, the one exceeding the other 3—4 lines.



ARISTIDA PATULA
Chapman.

From duplicate type specimen.

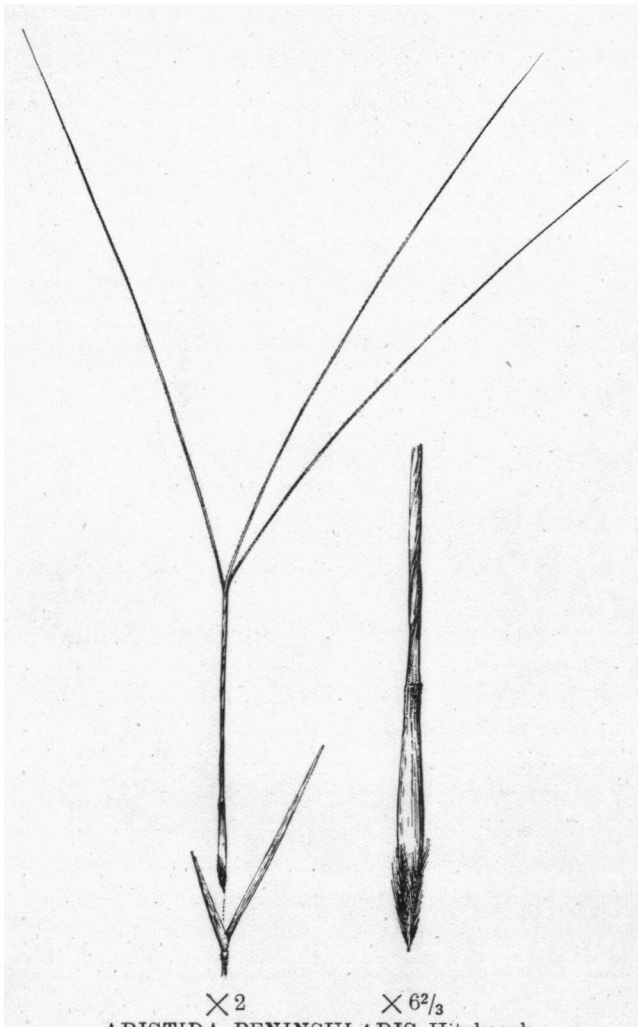
ASA GRAY in the same volume of the Proceedings says on pag. 334: *Aristida pauciflora* is *A. oligantha*, Michx.

Note: = *Aristida oligantha* Michaux.

***Aristida peninsularis* Hitchcock.**

A. S. HITCHCOCK; The North American species of *Aristida*, in Contributions from the United States National Herbarium. Vol. XXII. [1924] p. 521!

Plants annual, bushy-branched; culms slender, ascending, branching,



ARISTIDA PENINSULARIS Hitchcock.

From type specimen.

pubescent, 10 to 20 cm. tall; sheaths glabrous, pubescent at the throat and slightly so on the collar; blades flat or somewhat involute, glabrous beneath, puberulent on the upper surface, nerved, 1 to 3 cm. long; panicles very numerous, mostly 1 to 3-flowered; glumes unequal, 1-nerved, glabrous or the keel of the first slightly scabrous toward tip, the first about 1 cm. long, acute, the second about 2 cm. long, narrowed into a slender tip but not awned; lemma about 8 mm. long, glabrous below, minutely scabrous toward the summit, the callosity densely pubescent, about 2 mm.

long; column about 2 cm. long, twisted, the 3 awns about equal, 4 to 5 cm. long, diverging but not arcuate-contorted at base.

Type in the U. S. National Herbarium, no. 745524, collected on sandy beaches at Los Angeles Bay, Lower California, Mexico, November, 1887, by Edward Palmer (no. 501).

This species differs from *A. californica* in being an annual, and in its larger glumes, lemma, and awns.

This collection was included in Watson's list of Palmer's plants from Guaymas and vicinity as *Aristida fugitiva* Vasey, a nomen nudum. Doctor Vasey wrote upon one of the sheets of this collection „*Aristida fugitiva* n. sp.," which he later changed to „*A. californica* var. *fugitiva* V." When the latter name was published the only specimen mentioned was from „Colorado Desert (C. R. Orcutt),” which must be accepted as the type. The Orcutt specimen is *A. californica* and is not the same as the Palmer collection which is the only known of this species.

A beautiful specimen of the type was received from Prof. A. S. HITCHCOCK for deposit in our Herbarium. See also this revision p. 187—188.

Aristida pennata Trinius.

C. B. TRINIUS; *Plantarum novarum aut minus cognitarum. Pentas prima*, in Mémoires de l'Académie Impériale des Sciences de St. Pétersbourg, Tom. VI. [1815] p. 488! tab. X!

A. panicula erecta ramosa, foliis filiformibus longissimis, aristis aequalibus plumosis.

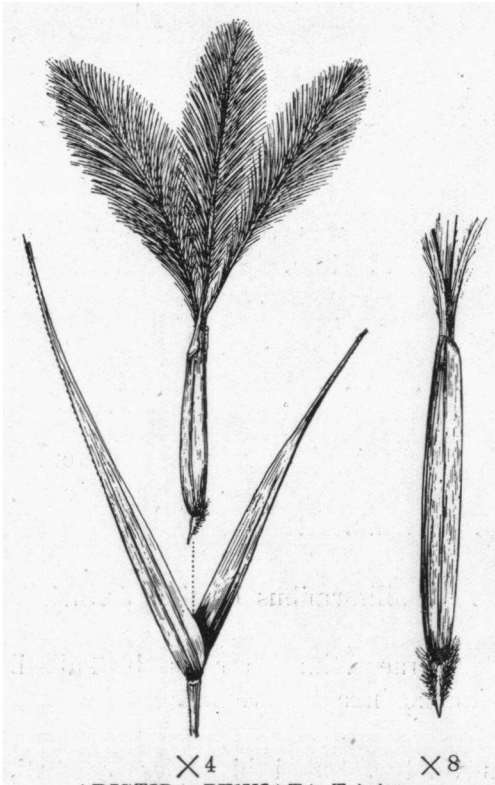
Patriam ignoro. Inter plantas praesertim Dauricas b. Pallasii absque nomine locique natalis indicio inveni. Perennis.

Radix in arena late repens videtur. Culmi bipedales, conferti, erecti, geniculati, superne ramosi, teretes, glabri, ad imum usque foliorum vaginis tecti. Folia alterna, paténtia, convoluto-filiformia, longissima, incurva, retrorsum scabra, glaucescentia. Vaginae teretes, striatae, scabriusculae. Ligula brevissima, truncata, villis brevibus dense barbata. Panicula longa, ramosissima, erecta, ante anthesin contracta. Rachis angulosa, leviuscula, striata. Rami tenues, elongati, divisi, subflexuosi, scabri. Spiculae compressae, lineares, glaberrimae, uniflorae. Calyx aristas subaequans: glumis lanceolatis in acumen

longum attenuatis, glaberrimis, inaequalibus; exteriori nervis quinque, interiori paulo minori nervis tribus leviter notata. Gluma corollina calyce multo brevior, linearis, glabra, convoluta, basi fasciculo pilorum brevissimo stipata. Aristae 3. terminales, patentes, subaequales, plumosae, corolla quadruplo longiores, calycem vix superantes.

Obs. Panicula omnino *Aristidae pungentis* Desf. (Fl. Atlant. T. 35.). Ceterum gramen nostrum foliis longissimis filiformibus flaccidis abunde diversum.

Aristida pennata, described so accurately by TRINIUS, was placed by



ARISTIDA PENNATA Trinius.

From type specimen.

some authors under *Aristida pungens* DESF. as a variety and although agreeing in habit with *A. pungens*, it is a quite different species. It has a very distinct geographical distribution and is limited to South-Western Asia and a small part of European Russia. The species is very variable but all the varieties agree in one very curious character, the articulation between the awns and the body of the lemma. This articulation is oblique but runs only over a part of the body, so that if the awns break off the margins of the lemmas, extending beyond the articulation, remain united with the short column by a hyaline membrane, as is shown in the figure given here. The callus of the lemma is oblique, very acute and shortly hairy

only at one side. I had at my disposal some spikelets from the type in the Trinius Herbarium, the locality was unknown to him. The exact locality is in aridis arenosis australibus inter flumen Wolgam et flumen Jaicum (Ural) Rossia, where the plant was collected by PALLAS.

Aristida pennata Trinius.**var. minor Litwinow.**

D. LITWINOW; Schedae ad Herb. Florae Rossicae, a Museo Botanico Academ. Imper. Sc. Petropolitanae edit., fasc. XVIII. [1901] no. 899!

A planta authentica Trinii (herb Acad.!) culmo humiliore, glumis et aristis brevioribus et aristis apice setis magis diminutis differt. Huc pertinet *A. pungens* Litw. pl. Turcom. exsicc. n. 55 et 55a.

A. pungens Desf. (Fl. Atl. I, p. 109. Tab 35), cujus vidi specimina Sieberi a Boissier (Fl. orient. V, p. 498) citata, a planta nostra turkestanica valde discrepat. (D. Litwinow).

Turkomania (Transkaspija). In arena mobili pr. Repetek. 21 Majo 1899. Legit D. Litwinow.

The plant was edited in the year 1901 in exsiccatae with a printed label and a Latin and Russian diagnosis. This is a valid publication. The var. *minor* differs from the type of *Aristida pennata* in the shorter glumes, lemmas and awns and in the less pronounced, although very distinct, inverse position of the glumes, which are scabrous as in var. *Karelini*, but the naked part of the awns is not so strongly exerted. The lower glume is 11—12 mm., the upper, 10—10½ mm. long, the lemma, including the callus is about 6 mm. long and the awns are \pm 10 mm. long.

LITWINOW compared the plants with *A. pungens* so-called in SIEBER'S exsiccatae from Egypt, but SIEBER'S plants do not belong to the *A. pungens* as described by DESFONTAINES, they belong indeed to the endemic Egyptian *Aristida vulnerans* TRIN. et RUPR., which abundantly differs from *Aristida pennata*. See afterwards my observations under *Aristida pungens* SAVI and *Aristida pungens* SIEBER.

Aristida pennata Trinius.**var. rigida Roshevitz.**

ROMAN ROSHEVITZ, ap. B. A. FEDTSCHENKO; Flora Asiat. Ross. XII. [1916] p. 114!

= *Aristida pungens* var. *typica* Trautv. (non Desf.) in Acta Horti Petrop. I. [1871] p. 17.

A var. praecedente foliis rigidis, pungentibus dignoscenda.

The plant, accepted by TRAUTVETTER in the year 1871 as the

typical *A. pungens*, has indeed the same rigid rather short pungent leaves and agrees in these characters perfectly with the plant described by DESFONTAINES, but in the spikelet-characters it is quite an *A. pennata*, having the peculiar articulation of the awns, given in my figure on pag. 434. This striking variety agrees in habit with the var. *minor*, it is rather dwarf and grows together with typical *A. pennata*. I have seen good specimens from Songaria, Expedition Schrenk, leg. Meinshausen, 1840—1843.

Aristida pennata Trinius.

var. *scabriglumis* Haussk. et Bornm.

nov. var.

Habitu characteribusque spicularum cum typo bene convenit, sed differt praesertim glumis sterilibus punctulis elevatis exasperatis. Apex aristarum ambitu haud obtusus ut in typo, sed acutiusculus.

Persia: prov. Kerman, in arenosis montis Kuh-i-Dschupar, 2000 m. s. m. 9. V. 1892, leg. J. BORNMÜLLER no. 4833.

The variety was edited in exsiccatae with a printed label and the determination by BORNMÜLLER, but it was never published (BORNMÜLLER, communication by letter). I have seen the plant in different European herbaria and in HACKEL'S Herbarium (Vienna number 22492).

Aristida Pennel Chiovenda.

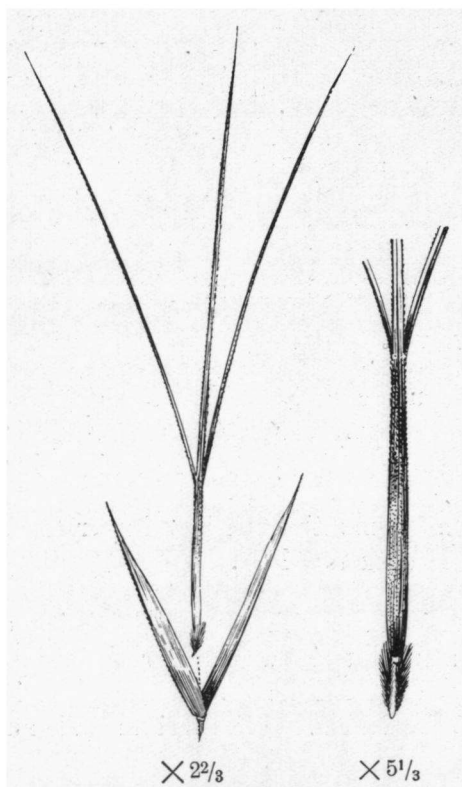
EMILIO CHIOVENDA; Diagnosi di Graminacee nuove della Colonia Eritrea, in Annali di Botanica, Roma. Vol. II. [1905] p. 366!

Perennis dense caespitosa; culmi abbreviati, curvuli, basi fibris foliorum vetustorum dense stipati: vaginae et laminae glaberrimae; ligula ciliaris: laminae, subjuncea arcle plicato-convolutae, curvulae, in pag. sup. minute et dense pubescentes, in infer. glabrae, omnes culmis breviores. Panicula violacea erecta, obovato-linearis; rami erecti, scaberrimi in axillis barbulati, inferiores 2—3-nati a basi vel e $\frac{1}{2}$ spiculiferi. Spiculae erectae glumis inaequalibus ovato-lanceolatis acutis et apice nervo excurrente mucronatis. Gluma III^a linearis in $\frac{1}{3}$ superiore scabra; arista sessilis tripartita, partitiones basi latiusculae, et marginibus membranosis.

Proxima *A. junciformi* Trin. et Rupr. sed culmis et laminis brevioribus, internodiis cylindricis diversa.

Colonia Eritrea ex regione Oculé Cusai (Pappi, 1902, n. 1976).

The type in the Florence Herbarium was received for study



ARISTIDA PENNEI Chiovenda.

From type specimen.

from Prof. E. CHIOVENDA. The species is characterized by the habit, the short leaves are clustered at the base of the stems and the panicles are strictly erect and rather dense, the species approaches in some characters the *A. junciiformis*, as already indicated by Prof. CHIOVENDA, but it is for the rest quite distinct.

Aristida peregrina Henrard.

J. Th. HENRARD; A critical Revision of the genus *Aristida*, in Mededeelingen van 's Rijks Herbarium No. 54. [1926] p. 16!

= *Aristida adscensionis* L. var. *anthoxanthoides* DOMIN [1915].

= *A. adscensionis* L. var. *subaequiglumis* DOMIN [1915].

= *A. anthoxanthoides* (DOMIN) HENRARD [1926] l. c. p. 29—30.

On p. 16 of this revision, I observed that DOMIN's variety *subaequiglumis* was not a variety of the *A. adscensionis* L., on account of the lemma which is described as shorter than the subequal glumes. DOMIN's description is in all the characters so different from one of the many varieties of *A. adscensionis*, that it was impossible to bring the plant under *A. adscensionis* and I therefore named the plant *A. peregrina*.

Having received from Prof. DOMIN nearly all his Australian *Aristidas*, I found among them the type of his var. *subaequiglumis*. It is very fragmentary and consists of two immature plants, the best-developed one about 20 cm. high. If we compare the characters of them with those given in my description of *A. anthoxanthoides* on p. 29—30 of this revision and with the figure there, we find that there are scarcely any differences with it. The length of the glumes is somewhat variable in the type of *A. anthoxanthoides* as is

given in the description on p. 30. No specific characters being present to recognize the plants from *A. anthoxanthoides*, I am obliged to bring the var. *subaequiglumis* under *A. anthoxanthoides*. In the Kew Herbarium I found a better-developed specimen also collected at Windorah by W. H. ROSE (Queensland Herbarium no. 4018) under the name of *Aristida Behriana* F. v. M. This specimen is mature and agrees in all the characters with *A. anthoxanthoides*.

Aristida perennis Panzer.

TRINIUS et RUPRECHT; Species Graminum Stipaceorum, loc. cit. p. 104!

Obs. *Aristida perennis* Panzer in Hb. Willd! n. 1799 e Carolina ab *A. virgata* quidpiam differt: culmo simplici, paniculae radiis solitariis vel binis et setis lateralibus patulis, fere semipollicaribus, media patente 6—8 lineali. *Culmi* pars in Hb. Willd. suppetens cum panicula bipedalis, tenuis, simplex. *Vaginae* glabrae, interiores longiores, infimae villosulae. *Ligula* brevissima, ciliaris. *Folia* inferiora plana, lineam lata, glabra, dodrantalia, superiora pl. min. canaliculata, vix breviora. *Panicula* pedalis, lineari-contracta; radiis: altero paullo supra basin, altero superius adpresse florifero. *Flosculi* nigromaculati.

Note: = *Aristida virgata* Trinius.

HITCHCOCK, in his North American Species of *Aristida*, placed *A. perennis* under *A. lanosa* MUHL., without having seen the types in the Willdenow Herbarium. He stated that the description applies to *A. lanosa*, probably on account of the „vaginae infimae villosulae”. The Russian monographers however compared the species with *A. virgata* TRIN., and observed that the species differs somewhat from *A. virgata*. In the Willdenow Herbarium the cover with the number 1799 bears a label by WILLDENOW: „Triandria Digynia *Aristida perennis* culmo filiformis floribus racemosis Habitat in Carolina. 2.” There are two sheets in the cover, TRINIUS studied both plants and he made his description from the two specimens. I have carefully examined the plants and they do not belong to *A. lanosa* MUHL. (= *A. lanata* POIRET). The sheet labeled *A. perennis* 1. bears a label upon which is written in ink: „*Aristida perennis* Carolina (Panzer).” Upon an accompanying label GRAY has written: „An *A. stricta*, Mx.?” and

Prof. MEZ wrote upon the sheet: „*Aristida stricta* Mchx. V. 21.” The specimen upon the sheet is a fragment, only a culm with about 6 leaves, short internodes and a very narrow meagre and depauperate panicle. Comparing this plant with specimens of *A. stricta* and *A. virgata* we find that we have before us indeed a depauperate incomplete specimen of *A. virgata*. This is the specimen mentioned by TRINIUS and RUPRECHT as: „Culmi pars in Hb. Willd. suppetens cum panicula bipedalis, tenuis, simplex.” The second sheet labeled *A. perennis* 2 bears a label in lead-pencil „*Aristida perennis*” and in ink „(W.)”. Upon a second label TRINIUS has written: „Affinis *A. strictae*,” and upon the same label GRAY has written: „= *A. racemosa*, Muhl!” MEZ determined the specimen as *A. stricta* MCHX.. The specimen upon the sheet is in better condition and more complete, especially as to the panicle and the spikelets and it belongs certainly to *A. virgata*, a species allied to *A. racemosa* MUHL., which is the same as *A. purpurascens* POIRET. The sheaths of the lower blades are slightly hairy as indicated already by TRINIUS and RUPRECHT. From this specimen most of the characters, mentioned in the description, are taken. On such meagre specimens VASEY based his *Aristida purpurascens* var. *depauperata*. In the key to the species of the section *Chaetaria* in HITCHCOCK'S Revision on pag. 532, *Aristida purpurascens* ought to be placed near *Aristida palustris* and *A. virgata*.

Aristida perniciosa Domin.

Bibl. Bot. Heft 85^I [1915] loc. cit. p. 340!

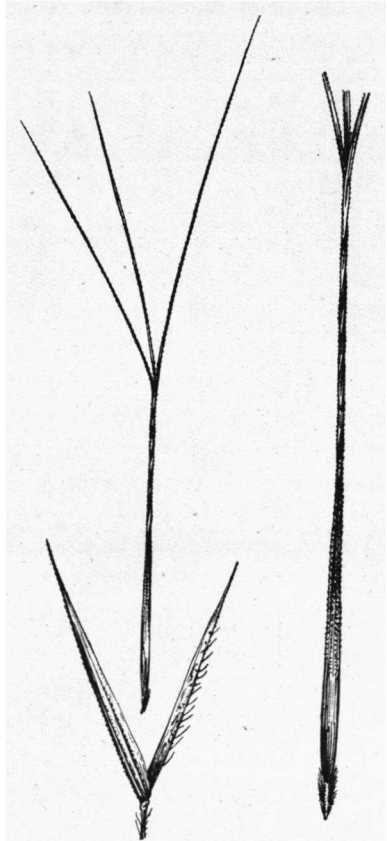
Densiuscule caespitosa, valde elata; *culmi* simplicissimi vel tantum ima basi subramosi, erecti, graciles, stricti, valde elati, ad paniculam saepe 10 dm alti, paucinodi, maxima e parte nudi, tantum basi foliati, glaberrimi, laeves nec striati; *folia* culmea rigidiuscula, plurima plana, nonnulla subinvoluta, glaberrima, in pagina superiore scaberula, caeterum laevia, 1—2 mm lata, apice subulata, haud longa (usque 15 cm longa, sed saepius breviora), sub anthesi plurima jam contorta; *panicula* stricta, angustissima, pallida, circa 30—35 cm longa, laxa, sed paniculae ramis stricte erectis ad rhachin vix scaberulam subappressis; paniculae rami infimi subramulosi, circa 5—6 cm longi, superiores breviores et gradatim brevissimi; *spiculae* breviter vel terminales longiuscule pedicellatae, perangustae; *glumae* subaequales; prima anguste lineari-lanceolata, expansa vix 1.5 mm lata, circa 14 mm longa, tenuiter acuminata, mucronatula, glabra, subscariosa, sed carina et nerves 4 sat prominulis percursa; gluma

altera cum aristula circa 12.5—13 mm longa, perangusta, carina excepta omnino scariosa, enervis, dorso pilis mollibus, longissimis (usque 3 mm longis), albis, paucis, postremo saepe obsoletis instructa, apice arista capillari, scaberula, plus 3 mm longa munita; *glumella* angustissima, linearis, laevis, cum stipite perbrevis, hirsuto circa 7—9 mm longa, supra in aristae columnam spiraliter contortam, haud articulatam, sed cum *glumella* continuam, circa 7—9 mm longam abeuns; *aristae rami* capillares, suberecti, haud multo sed conspicue inaequilongi, medius circa 14—23 mm, laterales 9—17 mm longi.

Abbildung: Tafel XIII, Fig. 15—17.
Queensland: Eucalyptus-Wälder bei Mareeba (DOMIN, II, 1910).

Species jam habitu inter congeneras excellens, a proxima *A. latifolia* culmis gracilioribus, tantum inferne foliatis, insuper ob internodium summum longissimum, saepe 8 dm longum tractu perlongo nudis, foliis multo brevioribus, paniculis angustissimis, aristae columna longiore, ramis brevioribus sed plus inaequalibus et suberectis (nec divaricatis) necnon *gluma* II. piligera facillime distinguenda.

A very characteristic species with a well-developed column, inverse position of the glumes, hairy pedicels and an upper glume with scattered spreading hairs. The type was received for study from Prof. DOMIN. I have seen this species also in the Kew Herbarium from South Queensland, collected by E. W. BICK near Bushley in the year 1913 (Queensland Herbarium no 4090). This plant was figured and described as *A. utilis*, by F. M. BAILEY in Queensl. Agric. Journ. XXX. [1913] p. 316. t. 46. The true *A. utilis* described in the year 1907 is a quite different species, the type collected at Cooktown by MARK WEBB. See afterwards under *A. utilis* BAILEY.



× 2²/₃

× 5¹/₃

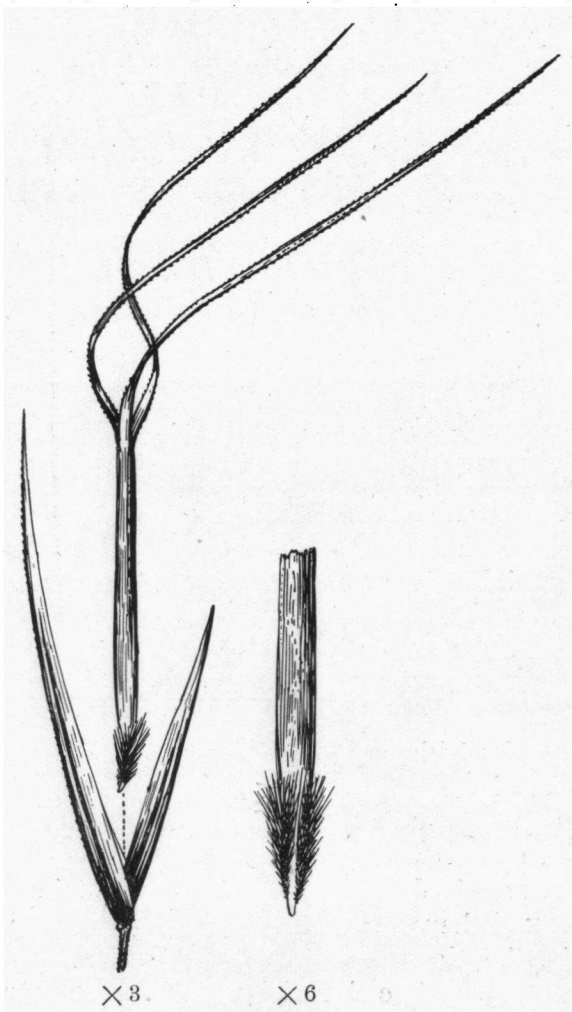
ARISTIDA PERNICIOSA Domin.

From type specimen.

Aristida Perrieri A. Camus.

AIMÉE CAMUS; Nouvelles espèces malgaches des genres *Aristida* et *Sporobolus*, Bulletin de la Société Botanique de France, Tom. 73, [1926] Cinquième série. Tom. II. p. 434!

Planta valida, perennis, glaberrima. Culmi erecti, rigidi, 30—50 cm. alti, simplices, plurinodes, superne longe nudi, scabri, infra paniculam scaberrimi. Laminae



ARISTIDA PERRIERI A. Camus.
From type specimen.

convolutae, acutae, erectae, rigidae, 15—25 cm. longae, glaberrimae. Vaginae glabrae, arctae, striatae. Ligulae brevissimae, pilosae. Inflorescentia contracta, densa, oblonga, erecta, 6—10 cm. longa, 2—2,5 cm. lata. Pedicelli inaequales, longiores circiter 3—5 mm. longi. Spiculae 3,5 cm. longae. Glumae steriles lanceolatae, glabrae, laeves, ima 2—2,2 cm. longa, acuminata, 3 nervia; Iida 1,4—1,5 cm. longa, subobtusa, 3 nervia. Gluma fertilis, lineari-subfusiformis, glabra, cum callo pungente 1,5 mm. longo breviter sericeo-barbato, 1,2—1,5 cm. longa, laeviuscula, in aristam inferne simplicem tortam basi haud articulatam dein trisetam producta. Aristae divisiones patulae, subaequales, 2—2,2 cm. longae. Palea parva, oblonga, obtusa. Stamina 3; antherae luteae, 5—6 mm. longae. Stigmata elongata, plumosa, pallida, luteola.

Madagascar cent.:
env. d'Antsirabe, alt.
1.900 m., très rare

(Perrier de la Bâthie, n° 10751).

Cet *Aristida* forme de grosses touffes, à rejets courts et chaumes feuillés à la base. Les épillets sont longs de 2,2 cm., sans arêtes et de 3,5 cm. avec arêtes. Les trois rameaux de celles-ci sont forts,

àplatis, sillonnés en dessus et à peine scabérules. Le callus des glumes fertiles est courbé, acuminé, plumeux de chaque côté.

Par ses arêtes glabres, non articulées à la base, persistant sur la glume fertile, cette espèce appartient à la sect. *Chaetaria* P. B.

Elle est extrêmement bien caractérisée par son inflorescence très dense, courte, et par ses épillets à glume inférieure plus longue que la supérieure.

The type of this very characteristic species, in the Paris Herbarium, I could study through the courtesy of Prof. Dr. H. LECOMTE.

Aristida Pflanzii Mez.

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 151!

Perennis, gracilis. Vaginae culmi quam internodia longiores, glabrae; ligulae breviter pilosae margine pilis paucis longis barbatae; laminae setaceae. Culmi breves, glabri. Inflorescentia submultiflora, basi paullo interrupta cet. densissime spiciformis, subcylindrica; ramulis stricte erectis, usque ad 45 mm longis; pedicellis lateralibus vix ultra 1,5 mm longis. Glumae anguste lanceolatae, 1-nerviae, inferior ad 9,5 mm longa in setam terminalem persensim angustata; II. ad 11 mm longa, apice juxta setulam terminalem minute auriculata. Paleae unguis ad 0,75 mm longus, acutus, longiuscule pilosus; articulatio deest; rostrum elegans nec tortum, laeve; setae nudaе, media ad 17, laterales ad 15 mm longae. — Bolivia, bei Molino de Oro (Pflanz).

Note: = *Aristida enodis* Hackel.

The type in the Berlin Herbarium was received for study from Prof. R. PILGER. Upon the sheet there is a beautiful specimen, perfectly agreeing with the type of *A. enodis* in HACKEL'S Herbarium. Compare the extensive description of the latter and the figure on p. 172 of this revision.

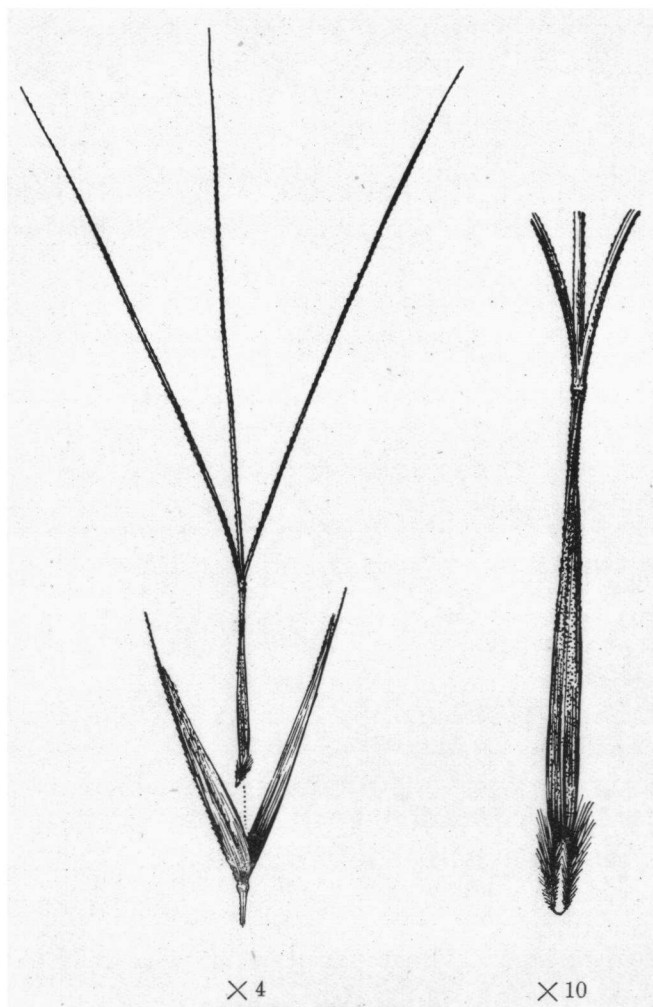
Aristida Pilgeri Henrard

nov. spec.

(Sectio *Pseudarthratherum*). Perennis, caespitosa. Culmi erecti, robusti, cum paniculis 10—12 dm. alti, simplices, glabri, leviter striati, 5—6-nodes, teretes; vaginae internodiis breviores, glaberrimae, prope collum longe reflexo-barbatae; ligula brevissima, obsoleta, minutissime ciliolata, auriculae pubescentes vel reflexo-pilosae;

laminae e basi aequilata lineares, sensim longe acutatae, planae vel laxe convolutae, superiores involutae, ad 3 dm. longae, rigidulae, subtus laeves, supra marginibusque scabrae, tenuinerves, nervis haud prominentibus; *panicula* densa, subcontracta, ad 25 cm. longa, 2—3 cm. lata, rhachi tereti, ramis solitariis 5—6 cm. longis, a basi

valde ramulosis, ramulisque appressis, spiculis dense imbricatis aequaliter onustis; *spiculae* breviter vel brevissime pedicellatae, pallidae; *glumae* subaequales, vel inferior paulo brevior, *gluma* I. circa $7\frac{1}{2}$ mm. longa, 3-nervis, in $\frac{1}{2}$ superiore scaberula, nervis carinaque scabris, lineari-lanceolata, in aristam scabram circa $1\frac{1}{2}$ mm. longam abiens, *gluma* II. 1-nervis, carina laevis, apice bidentata ex emarginatura aristata, cum arista circa 2 mm. longa, 10 mm. longa, *gluma* III. *fertilis* 7 mm. longa, lineari-subfusiformis, punctulata, superne scaberula, callo subobtusissimo longissime se-



× 4
ARISTIDA PILGERI Henrad.
From type specimen.

× 10

riceo-piloso, apice in stipitem tortum circa $1\frac{1}{2}$ mm. longum abiens, cum stipite haud articulata; *aristae* erecto-patentes, subaequales, 16—20 mm. longae, scabrae, cum stipite articulatae.

Africa australis occident.: Damaraland; Otjitjika, Omaheke, IV.

1913. leg. DINTER no. 2938 (Typus speciei in Herb. Lugd. Batav. sub no. 925.70—72). Cotypus est F. SEINER Sér. III no. 473 ann. 1910—11. (H. L. B. no. 925.70—73).

Other specimens seen: DINTER no. 3281 from Gahiro, anno 1913, as *A. altissima* Dinter (Herb. Berlin); DINTER no. 1523 from Okahandja (Herb. Berlin); GROSSARTH no. 2576, Herb. Dinter, from Okakuja (Herb. Berlin); HÖRNIG no. 165 from Grootfontein, Harasib (Herb. Berlin); H. L. SHANTZ no. 397 from Sjolotjo, anno 1924 (U. S. Nat. Herbarium, Herb. Leyden); POLE-EVANS no. 19380, S. W. A. Namutoni-Isinabis anno 1919 (Herb. Kew).

A very distinct perennial species of the section *Pseudarthratherum*, to recognize by the shape of the panicle, which is dense but not spike-like, on account of the rather long erect branches, spikelets bearing from the base. Our species differs in the short, twisted column from all the other perennials of this section. The species was commonly named in herbaria *Aristida congesta*, from which it abundantly differs, the specimens in the Berlin Herbarium were named by MEZ *Aristida Welwitschii*, which is however a true *Chaetaria* and a quite different plant.

Aristida piligena Burchell.

WILLIAM J. BURCHELL, Esq.; Travels in the interior of Southern Africa. London. [1822] Vol. I. p. 288!

Aristida? piligena, *) B. Cat. Geog. 1521.

Folia subulata rigida brevia. Culmus spithameus uninodis; geniculo, pilis verticillatis. Panicula simplex. Arista intermedia plumosa.

Locality: Spionberg.

Nearly the same description under the name *Aristida piligera* Burchell is given by SCHULTES, Mantissa, Vol. II. [1824] p. 478!

Nº 16. *Aristida piligera* Burchell; culmo uninodi; geniculo verticillatim piloso; paniculâ simplici; aristâ intermediâ plumosâ. Burchell iter. Folia subulata, rigida, brevia. Culmus spithamaeus.

In Prom. bon. Spei circa fluvium Gariiep.

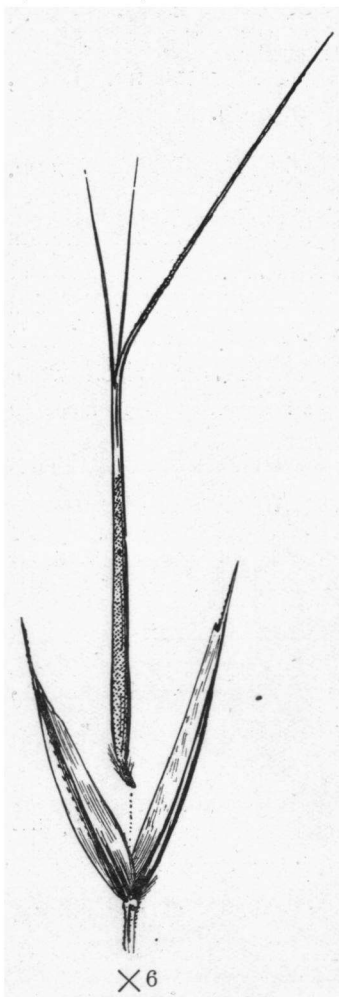
Note: = *Aristida ciliata* Desfontaines.

I could examine the sheet in the Kew Herbarium, bearing the

*) In Vol. II. [1824]. Errata: for *piligena* read *piligera*.

plants numbered 1521 by BURCHELL, there are many specimens with different labels. Three specimens have printed labels numbered 1521 and a fourth specimen also numbered 1521 bears the locality: between Patrys Fontein and Great Brak River, Fraserburg Div. Sept. 6. 1811. All these specimens belong to the var. *capensis* of *A. ciliata*, but they are rather dwarf and mostly immature. Upon the sheet there are two flowering-branches numbered 1612—4, one of

them is labeled: between Modderfontein and Keikams Poort, Prieska Div. Sept. 13. 1811. They also belong to *A. ciliata*. Upon the sheet there is moreover a rather bad specimen wrongly numbered by BURCHELL 1392, the plant has glabrous nodes but the hairs are delapsed and the spikelets perfectly agree with *A. ciliata*. BURCHELL'S number 1392 belongs to his *Aristida centrifuga*, a nomen nudum. All other plants of BURCHELL'S no. 1392 I have seen belong to *A. obtusa* DEL., they were collected between Great Riet River and Stink Fontein, Aug. 14. 1811.



× 6
ARISTIDA PILOSA
Labillardière.

From duplicate type specimen.

Aristida pilosa Labillardière.

J. - J. LA BILLARDIÈRE; Sertum austrocaledonicum. Pars I. Paris. [1824] p. 12! Tab. 17.

ARISTIDA paniculâ elongatâ contractâ; culmis simplicibus, infrâ pilosis; corollâ calyce longiori; aristâ mediâ productiore.

CULMI sesquipedales, indivisi, teretes, infrâ pilosi. Folia linearia striata ut vaginae, marginibus scabra, ligulâ vaginarum brevi, fimbriatâ pilosâque. Panicula spithamalis, coarctata, ramulis uni ad septem floris. Calyx uniflorus valvulis lanceolatis marginibus hyalinis saepiùs inaequalitèr ad apicem productis, aristâ brevi terminatis; valvulâ exteriori dorso rugosâ breviori, rarè longiori. Corolla pedicello brevi, piloso, suffulta, calyce longior, bivalvis, valvula exterior apice triaristata, aristis rugosis, intermediâ duplò caeteris longiori; valvula

interior minima lanceolata membranaceo-hyalina. Stamina filamentaria breviter, antheris oblongis. Germen ovatum. Styli duo basi approximati; stigmatibus pilosis. Semen immaturum.

1. Flos. 2. Calyces seorsum. 3. Valvula calycis exterior à dorso spectata. 4. Corolla expansa, pistillo staminibusque conspicuis. (Figurae omnes auctae).

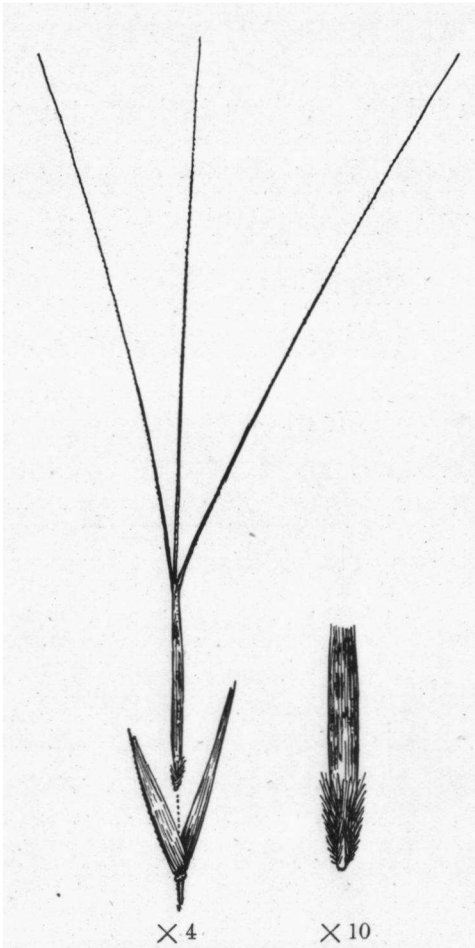
The actual type was not studied by me, through the courtesy of Prof. H. LECOMTE, I could examine a duplicate type specimen in the Paris Herbarium. The sheet bears a printed label: HERB. MUS. PARIS. NOUVELLE CALÉDONIE — Labillardière. Donné par M. WEBB. The plants upon the sheet perfectly agree with the description and the plate given by LABILLARDIÈRE, the internodes are hairy and the spikelets have a curious small lateral tuft of hairs just below the glumes. See my figure.

Aristida Pittieri Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis, densiuscule caespitosa, innovationibus intravaginalibus; *culmi* stricte erecti cum paniculis tantum 20 cm. alti, diametro inferne circa 0,5 mm., graciles, simplices vel a basi interdum paululum ramosi, glauci, leviter striatuli, glaberrimi; *vaginae* internodiis breviores, compressae, substriatae, glaberrimae; *ligula* minutissime ciliata, auriculae longiter barbatae; *laminae* angustissimae, convolutae, capillares, 6—7 cm. longae vel breviores, subtus glaberrimae, supra hirtellae, superne scabrae, marginibus praesertim pilis albis longis sparsis conspersae, sensim longe acuminatae; *panicula* stricte erecta, contracta sed haud spiciformis, rhachiteretiuscula, laevi vel superne subscabra, ramis filiformibus stricte erectis, appressis, binis vel subsolitariis, altero elongato, in parte inferiore nudo, altero abbreviato, breviter pedicellato, omnibus paucispiculatis, pedicellis scaberulis; *glumae* conspicue inaequilongae, uninerves, stramineo-flavae vel fusco-coloratae, *inferior* circa 5 mm. longa, carina subscaberula, *superior* circa 6,5 mm. longa, carina laevis, ambae apice leviter bifidae ex emarginatura breviter sed distincte aristulatae; *glumae fertiles* circa 7 mm, longae, callo subobtusato dense et longe barbato, superne angustatae sed haud rostratae, scaberulae, inferne laeves; *aristae* scabrae, suberectae, subaequilongae, centralis ad 20 mm. longa, laterales circa 18 mm. longae.

Venezuela: Dividive, in savannis, abundans, 27 Nov. anno 1922, leg. H. PITTIER, Plantae Venezuelanae no. 10803. Typus speciei in Herb. Delessert, Geneva.



ARISTIDA PITTIERI Henrard.
From type specimen.

A characteristic perennial species, resembling in the spikelet characters somewhat some varieties of the annual *Aristida adscensionis*, but both glumes are bifid with an awn from the sinus and the vegetative parts are very different. Probably most allied to the group of the "*cognatae*", but quite distinct from all the members of this group hitherto known.

***Aristida plica-polonica*
Mez.**

CARL MEZ; in FEDDE, Rep. spec. nov, lov. cit. XVII. [1921] p. 146!

Annua, gracillima. Vaginae culmi quam internodia breviores, glabrae laevesque; ligulae in pilorum haud prominentium seriem mutatae; laminae subulatoconvolutae, dorso glabrae levesque. Nodi glabri. Inflorescentia dense spici-

formis, rostrorum quam maxime tortorum indole tota in plicam polonicam contorta; ramulis strictissime erectis vix ultra 2-floris. Spiculae laterales pedicellis brevissimis stipitatae, glaberrimae. Glumae 1-nerviae, apice dentibus nullis sensim filiformi-acutissimae, inferior ad 17, superior ad 27 mm longa. Paleae unguis brevissimus, breviter pilosus; articulatio permanens; rostrum 75—90 mm metiens quam

maxime tortum; setae nudaë 3 tenuissimæ, mediâ ad 60, laterales ad 40 mm longæ. — West-Afrika, Nigerien bei Zeba (Barter).

Note: = *Aristida Kerstingii* Pilger.

The type in the Munich Herbarium bears the name in MEZ'S hand and the addition: „Zu Ehren der polnischen nation!" The label bears the data: „Baikie's Niger Expedition. 1858. Jeba. coll. C. Barter." The plants upon the sheet are well-developed and easy to recognize as the very characteristic annual *A. Kerstingii* PILGER. See the figure on p. 277 of this revision. The plants have the Munich number 4901.

Aristida plumosa Desfontaines.

R. L. DESFONTAINES; Flora atlantica etc. loc. cit. [1798] Tom. I. p. 109!

Exclus. synonym. *Linne* Spec. 1666, *Vahl*. Symb. 1. p. 11. t. 3, *Lamarck* Illust. n. 778. t. 41. f. 1. et *Tournef.* Coroll. [1703] p. 39.

Radices longæ, fibrosæ, flexuosæ, albæ. Folia glabra, subulato-filiformia, rigidula, convoluta, brevîa, sæpe arcuata. Culmus 6 decimetr., nodosus, gracilis, superne laevis; nodis ciliatis. Panicula elongata, contracta, 11—27 centimetr. longa; ramis capillaribus. Calyx exterior, uniflorus, biglumis. glaber, membranaceus. Glumæ elongatæ, subæquales. Calyx interior uniglumis. Gluma glabra, cartilaginea, tenuis, teres, acuminata, hinc longitudinaliter fissa, basi villosa. Arista terminalis, articulata, tripartita; aristis duabus lateralibus, setiformibus, nudis; intermediâ longiore, candidâ, plumosâ, inferne nudâ. Semen gracile, elongatum, glabrum. In speciminibus in Oriente à Cl. Tournefortio collectis vaginae foliorum tomentosæ; in nostris glabræ; ceterum adeo similes ut ad eadem speciem pertinere omnino videantur.

Habitat in montibus aridis prope Kerwan in regno Tunetano. 2.

Note: = *Aristida ciliata* Desfontaines.

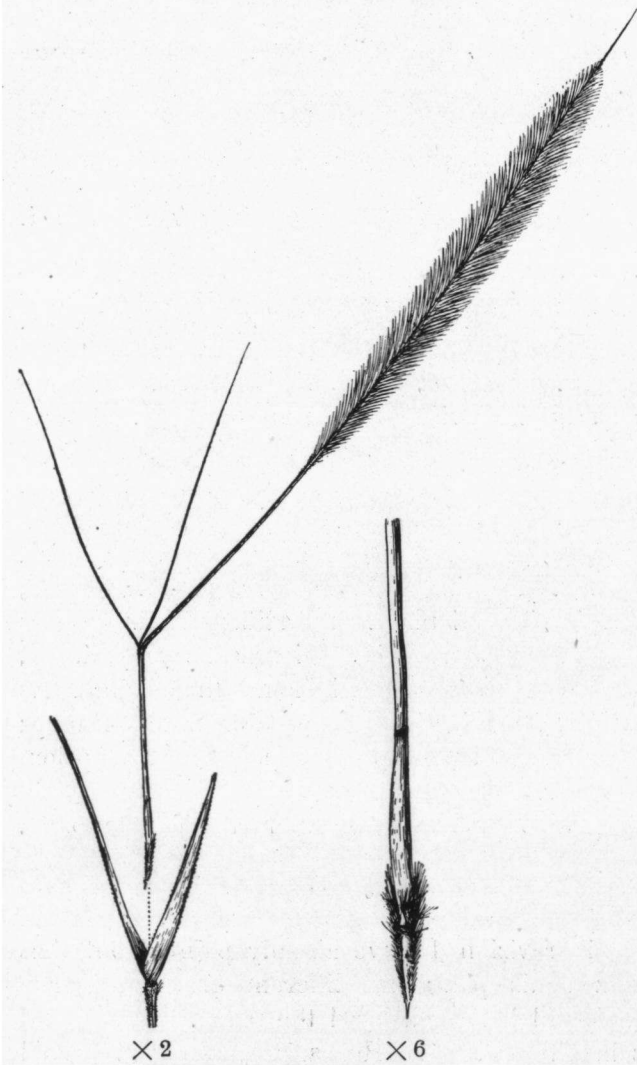
On p. 91—92 of this revision I have already pointed out that DESFONTAINES recognized his plant as different from the true *A. plumosa* of LINNAEUS and hence changed the name. I have found very good specimens in the Delessert Herbarium, kindly received for study from Dr. J. BRIQUET. They bear an authentic label with the script of DESFONTAINES. An accompanying printed label tells us

that a series of 600 numbers of the „Herbier de Barbarie” was given to LEMONIER by DESFONTAINES himself, that the plants were obtained in the year 1803 by BENJAMIN DELESSERT and that they were seen once more by DESFONTAINES for the illustrations of the types described in the Flora Atlantica.

Aristida plumosa Linné.

CAROLI LINNAEI Species Plantarum, Editio secunda, aucta. Tom. I.

[1762] Holmiae,
Appendix p. 1666!



ARISTIDA PLUMOSA Linné.
From duplicate type specimen.

3. ARISTIDA
arista intermedia
longiore lanata, cul-
mis villosis.

Gramen orientale
tomentosum spica-
tum minus, aristis
pennatis. *Tournef.*
cor. 39.

Habitat in Ame-
rica. D. D. Schreber.

Panicula aristis
lanatis refert Sti-
pam pennatam, sed
panicula magis com-
posita, et omnes par-
tes minores et Culmus
villosus. Arista se-
minum itidem lana-
ta, sed versus basin
nuda, ubi ipsa no-
tatur setis s. aristis
2, oppositis, brevibus,
capillaribus, patulis.

The locality gi-
ven by LINNAEUS
as America is an
error, LINNAEUS re-
ceived the plant

from DANIEL SCHREBER who collected the plant in Armenia. The actual type at the Linnean Society was not studied by me but I saw the plant in Schreber's Herbarium at Munich. The species as accepted by me in my work is rather variable but generally easy to recognize.

***Aristida plumosa* L.**

var. *Aethiopica* Trin. et Rupr.

Species Graminum Stipaceorum, loc. cit. [1842] p. 167!

ut γ , (i. e. *A. brachypoda* Tausch), sed gluma externa adpresse pilosa; flosculus $1\frac{1}{2}$ — $2\frac{1}{2}$ linealis; stipes aristae bilinealis; seta media a basi ad dimidium longitudinis usque nuda; nucro apicalis lineam longus. — Aethiopia. (Kotschy! hb. Mus. Vindob. n. 343.)

Type specimen in the Vienna Herbarium, bearing a printed label with the data: „No. 343 Nubia: Corosco inter et Berber. Flor. aethiopica. Th. Kotschy. 1837 & 1838.” A second label bears the determination in RUPRECHT's hand. The variety is a very elegant plant, it has woolly internodes and sheaths, a lower glume hairy especially along the margins and pedicels with a lateral tuft of hairs just opposite the first glume.

***Aristida plumosa* L.**

var. *Alexandrina* Trin. et Rupr.

loc. cit. pag. 166!

ut γ , sed culmus minus tomentosus, potius superne dense et brevissime pubescens; flosculus 2 lin.; stipes aristae 4 linealis; setae laterales 6—7 lin.; media ultra sesquipollicaris inferne ad dimidium longitudinis nuda. *Aristida Raddiana* Savi Act. Moden. 1837. p. 198? (diagnos. non obst.) — Alexandria (Ehrenberg!)

As already pointed out in this revision, *Aristida Raddiana* SAVI, was wrongly placed by the Russian monographers under *A. plumosa* L.. SAVI's plant belongs to a quite different species with inverse position of the glumes and many other distinct characters. The type of var. *Alexandrina* was collected by EHRENBERG, near Alexandria in the year 1824. The variety is recognized by the internodes, which have a very characteristic pubescence, they are not woolly or lanate as in the typical *A. plumosa* and all the other varieties of.

the species; the lower glume is shortly pubescent and the lateral tuft of hairs at the base of the spikelets is present. The variety was also collected by N. BOVÉ in June of the year 1832 between Sinai and Suez (no. 3) and edited in exsiccatae as *Aristida pungens* DESFONTAINES.

Aristida plumosa L.

var. Berberica Trin. et Rupr.

loc. cit. pag. 167!

ut γ , sed. vaginae infimae lanatae; ligulae longe ciliatae; stipes aristae bilinealis, setae laterales 6—7 lineales, media 16 lin. — Ad pagum Abu Hammed provinc. Berber m. April. (Kotschy! pl. Nubic. Un. it. n. 360.)

Not a distinct variety at all, the type of it (Kotschy, pl. Nub. no. 360) agrees with the typical *Aristida plumosa* in all the characters, only the hairs of the central awn are somewhat shorter. The variety is not taken up by me in my work.

Aristida plumosa L.

var. barbulata Terracciano.

A. TERRACCIANO; Contribuzioni alla conoscenza della flora dell' Africa orientale. II. Florula di Anfilah, in Annuario del R. Istituto Botanico di Roma, redatto R. Pirotta, Anno V. [1892] p. 95!

Panicula oblonga, conferta, gluma superiore apice trifida subglabra, inferiore minore margine ciliata pubescente, arista, recta, triseta, sub setulis barbata, setis lateralibus brevibus, tenuissimis, simplicibus, media pollicari et distincte plumosa. Ab *A. hirtigluma* Steud. ex herb. Schweinfurth certe distincta.

Hab.: tra' massi vulcanici dei vulcanetti di Ferehan (24, III).

Note: = *Aristida hirtigluma* Steudel.

The plant was collected by TERRACCIANO near Damoeita, Vulcani di Haressan, 24. III. 1892 no. 1527. The specimen was not studied by me, in the description, the column is given as bearded below the lateral awns and the glumes are described as subglabrous and pubescent, these characters distinctly point to *A. hirtigluma*. In all

the varieties of *A. plumosa* the column is always perfectly glabrous below the awns. Prof. CHIOVENDA has placed the variety under *A. hirtigluma* STEUD. (See R. PIROTTA, Flora della Colonia Eritrea, in Annuario d. R. Inst. Bot. di Roma, Anno VIII. [1898] p. 46!)

***Aristida plumosa* L.**

var. *Eichwaldiana* Trin. et Rupr.

Species Graminum Stipaceorum, loc. cit. p. 465!

flavescens; culmo superne geniculato et ramoso; vaginis inferioribus lanatis; paniculis vaginatis, fasciculatis; ligulis brevissime ciliatis; gluma superiore 7 lineali; flosculo $2\frac{1}{2}$ lin.; stipite aristae 3— $3\frac{1}{2}$ lin.; setis lateralibus inaequalibus: longiore 7—9 lineali, media $1\frac{1}{2}$ —2 pollicari inferne ad $\frac{1}{3}$ nuda. — In insula aridissima *Tschelekän* quae est *Talca* Claud. Ptolemaei et *Tazata* Plinii (Eichwald!); Turcomania: ad pedem montium Balkan. (Karelin! in Hb. Meyeri et Kühlewein).

As the type I have accepted the plant collected by EICHWALD, the first specimen mentioned in the description, the cotype was also studied by me. The variety differs from the type of *A. plumosa* in the not exerted panicles, the habit is thus very different, it is moreover characterized by the densely pubescent pedicels, densely ciliate at the subclavate tips, the hairs surrounding the base of the spikelets as a collar.



ARISTIDA PLUMOSA L.
var. *Eichwaldiana* Trin. et Rupr.
From type specimen.

From type specimen.

Aristida plumosa L.**var. Haussknechtii Boissier.**

EDMOND BOISSIER; Flora orientalis, Vol. V. [1884] p. 495!

Gluma superior superne remote et longiuscule ciliata.

Hab. in arenosis subsalsis Persiae australis inter Seytun et Bebehan (Haussk!).

The plant was collected by C. HAUSSKNECHT between Seytun and Bebehan at an altitude of 3000 feet in the year 1868 (Iter Syriaco-Armeniacum) and named by BOISSIER *Aristida plumosa* β *longiplumosa*, but described as var. *Haussknechtii*. The variety differs from the type of *Aristida plumosa* indeed in the longer, more spreading hairs of the central awn, the lower glume is glabrous, but the upper has long white hairs along the margins, but not at the base and the tip of the glume, the pedicels are minutely pubescent only and there is no lateral tuft of hairs at the base of the glumes.

Aristida plumosa L.**var. intermedia Litwinow.**

D. LITWINOW, in Schedae ad Herb. Florae Rossicae, a Museo Botanico Academ. Imper. Petropolitanae editum. Fasc. XXIV. [1902] no. 1196!

Inter var. *Eichwaldianam* et *Szovitzianam* (Conf. TRIN. et RUPB. Sp. gram. stipac. p. 165) media. A priore differt aristae seta media inferne ad $\frac{1}{5}$ (nec $\frac{1}{3}$) nuda, a posteriore statura, glumis, aristisque minoribus, et seta media altiuscule denudata. (D. Litw.).

Transkaspia. In arenosis pr. Askhabad. 2 Aug. 1901. Legit D. Litwinow.

This variety differs from the typical *A. plumosa* in the central awn, which is naked only in the lower fifth, all the other characters agree with the type of *A. plumosa*, the pedicels have the lateral tuft of hairs and the central awn has the naked excurrent tip.

Aristida plumosa* L.*var. *lanuginosa* Trabut.**

L. TRABUT; Additions a la flore d'Algérie (Graminées, Cypéracées, Joncées), in Bulletin de la Société Botanique de France, Vol. XXXIV. [1887] p. 393!

Gaines et limbes des feuilles très velus, ligule formée de longs poils soyeux, division médiane de l'arête plumeuse dans sa moitié supérieure. — Près d'El Hiarma (Oran) (Herb. Pomel).

Note: = *Aristida oranensis* Henrard.

See my observations under *Aristida lanuginosa* BATT. et TRABUT on pag. 286 of this revision.

Aristida plumosa* L.*var. *seminuda* Trin. et Rupr.**

Species Graminum Stipaceorum, loc. cit. pag. 166!

ut γ , sed vaginae infimae lanatae; stipes aristae bilinealis; seta media inferne ad dimidium longitudinis usque nuda. — Aegyptus inferior (Wiest! Un. itin. n. 569.); in arena deserti inter „el Tor” et juga granitica Arabiae petraeae m. April. (Schimper! Un. it. n. 174.)

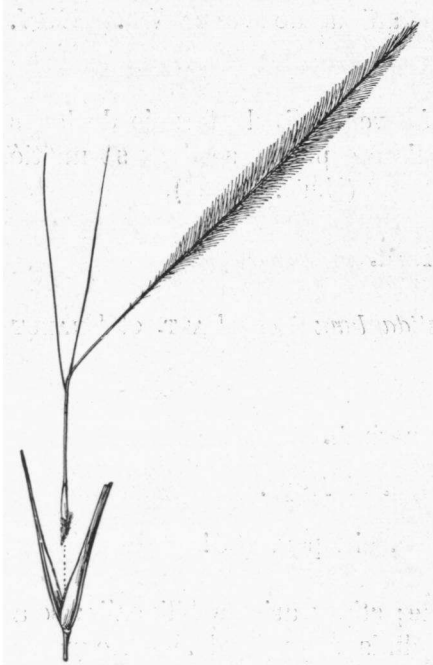
Both numbers cited were edited in exsiccatae with printed labels. The variety differs from typical *A. plumosa* in the central awn, which is naked in the lower half, the naked part about as long as the feathery part, it differs moreover in the shorter, more appressed hairs of the central awn.

Aristida plumosa* L.*var. *Szovitsiana* Trinius et Ruprecht.**

! loc. cit. pag. 165!

(genuina Linnaei?); glaucescens; vaginis (inprimis inferioribus) lanatis; ligulis longe ciliatis; panícula lineari-oblonga, demum paullo exserta; gluma superiore 8—9 lineali; flosculo 3 lin.; stipite aristae

4—5 lin.; setis lateralibus 8—12 lin.; media bipollicari, inferna a basi fere pennata. — *Gramen orientale tomentosum, spicatum, minus, aristis pennatis* Tournef. Coroll. (1703) p. 39? Armenia (Schreber ex Linne — seta media versus basin nuda!) — In salsis arenosis inter Koi et Seidkodzi prov. Aderbeischan m. Junio. (Szovits!)



× 1 $\frac{1}{3}$

ARISTIDA PLUMOSA L.
var. Szovitsiana Trinius et Ruprecht.
From type specimen.

very tip, the naked point is very short and the feathery part obtuse in outline. Duplicates of the type are present in many European herbaria.

The Russian authors supposed that LINNÉ'S *Aristida plumosa* was probably the same plant as their var. *Szovitsiana*, they mentioned as a distinct character the central awn, which is plumose nearly from the branching point of the three awns. Indeed, in the variety, the naked part of the central awn is rather short, but this character, although distinct, is somewhat variable. There is however a good character to recognize the variety. In the type of *A. plumosa* and in all the other varieties observed, the central awn is provided with a scabrous, naked, not plumose tip and the feathery part is acute in outline. The var. *Szovitsiana* is characterized by the central awn, which is plumose to the

Aristida pogonoptila (Jaub. et Spach) Boissier.

EDMOND BOISSIER; *Flora Orientalis*, loc. cit. Vol. V. [1884] p. 496!
= *Arthratherum pogonoptilum* JAUBERT et SPACH.

HIPPOLYTE FRANÇOIS JAUBERT et EDUARD SPACH; *Illustrationes Plantarum Orientalium etc.* Paris, Vol. IV. [1850—1853] p. 56!
Tab. 337!

Dense caespitosum; multicaule; cauliculis sterilibus nullis v. paucis. Foliis involutis, subulato-filiformibus, scabriusculis, secus basin intus

pilosis, caetero glabris; vagina apice barbato-ciliata, caetero glabra. Caulibus nodisque glaberrimis. *Glumae valvis* glabris v. sparse puberulis, *indequilonis* (*valva externa breviori*), oblongo-lanceolatis, convolutione quasi subulato-acuminatis. Flore brevissime stipitulato. Palea externa (*immediatim apice cum arista articulata, delapsa arista emarginata*) extus papilloso-scabra, marginibus glabra. *Aristae* (*parte indivisa contorta*) *sub geniculo barbatae* laciniis lateralibus nudis, lacinia media plumosa subtriplo brevioribus.

. Gramen rhizomate brevi obliquo ramoso subrepente crassitie calami anserini perennans. RADIX e fibris (aliis in rhizomate subsparsis, aliis ad caulium novellorum basin fasciculatis) elongatis (interdum semi-pedalibus) crassiusculis simplicibus lanulosis constans. CAULES $\frac{1}{2}$ — $1\frac{1}{2}$ -pedales (computata inflorescentia), stricti v. geniculati, erecti, simplices, v. parce ramosi, graciles, confertissimi, teretes, medulla farcti, glabri, laevigati, obsolete striatuli, pauci-nodi, ad basin foliosi et vaginis imbricatis obtecti. Articulus summus sub anthesi vaginam vix superans. Internodia inferiora vaginis longiora. Nodi glaberrimi, parum incrassati, constricti, plerumque rufescentes. FOLIA glaucescentia, rigidula, tenuia, plus minusve flexuosa (v. rarius stricta), ecarinata, sub lente nervosa et extus papillulis aculeoliformibus conspersa, intus sublaevigata, ad vaginam articulata. Folia inferiora 3—10 pollices longa (modo pleraque elongata, modo pleraque brevia); summa saepissime brevia (1—2 pollices longa). VAGINAE INFIMAE aphyllae, chartaceae, stramineae, persistentes, subcomplicatae, striatae, glabrae, ovato- v. oblongo-lanceolatae, plerumque acuminatae. VAGINAE-FOLIFERAE rotundato-truncatae, ecarinatae, nervosae, laevigatae, apice villis albidis elongatis dense ciliatae, ore annulo setularum brevissimarum dense barbatae, reliquo glabrae; infimae subchartaceae, imbricatae, plus minusve dilatatae; superiores herbaceae, folio concolores, tubuloso-involutae, arctae (v. ad nodos ramigenos demum laxae). LIGULA nulla. PANICULA 3—6 pollices



$\times \frac{6^2}{3}$ $\times \frac{2^2}{3}$
 ARISTIDA POGONOPTILA (Jaub. et Spach)
 Boissier.
 From type specimen.

longa, oblonga, laxiuscula, simplex, e spiculis numerosis composita, sub anthesi forsan nutans. RHACHIS filiformis, continua, semi-teres, scabra, stricta. RAMULI capillares, flexuosi, scabri, alterni, distichi, spiculas gerentes racemosim dispositas pedicellatas plerumque 3—5, gemini v. terni (inflorescentiis macrioribus solitarii), inaequales; superiores inferioribus gradatim breviores. PEDICELLI capillares, flexuosi, scabri, apice incrassati, plerique gluma longiores. GLUMA $4\frac{1}{2}$ —5 lineas longa, straminea, v. stramineo et violaceo variegata, submembranacea, persistens. VALVAE muticae, inaequilongae, subnaviculares, trinerviae (nervis filiformibus: lateralibus secus valvae medium v. paulo altius cum nervo medio confluentibus), glabrae v. extus marginibusque villis brevibus conspersae, secus apicem serrulato-ciliolatae, dorso nervo medio carinatae. Valva externa brevior, acutata, apice plerumque fimbriolata. Valva interna paululo altius inserta, valva externa subtriente angustior et circiter 1 linea longior, basi subangustata, apice acute v. obtusiuscule emarginata, intus ad basin flosculi alterius rudimentum minimum lineare obtusum glaberrimum basi adnatum gerens. FLOS cum stipitulo suo et arista circiter 2 pollices longus (praetermissa arista vix sesquilinearis). Stipitulus plus triplo brevior palea externa, crassus, turbinatus, dense setulosus, apice barbato-hirsutus (villis majoribus palea externa paulo brevioribus), basi subulato-acutatus. PALEA EXTERNA (generis more tubuloso-involuta, tenuiter trinervia, chartacea, ecarinata, demum rigida subcoriacea) oblonga, glabra, cinerea v. atro-violacea, longe aristata, extus papilloso-scabra (praesertim a medio ad apicem), delapsa arista apice obtuse emarginata. ARISTA decidua, violascens, setaceo-subulata, longe infra medium geniculata et trifurcata; pars indivisa gluma subaequilonga, contorta, erecta, canaliculata, filiformis, papilloso-scabra, secus apicem conspicue barbato-hirsuta, caeterum, nuda v. laxe pilosa; laciniae laterales capillares, nudaе, scabrae, plus minusve divergentes, strictae, lacinia media triplo plusve breviores et multo tenuiores; lacinia media stricta, longe plumosa, basi setaceo-filiformis, superne capillaris. PALEA INTERNA (generis more minima, membranacea, hyalina, enervia, involuta, ecarinata, glaberrima) cuneato-obovata, apice truncato v. rotundato obsolete crenulata. SQUAMULAE HYPOGYNAE geminae, submembranaceae, glaberrimae, striatulae, oblique ovatae, obtusae, ovario sub anthesi dimidio longiores. STAMINA 3, supra basin stipituli pistilligeri inserta. FILAMENTA capillaria. ANTHERAE lutescentes, glabrae, lineares, elongatae, basi et apice emarginatae. OVARIUM stipitulatum, obovatum, glaberrimum, sub anthesi minimum. STIGMATA 2, terminalia, elongata (paleam externam subaequantia), filiformia, e floris latere emergentia, dense

plumosa (pilis simplicibus, sub lente denticulatis), basi nuda. FRUCTUS non supedit. (*Exam. s. sp.*)

Pentapotamide (collibus inter *Djellalpour* et *Darapour*) legit *Jacquemont!* Aprili 1831. (Herb. Mus. Par.)

Species affinis inprimis *Arthrathero hirtiglumi* et *Arthrathero plumoso*; ab utroque tamen facile aristae stipite secus apicem barbato distinguenda. *Arthratherum plumosum* insuper differt foliis crassioribus intus ad nervos tomentellis, caulibus vaginisque plus minusve lanuginosis v. tomentosis, nodis barbularis, flore longiuscule stipitato, glumis longioribus, palea externa laevigata, aristae stipite non contorto, squamulis hypogynis subspathulatis.

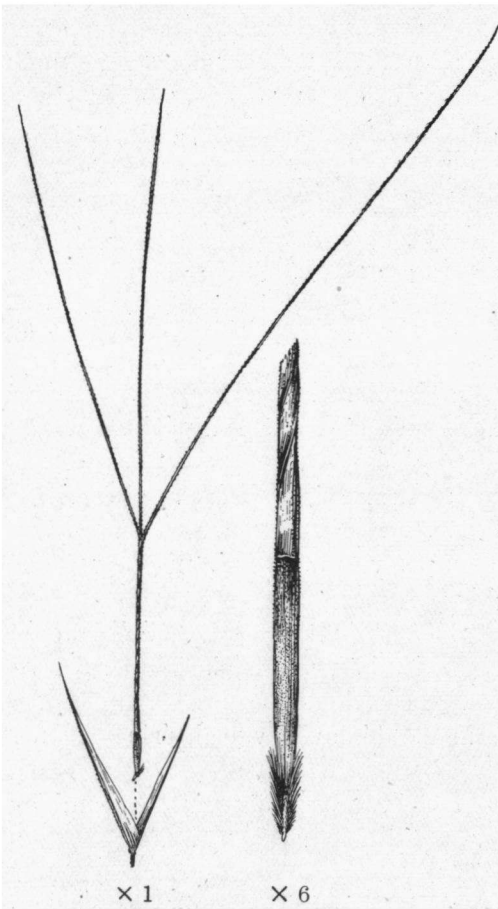
EXPLICATION DE LA PLANCHE 337

- Fig. 1.* Base de feuille, avec le sommet de la gaine, déployés, vus antérieurement, très-grossis.
- Fig. 2.* Glume entière, avec le pédicelle, grossis cinq fois.
- Fig. 3.* Valve externe de glume, déployée, vue antérieurement, grossie comme la figure précédente.
- Fig. 4.* Valve interne de la même glume, disposée et grossie comme dans la figure précédente.
- Fig. 5.* Fleur entière avec son stipe, vue de profil, grossie comme les trois figures précédentes.
- Fig. 6.* Paillette externe de glumelle (dont l'arête a été coupée au-dessus de sa base), déployée, vue antérieurement, grossie comme dans la figure précédente.
- Fig. 7.* Paillette interne de glumelle, déployée, vue antérieurement, grossie dix fois.
- Fig. 8.* Fleur dépouillée de la glumelle, grossie dix fois; les étamines ont été coupées au-dessus de la base des filets.

Through the courtesy of Prof. H. LECOMTE, I could study the type in the Herbarium at Paris. From Dr. A. W. HILL, I received for study a duplicate, preserved in the Kew Herbarium. This rare species was placed by HOOKER in *Flora of British India* Vol. VII. p. 228 under *Aristida hirtigluma* STEUDEL. *Aristida pogonoptila* is however a distinct perennial species, which differs in the glabrous glumes, in the shorter column, more hairy and barbulate at the point of insertion of the three awns and in the more loosely and longer plumose, central awn, without a naked tip. Compare my figure on p. 231 of this revision.

Aristida polyclados Domin.Bibl. Bot. Heft 85¹ [1915] loc. cit. p. 338!

Fasciculato-caespitosa, rigida, glauca; *culmi* graciles, e basi geniculata erecti, furcato-ramosissimi, glabri, subhumiles, sine paniculis



ARISTIDA POLYCLADOS Domin.

From type specimen.

15–25 cm alti et prae vaginis quam internodia brevioribus et saepe patentibus maxima ex parte nudi; *folia* culmea vaginis glaberrimis, culmos laxe amplectentibus vel postremo patentibus instructa; *laminae* glaucescentes, e basi subplana, angusta setaceo-convolutae, erectae, vaginis manifeste longiores, laeves glabraeque sed basi pilis capillaribus, longis, mollissimis, paucis instructae; *ligula* brevissima ciliata; *panicula* saepe circa 2 dm longa, subdensa, contracta, pauciramosa vel interdum subsimplex; rami scaberuli, capillares, erecti, plus minusve ciliis longis adpersi; *spiculae* pallidae, erectae; *glumae* latitudine et pro more longitudine inaequales, perangustae, lineares, glabrae, subscariosae, carinatae caeterum laeves (nec conspicue nervosae), in aristulam 3–4.5 mm longam protractae; gluma longior cum

aristula 25–27 mm, brevior 18–22 mm longa; *glumella* anguste convoluta, glabra, brevis, tantum 4–5 mm longa, stipitata, stipite sericeo-piloso, circa 1.25–1.50 mm longo; *arista* a glumella manifeste articulata; *aristae* columna 2.5–3 cm longa, scabra, spiraliter contorta; rami capillares, scabri, subaequales, 6–9 cm longi.

Abbildung: Tafel XIII, Fig. 10–12.

Nord-Queensland: bei Chillagoe eines der weitverbreitetsten Gräser und zwar auf Kalk, aber auch auf Granit, auf wüsten Stellen oft so massenhaft auftretend als ob ausgesät (DOMIN, II. 1910):

Diese Art steht der *A. funiculata* TRIN. u. RUPR. (tropisches Africa, Arabien, Beluchistan, Vorder-Indien) am nächsten, unterscheidet sich jedoch durch die äusserst reich und gabelig verzweigten Halme, die ungleichen Hüllspelzen etc. Von *A. stipoides* ist die neue Art ausserdem durch die an der Basis wimperige Lamina, die begrannnten Hüllspelzen sowie die kürzere Grannensäule zu unterscheiden.

A. polyclados kommt einigen Formen der polymorphen *A. funiculata* ziemlich nahe, doch scheint es besser, sie als eine selbständige Art denn als Varietät von *A. funiculata* aufzufassen. Letztere lässt sich mit Rücksicht auf die zahlreichen Formen überhaupt schwer diagnostizieren, ganz besonders in dem Umfange, wie sie von HOOKER f. in Fl. Brit. Ind. VII. 226—227 (1897) limitiert wurde. Die Grösse der Ährchen und der Grannen ist überhaupt sehr variabel und ausserdem kommt eine kahlblättrige und auch sonst ziemlich abweichende Varietät (var. *Royleana* [TRIN. u. RUPR.] HOOK. f.) vor. Nur der Gesamtcharakter bleibt ziemlich gut erhalten.

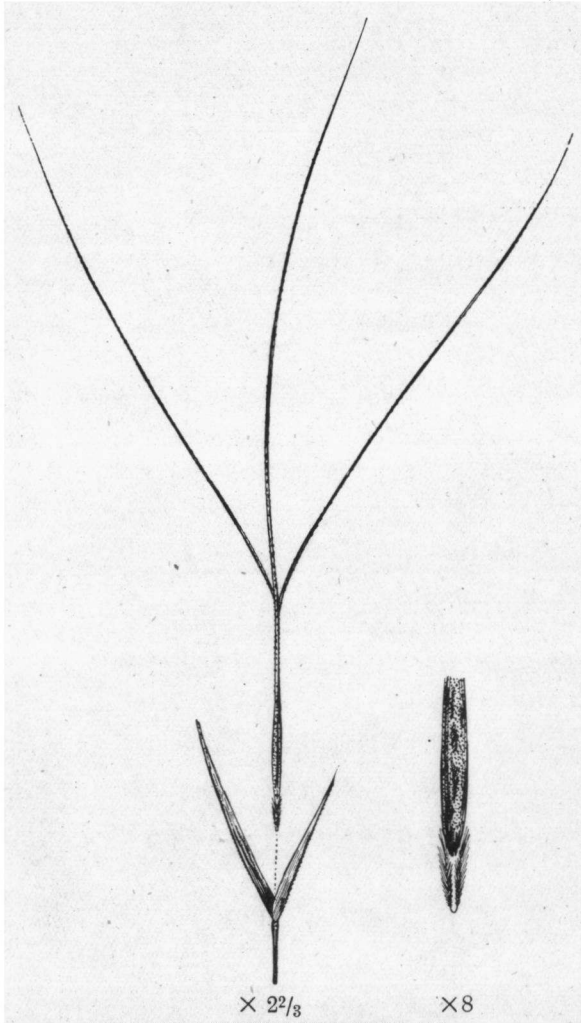
The type was kindly received for study from Prof. K. DOMIN; in the description, which is accurate, the true position of the glumes is not exactly indicated, but the longer glume is indeed the lower one and there is thus an inverse position, as is the case in all the other species of the group of the „*funiculatae*”. *Aristida polyclados* is most allied to *A. funiculata* TR. et RUPR., but differs not only in the different geographical range, but also in the culms, which are much branched from all the nodes and it differs moreover in the long-awned glumes, the awns about 3–4,5 mm. long. In *A. funiculata* the culms are simple or branched only from the lower nodes and the glumes are acute or but very shortly awned. *Aristida Royleana* TR. et RUPR. is a different species with a much shorter column and shorter awns, it differs moreover in being less robust, the scattered white hairs on the branchlets are wanting, a character present in *A. funiculata* and *A. polyclados*.

Aristida portoricensis Pilger.

ROB. PILGER, ap. IGNATIUS URRAN; Flora portoricensis in Symbolae antillanae, Vol. IV, Leipzig, [1903] p. 100!

Caespitosa, innovationibus extravaginalibus rarioribus, haud dense

aggregatis; culmis numerosis, tenuibus, cum panícula ca. 50—60 cm. altis; foliorum lamina erecta vel demum patente vel reflexa, angustissime lineari, filiformi-convoluta, pungenti-acutata, striata, margine scaberula, 6—10 cm. longa. vagina quam internodium bre-



ARISTIDA PORTORICENSIS Pilger.

From type specimen.

vioire, angusta, apice parum barbata, ligula brevissima, apice brevissime ciliolutata; panícula longe, ad 20 cm. et ultra exserta, laxa, ad 20 cm. longa, ramis paucis, distantibus, paucispiculatis, a basi divisis et florigeris, patentibus, tenuibus, ad 10 cm. longis; spiculis ipsis breviter pedicellatis, angustis; glumis vacuis anguste lineari-lanceolatis, acuminatis, e nervo unico breviter aristatis, dorso carina scaberulis, parum inaequilongis, inferiore 8—10, superiore 11—12 mm. longa; gluma florifera violacea, callo ca. 1 mm. longo albido hirsuto-barbato instructa, superne scabra, 10 mm. longa, sine articulatione in aristam tripartitam transeunte; aristis subaequi-

longis, scabris, ca. 3 cm. longis.

Prope Mayagüez in monte Mesa, X flor.: Sintenis n. 77.

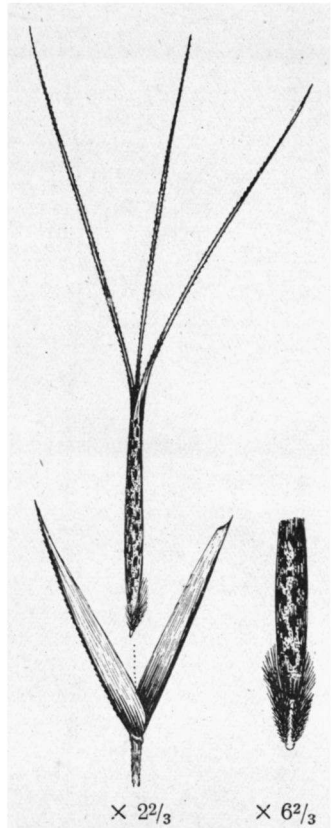
Obs. Affinis *A. purpureae* Nutt, sed diversa forma caespitis, culmis altioribus, paniculis e vagina suprema prodeuntibus elongatis laxis, glumis vacuis minus inaequalibus, aristis brevioribus.

The type, in the Berlin Herbarium, was studied through the courtesy of Prof. ROB. PILGER, it bears the name in PILGER's hand. The species somewhat resembles *Aristida purpurca* NUTT., but it is quite different. The glumes are less unequal, acute, not bifid at the summit (without lateral setae) and the lemmas are slightly scabrous only below the awns, not tuberculate-scabrous in lines as in *A. purpurea*. The species is endemic in Portorico and known only from the type locality near Mayaguez.

Aristida praealta (Domin) Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis, caespitosa, innovationibus florendi tempore paucis; culmi stricte erecti, a basi ramosi, teretes, substriati, glaberrimi, cum paniculis 80—90 cm. alti; vaginae hiantes, subcompressae, glaberrimae, internodia plerumque superantes; ligula brevissime ciliolata, auriculae longe barbatae, collo pubescente; laminae inferne planae, circa 2,5 mm. latae, superne convolutae, sensim longe acuminatae, subtus glaberrimae vel leviter subscaberulae, supra hirtellae, nervis prominentibus percursae, marginibus incrassatis, ad 20 cm. longae; panícula magna, ad 40—50 cm. longa, 15—20 cm. lata, laxissima, patula; rhachi tereti, superne angulosa, ramis binis vel subbinis, erecto-patentibus vel divaricatis vel flexuosis, inferne longe nudis, scabris, ramulis divaricatis brevioribus, paucispiculatis, pedicellis scabris, abbreviatis; spiculae flavo-stramineae, glumae uninerves, subaequilongae vel inferior paulo longior, glaberrimae, inferior acuta, aristata, carina scabra, ad 13 mm. longa, superior abrupte subtruncata, in aristam abiens, carina laevis, ad 12 mm. longa, gluma fertilis, callo subobtusio 1 mm. longo, dense et longe barbato, ad 11 mm. longa, minutissime punctulata, pallide flava vel nigro-maculata, haud articulata neque



ARISTIDA PRAEALTA (Domin)
Henrard.

From type specimen.

rostrata, *aristae* scaberrimae, inferne dilatatae, subaequeles, ad 20 mm. longae.

Queensland: Chillagoe, in nemoribus abundans, II. 1910, leg. Dr. K. DOMIN. Typus in Herb. Domin, Praga.

On pag. 72 of this revision I have already given some observations on this species. At that time the type was not at my disposal, but I found the characters given in the description so striking and different from the typical *A. calycina* that I accepted DOMIN's variety as a distinct species. Having received the type from Prof. DOMIN, I can but repeat that the plant is indeed very striking and certainly a distinct species. In DOMIN's herbarium I found a note by him that he first accepted the plant as a new species: „*Aristida* sp. n. revocat *Ar. vagans* sed multo major, et praecipue *glumis longis*, longiori *glumella* aequantem vel paulo longiori”, with the addition: “cf. *calycini*, vielleicht nur eine varietät von dieser.”

***Aristida prodigiosa* Welwitsch.**

FRIDERICUS WELWITSCH; Sertum Angolense, sive Stirpium quarundam novarum vel minus cognitarum in itinere per Angolam et Benguellam observatarum descriptio iconibus illustrata, in The Transactions of the Linnean Society of London. Vol. XXVII. [1871] pag. 80! Tab. XXV.

Caespitosa, plurennis. gracilis; culmo glabro 1—3-pedali, nodis coloratis imberbibus; foliis radicalibus angustissimis, sub-4-pollicaribus, glaucis, sub lente scabrido-puberulis, ligulis brevissimis ciliatis; panícula lineari-oblongo, multiflora, $\frac{1}{2}$ —1-pedali, ramis 2—5 fasciculatis fere a basi floriferis, spiculas plures, sub 3, lineares, pedicellatas gerentibus; glumae subaequales acutae, hirsutae vel glabratae, basi violaceo-coloratae, ad infimam basim trinerves; flosculus, dempta arista, glumarum dimidium vix aequans, glaber; arista circumscisse decidua, stipite $1\frac{1}{2}$ lin. longo, vix torto, glabro, conico, intus cavo, setis lateralibus nudis, intermedia basi nuda, a medio ad apicem usque plumoso-pennata, laterales duplo et ultra superante.

(Published 1 August. 1927).