

NOTES ON THE GENUS *DIGITARIA*,

with descriptions of new species

by

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Some years ago I had the opportunity to study more extensively a very interesting group of grasses, belonging to what is now accepted as a distinct genus, the genus *Digitaria*, formerly belonging as a sub-genus to the genus *Panicum*. As to living plants of this group I was familiar with two european species, also found in the Netherlands. They are treated in the Synopsis of ASCHERSON and GRÄBNER and once more in the second edition of this work. Under *Panicum* they bear the names *P. lineare* KROCKER and *P. sanguinale* L. The first species belongs to HACKEL's „*Ternata*”, the name is invalid on account of the *Panicum lineare* of LINNAEUS, a species described from India, we know that KROCKER's plant does not occur in India and it is therefore necessary to look for the correct name of the species. A more detailed study of the synonyms and their priority proves that the valid name is that of SCHREBER, published by SCHWEIGGER as *Panicum Ischaemum*. ASCHERSON gave as the date of publication for this name, the year 1811, if this was indeed correct, our species had to bear the name of *Digitaria humifusa* PERSOON, published in the year 1805, the citation of the year 1811 by ASCHERSON is however wrong as SCHREBER's name was published in the year 1804. This is evident from SCHRADER's work, where is published the same species as *Syntherisma glabrum*, this was done in the year 1806 and as a synonym is given the *Panicum Ischaemum* SCHREBER, given in SCHWEIGGER's Flora. It was MUHLENBERG, who, in the year 1817 took up SCHREBER's name under *Digitaria*, he published the species as *Digitaria Ischaemum* with SCHREBER as author. The name of our species, which also occurs in America, is thus *Digitaria Ischaemum* (SCHREB.) SCHREB. ap. MUHLENBERG. It is curious that such a common species escaped to the attention of LINNAEUS. The species is easy to recognize and not

very variable. Among the few varieties the most characteristic one is the var. *prostrata* (ASCH. et Gr.) HENR. nov. comb., with long runners rooting at the nodes; the variety *hirta* (JUNGE) HENR. is not so important, the lower sheaths are not always quite glabrous and a more or less distinct pubescence is not rarely observed.

Our second species described as *Panicum sanguinale* becomes under *Digitaria*, the *D. sanguinalis* (L.) SCOPOLI. Botanists who have studied the type in the herbarium of LINNAEUS, indicate that this type represents the european plant treated under this name in our manuals. If we study only the literature of this species, we find that it is common all over the world, there is scarcely any flora where the species is not mentioned, with exception of the cold regions. All the tropical floras give the species as an indian plant and we find it thus in HOOKER's Flora of British India and in the works of the recent Dutch botanists. Many years ago when I saw for the first time the so-called *Panicum sanguinale*, I found already that the javanese plants did not agree with our european *P. sanguinale* and being familiar with the latter in the living state, I was not willing to accept the indian specimens as belonging to our *D. sanguinalis*. Since that time I could study a very extensive material of *D. sanguinalis* from localities all over the world and my opinion on the tropical plants was not changed. That we have two distinct species before us was already pointed out by the american botanist NASH, who accepted the plant from the southern regions of N. America as a distinct species under the name of *Syntherisma marginata* NASH, based upon LINK's *Digitaria marginata* from the year 1821. Having studied LINK's type in the Berlin Herbarium, I recognized it as being indeed the indian *D. sanguinalis*. LINK gave the locality as Brazil. It is further noteworthy that the very accurate Dutch botanist BUSE did not mention the *Digitaria sanguinalis* in his enumeration of JUNGHUHN's indian grasses. Since NASH accepted the two species as different, modern american agrostologists neglected them in their works and accepted only a *Digitaria sanguinalis*. In the beautiful book of W. A. SILVEUS on the Texas grasses, only the *Digitaria sanguinalis* is taken up, although the typical *D. marginata* occurs there. The plate on p. 489 in SILVEUS's book and also his drawings represent the *D. marginata*, it may be that the true *D. sanguinalis*, although represented in N. America too, is not found in Texas.

European agrostologists, familiar with tropical grasses, had however a better idea and two eminent agrostologists, Prof. PILGER at Berlin and

Dr STAPF at Kew gave more attention to these plants, they both had the same opinion, that the *D. sanguinalis* of Europe was not found in the tropical regions of the world. My opinion that we have thus two different species, is now supported by two such competent agrostologists and in the monograph of the genus *Digitaria*, prepared by me, I have pointed out the geographical distribution of the two species and their taxonomical characters. The form and outline of the spikelets give us good characters to recognize the two species. As is already said the *Digitaria marginata* is the tropical species and being widely distributed and common, it certainly did not escape to the attention of the earlier botanists and it was therefore very probable that there was already a name for the species; described by LINK from South America, the species was found by HUMBOLDT and described in the Nova Genera by HUMBOLDT, BONPLAND and KUNTH as *Panicum adscendens* in the year 1815. I therefore give here the new combination of the species as **Digitaria adscendens** (H. B. K.) HENR.; it was HUBBARD who accepted a still earlier name for the species, the name *Digitaria velutina* P. B. from the year 1812, based upon the *Phalaris velutina* of FORSKAL (1775), a *Digitaria* too. This arabian plant belongs as to the plants seen from the arabian localities, to my opinion to an allied, different species.

There occurs in Europe another interesting *Digitaria*, treated as a variety of *D. sanguinalis* in our manuals under the name of var. *ciliaris*. This name goes back to RETZIUS, who described a *Panicum ciliare* from Java and China. Because the true *D. sanguinalis* is not an inhabitant of the tropics, the plant named *P. ciliare* by RETZIUS cannot belong to the european plant as a variety. It was TRINTIUS, who placed the *Panicum ciliare* of RETZIUS as a variety under *Panicum sanguinale*, he followed KOELER, who took up the combination *Digitaria ciliaris* (RETZ.) KOELER, but identified RETZIUS's species with the european form, which is treated here shortly by me. In many species of *Digitaria* of the group of the „*Binata*”, where the spikelets are paired along the rhachis, there occur two characteristic variations, these forms we can accept as two subspecies of the same species, they agree in all the characters but differ essentially in the pubescence of the flowers. The common form of *D. sanguinalis* has outer scales (gl. II and III) more or less villous between the nerves and along the margins, the hairs are always soft, adpressed or ultimately spreading. This plant was described by SCHRADER as *Syntherisma vulgare* in the year 1806 and is taken up by me as subsp. *vulgaris* (SCHRAD.) HENR. under *D. sanguinalis*. There occurs another form where the

margins of glume III are provided with curious thick, hyaline, stiff bristles, arising from crateriform tubercles. This is the plant accepted by KOELER as the *Panicum ciliare* of RETZIUS. A study of the indian and malayan material proved that the so-called european var. *ciliaris* does not occur in those regions, although *Digitarias* with such bristles are found in India, they do not belong however to the *D. sanguinalis*, but represent partly the subspecies of the tropical *D. marginata*, partly they belong to other allied species.

From all the data we know at the moment, it is thus evident that the bristle-bearing subspecies of *D. sanguinalis* cannot longer bear the specific name of RETZIUS, as the name, whatever it may represent (there is no specimen in the herbarium of RETZIUS) applies to an indian grass.

Since KOELER and TRINTUS no other name was proposed for the european grass. In my work on *Digitaria*, having sharply separated the indian and the european *D. sanguinalis*, I had to give another name to the subspecies of *D. sanguinalis* with the bristle-bearing spikelets. I propose therefore to call this plant **Digitaria sanguinalis** (L.) SCOP. subsp. **pectiniformis** HENR. nom. nov., based upon the plant described by KOELER and figured by TRINTUS.

The variation between the two subspecies as given here by me is in most cases the only one and we are not justified to accept them as two different species, the other characters of the spikelets in combination with important differences in the vegetative parts are of major importance to limit the species of the genus *Digitaria*. VAVILOV's idea of the parallel variation is especially in the genus *Digitaria* of great importance and a happy solution of the problem. It is not a very bold hypothesis that at least in the group of the „Binata” of the genus *Digitaria*, there occurs in each species such a corresponding subspecies with the characteristic tubercle-based bristles, I have already found different of these forms in many species.

Digitaria Endlichii MEZ, represents the bristle-bearing form of the species, the parallel variation is **Digitaria Endlichii** MEZ, subsp. **Meiana** HENR. nov. subsp. Differt a typo speciei spiculis paullo angustioribus, sed praesertim valvula sterili (gluma III) nervis 7 sebris aequidistantibus percursa, marginibus haud longe fimbriatis, absque setis rigidis subcoloratis; gluma secunda marginibus tantum breviter pubescentibus. Tropical East Africa: Kilimandscharo, ENDLICH no. 751, (type in herb. Leiden); HIRSCHCOCK no. 25101 from Kenya belongs to the same subspecies.

Digitaria natalensis STENT, subsp. **Stentiana** HENR. nov. subsp.

Differt a typo speciei praesertim gluma tertia absque setulis marginalibus hyalinis rigidis. Type in H. L. B. received from the Salisbury Herb. Southern Rhodesia no. 5706.

-Digitaria Nealleyi HENR. nov. spec. Culmi — in specimine meo basi incompleti — decumbentes, superne geniculato-adscendentes, probabiliter haud repentes, multinodes, fere ex omnibus nodis ramosi, glaberrimi, canaliculato-striati, rubescentes; vaginae basales emortuae et tune culmi nudi, superiores a culmo solatae, internodiis breviores vel subaequilongae, multinervosae, pilis patentibus e tuberculis ortis praeditae; vaginae ramorum internodiis longiores, subhiantes vel arctae, densius pilosae, nodi adpresse pubescentes, ligula vix 1 mm. longa, glabra, hyalina, albo-purpurascens, superne crenulata; laminae erecto-patentes vel patentes, 2—2½ em. longae, planae, circa 1—2 mm. latae, linear-lanceolatae, sensim acutatae, griseae vel supra violascentes, multinervosae, granulato-seberrimae, marginibus undulatis sebris subincrassatis, nervo mediano subtus parum prominulo, utrinque praesertim inferne pilis longis basi tuberculatis fimbriatae, pedunculus, in speciminibus examinatis, haud longe exsertus; panicula erecta, axis abbreviatus, racemis paucis, rhachi triangulari-applanata, marginibus sebris; spiculae binae, altera pedicello ipsa ½ breviore, altera ipsa plus triplo breviore fulta, pedicellis triquetris sebris, spiculae linear-lanceolatae, superne leviter angustatae, 3—3¼ mm. longae, 0.6—0.7 mm. latae, gluma inferior distincta, enervis, triangularis-acuta, haud raro apice rotundata, gluma superior spicula ⅓ brevior, lanceolata, acuta, 3-nervis, inter nervos et versus margines pilosa vel villosa, gluma III (sterilis) spiculam aequans, linear-lanceolata, 7- vel sub-7-nervis, nervis aequidistantibus, dorso subglabra, marginibus villosis, gluma IV (fertilis) vix 3 mm. longa, sensim acutata, viridis, leviter punctulato-striolata.

TEXAS, collected by G. C. NEALLEY in the year 1884. Herb. HACKEL Vienna.

Digitaria dolichophylla HENR. nov. spec. Annua, dense caespitosa; culmi erecti, tenues, gracillimi, glaberrimi, simplices, longissimi, teretes, vix striati, cum inflorescentia plus quam 60 cm. alti, circa 4—5-nodes, nodis glabris, nodo summo vix 20 cm. supra basin culmi sito; foliorum vaginae infimae abbreviatae, valde nervosae, adpresse hirsutae, inferiores glabrescentes, tantum inferne supra nodos subpilosae, ore marginibusque sparse pilosis, internodiis sublongiores, vaginae superiores omnino glaberrimae, internodiis breviores, auriculae productae, ligula glabra, hyalino-fusca, subtruncata, circa 1½ mm. longa, cum auriculis connata; vaginae

ultimae longissimae, folia in basi culmi aggregata, laminis longissimis, involutis, vi explanatis circa 1 mm. latis, supra leviter pubescentibus, ad basin pilis nonnullis praeditis, setaceo-acuminatis, 25 cm. vel plus longis, circinnatim curvatis vel flexuosis, laminae foliorum culmeorum breviores; pedunculus longissimus longe exsertus, tenuissimus; racemus solitarius (raro racemi bini subconjugati), tenuissimus, vulgo ad 10 cm., haud raro ad 15 cm. vel plus longus, axis si adest circa 1 cm. longus, subangulatus, seabriuseculus, rhachis filiformis, trigona, vix marginata, seabra; spiculae ternatae, adpressae, haud dense imbricatae, vel inferne remotae, pedicellis aculeolato-seabris, subtriquetris inaequalibus, primario spiculam superante, secundario ea paullo breviore, tertiaro pluries breviore fultae, anguste lanceolatae, 1.5—1.6 mm. longae, 0.6 mm. latae, inferne et superne angustatae, viridulæ, gluma inferior deest, gluma superior spicula circa $\frac{1}{4}$ brevior, ea distinete angustior, praesertim superne, subacuta, 3-nervis, inter nervos et praesertim versus margines pilis longiusculis apice capitellatis praedita, gluma III sterilis plana, circa 5-nervis, nervis aequidistantibus, lanceolata, apice rotundata, spicula paullo sed distinete brevior, inter nervos laterales et versus margines eodem modo ac II pilosa sed juxta nervum medium glabra, gluma IV fertilis spiculam aequans, linear-lanceolata, distinete apiculata, apiculo exerto, punctulato-striolata, atro-violacea.

FLORIDA: Dade County; Buena Vista, 5 Dec. 1903 leg. A. A. EATON no. 459. Distributed from Ames Laboratory, North Easton Mass. Typus in H. L. B.

Digitaria rhachitricha HENR. nov. spec. Probabiliter annua (in specimine meo radices desunt). Culmi erecti, glabri, elongati e nodis superioribus parum ramosi, ramos breves floriferos solitarios gignentes; vaginae arctae vel superne hiantes, teretes, nervosae, marginibus hyalinis, dense patule hirsutae, pilis longis, albis, basi tuberculatis praeditae, nodis glabris parum prominulis; ligula brevissima, subtruncata, pilosula; laminae e basi subaequata lineares, planae, sensim angustatae, acutae sed haud acuminatae vel setaceae, ad 3 mm. latae, 10—12 cm. longae, vel interdum longiores, nervo mediano albo subtus prominulo percursae, undique dense patule pilis basi tuberculatis hirsutae; pedunculus exsertus, elegans, teres, striatus, glaber; panicula subracemosa vel subdigitata, axis communis circa 3 cm. longus, triangularis, scaber, longe villosus, racemi circa 5, elegantes, subsolitarii, sessiles, erecti vel erecto-patuli, 10—12 cm. longi, ad insertionem longe villosi, inferne prope basin quasi subramosi, rhachi subtrigona, angustissime viridi-marginata, marginibus sebris hir-

sutis, pedicellis trigonis, sebris, pilis brevissimis hirsutis; spiculae ternae, sed ad basin racemorum inferiorum quaternae-senae (vel rariter septenae) ibique racemulos ad 1 cm. longos formantes, 1.5—1.6 mm. longae, ovato-oblongae, superne subacuminatae, pedicellis inaequifusca, primario spiculam superante, secundario ea paulo, tertiano plures breviore fulta: gluma inferior minuta, annulato-evoluta, gluma superior anguste lanceolata, acuta, spiculam paulo brevior et distinete angustior, 3-nervis, inter nervos et versus margines pilis longiusculis subrigidis leviter capitellatis munita, gluma III sterilis 5-nervis, spiculam aquans, juxta nervum medium glabra, inter nervos laterales et versus margines puberula, gluma IV fertilis apiculata, apiculo pallido haud exerto, atro-violacea, striolato-punctata.

AMERICA AUSTRALIS: Columbia, leg. FUNCK et SCHLIM no. 724. Type in H. L. B.; Santa Marta, leg. H. H. SMITH no. 187, eotype in H. L. B.

Digitaria divaricata HENR. nov. spec. Annua, culmi basi decumbentes ad nodos radicantes, superne adscendentibus, plurinodes, e nodis inferioribus ramosi, glaberrimi, angulati, canaliculati, superne subcompressi, cum panicula 50 cm. vel plus longi, ad nodos pilosulae vel glabrescentes; vaginae internodiis breviores, vel eae ramorum longiores, inferne sparse patenter pilosae, pilis basi tuberculatis, superne haud raro glabrescentes, multistriatae, marginibus albis hyalinis, arctae vel eae ramorum superne hiantes vel a culmo solutae, ligula alba, scariosa, vix 2 mm. longa, glabra; laminae e basi subrotundatae lanceolatae vel lanceolato-lineares, ad 1 em. latae, circa 7—8 cm. longae vel eae ramorum circa 4 mm. latae, tenuinerves, multinervosae, nervo medio albo praesertim subitus conspicuo praeditae, utrinque plus minus pilis adspersae, marginibus undulatis sebris, sensim acutatae haud setaceae; pedunculus inflorescentiae erectus, exsertus, valde striatus, subteres, glaber; panicula patula, circa 8 cm. longa, axis communis circa 5 cm. longus, anguloso-striatus, glaber, racemi remoti, ad 15, inferne bini vel terni, superne solitarii, divaricati, angulo recto patentissimi, ad 7 cm. longi, graciles, simplices vel inferne haud raro racemos secundarios edentes, racemi superne sensim deerecentes, subregulariter dispositi, in axillis pilis longis praediti, rhachi racemorum alba, plana, angustissime sed bene viridi-marginata, spiculis angustiore; pedicelli subtriquetri, sebri, superne haud vel leviter tantum patellati; spiculae adpressae, superne binatae, inferne haud raro ternae vel quaternae, subsessiles vel primariae bene pedicellatae, pedicello ad 1—1.5 mm. longo praeditae, lanceolatae, virides, angustae, 1.8 mm. longae, circa 0.6 mm. latae, inferne et superne regulariter angustatae haud acuminatae,

gluma inferior deest vel rudimento minutissimo indicata, gluma superior spicula paululo brevior, 5-nervis, inter nervos adpresse pilosula, gluma III regulariter 7-nervis, nervis aequidistantibus, glabra sed marginibus ut in gluma II pilosula, gluma IV vix $\frac{1}{2}$ mm. lata, spicula paullo brevior, subfusiformis, vel linear-lanceolata, bene apiculata, minutissime punctulato-seaberula.

AFRICA ORIENTALIS: Nyasaland; Kyimbila, 1350 m.s.m. legit A. STOLZ in 1911 no. 635. Type in H. L. B.

Digitaria Eggersii (HACK.) HENR. nov. comb. *Panicum Eggersii* HACKEL, formerly accepted as a member of the genus *Trichachne* is now placed by me under *Digitaria*. There are so many intermediate species between the genera *Digitaria* and *Trichachne* that we cannot maintain the latter.

Digitaria collina SALISBURY is proved to be only a nomen nudum given for *Andropogon Ischaemum* L. The specific name *Panicum collinum*, given by BALANSA to a species from New Caledonia is therefore valid under *Digitaria*, and becomes *Digitaria collina* (BALANSA) HENRARD nov. comb.

Digitaria campestris HENRARD nom. nov., based upon ARECHAVALETA's *Panicum ramosum* which is not the *P. ramosum* of L., it is allied to the *Digitaria aequiglumis* PARODI but has shorter spikelets and differs in the vegetative parts too. I saw a very beautiful specimen in HACKEL's herbarium, quite agreeing with ARECHAVALETA's plate.

Digitaria mollicoma (KUNTII) HENR. nov. comb. = *Paspalum mollicomum* KUNTII, = *Paspalum molle* PRESL non POIRET.

Digitaria polyphylla HENRARD nom. nov. = *Digitaria foliosa* STENT, non Lagasca. South Africa.

Digitaria Stentiana HENRARD nom. nov. = *Digitaria glauca* STENT non CAMUS. South Africa.

Digitaria dispar HENRARD nom. nov. = *Panicum heteranthum* NEES et MEYEN (1843) non LINK (1827).

Digitaria latronum HENRARD nom. nov. = *Digitaria mariannensis* MEZ (1924), non *Digitaria mariannensis* MERRILL (1914).

Digitaria Dinteri HENRARD nov. spec. Perennis, dense caespitosa, innovationes extravaginales, basi squamis villosis cinctae, erectae. Culmi simplices, stricte erecti, glabri, striati, vix sulcatae, pedunculo paniculaque ad 60 cm. alti vel interdum tantum ad 30 cm. longi, subuninodes, nodo superiore in $\frac{1}{6}$ inferiore culmi sito, internodio infimo circa 10 cm. longo, supremo (pedunculo) longissimo; squamae basales valde striatae, appresse

hirsutae, ovato-lanceolatae vel lanceolatae. Folia fere omnia in basi culmi aggregata, vaginae innovationum compressae, culmeae subcompressae vel subteretiusculae, arctae, interdum subcarinatae, multinervosae, inter nervos hirsutae pilis patentibus rigidis longissimis, basi tuberculatis praeditae, vaginae foliorum culmeorum internodiis circa duplo breviores, nodis minute pubescentibus vel glabris, supra nodos annulo dense piloso praeditae; ligula brevis, circa $\frac{1}{2}$ mm. longa, longe firmbriata, auriculæ lateraliter barbatae. Folia pallide glauca, laminae planae, eae culmorum circa 2 mm. latae, haud longae, eae innovationum paulo angustiores, circa 15 cm. vel plus longae, sensim longe setaceo-acuminatae, multinervosae, nervo mediano albo crassiusculo valde prominulo percursae, marginibus albis incrassatis haud flexuosis, subscaberulis praeditae, undique pilis rigidis patentibus basi tuberculatis hirsutae; pedunculus longe exsertus, gracilis, striatus, subscaberulus, viridis vel viridi-violascens; racemi digitati vel secus axin communem ad 1 cm. longum solitarii vel superiores digitati, erecti vel erecto-patuli, vulgo ad 6 cm. longi, densiflori, a basi breviter nudi, ad insertionem incrassati ibique densiter pubescentes vel villosi, axis communis triquetrus, scaberulus, racemi circa 6 (—4), aequales, rhachi spiculis angustiore, anguste viridi-marginata, subtrigona, angulis scabra; spiculae binatae, pedicellis subteretibus scaberulis apice leviter patellatis, altero spiculam aequante, altero ea quadruplo breviore fultae, linear-lanceolatae, circa 2.2—2.4 mm. longae, longe pilosae, pilis ultra apicem glumæ productis et tunc spiculae 2.8—3 mm. longae; gluma inferior triangulari-acuta, brevissima, purpurascens, circa 0.3 mm. longa, enervis, gluma superior subulato-lanceolata, 3-nervis, spicula $\frac{1}{3}$ brevior, ea paulo angustior, inter nervos et versus margines densissime longe villosa, villis copiosis, porrectis, ultra apicem glumæ ita productis ut gluma fertilis totaliter obiecta sit, nervis haud vel vix visibilis, gluma III sterilis 7-nervis, lanceolata, villosissima, ciliis porrectis ultra apicem glumæ penicillatim productis, gluma circa duplo brevioribus, albo-purpurascens; gluma IV fertilis spiculam subaequans, circa 2 mm. longa vel paulo longior, lanceolata acuta vix acuminata, viridula, minute puncticulato-striolata.

GREAT NAMALAND, South West Africa: Windhoek, 1600 m.s.m. april 1912. leg. K. MÜLLER in Herb. DINTER no. 2573. Typus in H. L. B.

Other specimens seen: Great Namaland; DINTER no. 4479 (Herb. Berlin). Huib plateau, between Ausis and Khuias in 1855 leg. SCHENCK (HACKEL herb. Vienna.)

Baron FERDINAND VON MUELLER indicated in his *Fragmentsa Phytographiae* from the year 1874 a *Panicum autumnale*. His type was the plant from Sweer's Island, collected by HENNE. BENTHAM placed this plant as a var. *leiostachyum* under *Panicum papposum* R. BR. It is however widely different from the latter and very different from the american plant too. The species is taken up in my work as *Digitaria Benthamiana* HENRARD, nom. nov.

The genus *Trichachne*, as accepted by American agrostologists, is treated in my monograph very extensively, to demonstrate that the characters for separating this genus are very inconstant and insufficient to maintain the genus if we study the *Digitarias* of the world. Properly spoken the genus is as to its habit only restricted to the New World. The australian species *Digitaria Brownii* (R. ET S.) HUGHES, which has the long villous spikelets too, is a true *Digitaria* and *D. tricholaenoides* STAPF from South Africa (which is *Panicum tunicatum* HACK.) has still a more beautiful dense tomentum on the spikelets, it is in the fertile lemma and other characters of the fruit however a *Digitaria*. The long acute fruit of the typical *Trichachne insularis* is not observed in some other American species of *Trichachne*. The stipitate fruit of the genus *Trichachne* occurs also in true *Digitarias*. For a local flora the genus *Trichachne* is to limit, but, as is already said, going over all the *Digitarias* of the world, no constant character is found and the consequence is therefore that we have to unite *Trichachne* and *Digitaria*.

STAPF, HUGHES and others did not accept the genus *Trichachne* for Tropical and South Africa and Australia. I formerly accepted *Trichachne* as a genus, but found it afterwards impossible to define it sharply and all attempts, even those of Mrs. A. CHASE, in her beautiful work on the *Paniceae*, have failed. The different species formerly accepted in the genus *Trichachne* are not easy to separate, they are for the moment taken up as *Digitaria insularis* (L.) MEZ, *D. sacchariflora* (RADDI) HENR., *D. californica* (BENTH.) HENR., *D. patens* (SWALLEN) HENR., *D. tenuis* (NEES) HENR., *D. Hitchcockii* (CHASE) STUCKERT, *D. Sellowii* (MÜLLER) HENR., and *D. laxa* (REICHB.) PARODI.

Digitaria Neesiana HENRARD nom. nov. = *Trichachne velutina* NEES, non *Digitaria velutina* P. B. nec HITCHCOCK. = *Panicum vestitum* KUNTH, non *Digitaria vestita* FIGARI et DENOTARIS. Brazil.

Digitaria Pittieri (HACKEL) HENRARD nov. comb. = *Panicum Pittieri* HACKEL, = *Valota Pittieri* (HACK.) CHASE.

Milium tomentosum KOENIG was described by WILLDENOW in the year

1803, the same species was published by ROTH in the year 1817 in ROEMER and SCHULTES's *Systema Vegetabilium* as *Milium capillare*; TRINIUS published it as *Panicum subeglume* and STEUDEL applied to it WIGHT and ARNOTT's name *Panicum Browneanum*. Wight no. 3037 is as to the characters of the spikelets and the fruits a *Digitaria*, both glumes are present only as rudiments. I have therefore named the species *Digitaria tomentosa* (KOEN.) HENR. nov. comb.

The species is only known from British India and is in its technical characters somewhat allied to *Digitaria thyrsoidea* BALANSA and *Digitaria quinhonensis* GAMUS which have a very distinct upper glume and are in their panicles intermediate between *Leptoloma* and *Digitaria*, the former genus is not accepted in my work.

Digitaria jubata (GRISEBACH) HENR. nov. comb. = *Paspalum jubatum* GRISEBACH. Is accepted by HOOKER as distinct from *Digitaria pedicellaris* and I am of the same opinion. Even if we unite the two species the name given by GRISEBACH has priority.

Two species from British India are characteristic members of the „*Binata*”; they were described by HOOKER as varieties under his *Paspalum sanguinale* but treated by me as distinct species.

Digitaria Griffithii (ARNOTT) HENRARD nov. comb. = *Paspalum sanguinale* HOOKER, var. *Griffithii* HOOK. f.

Digitaria extensa (NEES et ARNOTT) HENRARD nov. comb. = *Paspalum sanguinale*, var. *extensum* HOOKER f.

Digitaria caledonica HENRARD nov. spec. Caespitosa, stricte erecta, radiceibus tenuibus, innovationibus paucis, rhizoma deest, probabiliter annua vel biennis, hinc inde squamulis ad basin culmi praedita; culmi teretes, glaberrimi, superne subangulati, stricti, cum panicula ad 40 cm. alti, circa 5-nodes, nodo summo in medio culmo vel infra medium sito, nodis glabris; vaginae glabrae, inferiores inter nervos scaberulae, superiores glaberrimae, compressiusculae, internodia superantes, ligula abbreviata, 1—1½ mm. longa, albo-fusca, hyalina, obtusa, scariosa; laminae e basi subaequata linear-lanceolatae, vulgo 10—12 cm. longae, ad 5 mm. latae, sensim acutatae, utrinque glabrae vel subscaberulae, marginibus vix incrassatis, multinervosae, nervo medio albo crasso praesertim inferne conspicuo praeditae, apice leviter, ob marginibus involutis, contractae, haud pungentes, pedunculus inflorescentiae longe exsertus, glaberrimus, striatus; panicula bene digitata, cuneata, 9—11 cm. longa, axis communis abbreviatus, 1½—2½ cm. tantum longus, canaliculato-striatus, glaber, racemi erecto-adscendententes vel stricti, solitarii vel interdum sub-

binati, inter se distantes, simplices, inferiores paniculum aequantes, superiores sensim decrescentes, rhachi recta spiculis subaequilata, nervo medio crasso praedita, bene viridi-marginata, marginibus scaberulis; spiculae vix $1\frac{1}{2}$ mm. longae, ternae vel ad basin racemorum quaternae, propter pedicellum primarium basi adnatum binae et solitariae, glaberrimae, pedicelli abbreviati, subteretes, subscaberuli, parum inaequilongi, spicula breviores, gluma inferior deest vel vix indieata, gluma superior spicula $\frac{1}{3}$ brevior, ea haud angustior, bene late rotundata, 1 mm. longa, convexa, 3-nervis, nervo medio percurrente, lateralibus apice anastomosantibus, gluma III plana, spicula paulo brevior, apice etiam rotundata, 3—5-nervis, nervis 3 vulgo crassioribus sub apice nervo medio anastomosantibus, spiculae subsessiles (secundariae et tertianae) vulgo 3-nervis, spiculae longiter pedicellatae (primariae) vulgo 5- vel 4-nervis, gluma IV (fertilis) ovato-lanceolata, bene acutata sed haud vel vix acuminata, apice exserta et bene visibilis, convexa, striolato-puncticulata, atropurpurea.

Nova CALEDONIA: Nouméa; legit BALANSA 1868—1870 no. 1730 sub nom. *Paspalum brevifolium* FLUEGGE. Typus in H. L. B.

Allied to this new species are two australian ones, neglected since they were described:

Digitaria patula (HORNEMANN) HENR. nov. comb. == *Paspalum patulum* HORNEMANN.

Digitaria ramularis (TRINIUS) HENRARD nov. comb. == *Panicum ramulare* TRINIUS.

Digitaria Thwaitesii (HACKEL) HENR. nov. comb. == *Panicum Thwaitesii* HACKEL. Ceylon.

Digitaria tricostulata (HACKEL) HENR. nov. spec. == *Panicum puberulum* KUNTH, var. *tricostulatum* HACKEL. Natal.

Digitaria livida HENR. nov. spec. Perennis, caespitosa, innovationibus extravaginalibus, basi squamis aphyllis hirsutis, valde nervosis praedita; culmi erecti vel inferne subadscendentis, striato-sulcati, cum panícula circa 60 cm. alti, sat validi, circa 3-nodes, nodo summo in medio culmo sito, nodis glabris; vaginae internodiis paulo longiores vel paulo breviores, valde nervosae, teretiusculae, superne hiantes, superiores glaberrimae, inferiores praesertim superne pilis longis, sparsis, rigidis, basi tuberculatis praeditae, marginibus subhyalinis angustis; ligula brevissima, 1 mm. longa, hyalina, glabra vel minute pubescens, apice distincte ciliata, auriculae incrassatae, brunneae, haud raro productae; laminae obscure virides, lividae, inferne subcarinatae, nervo mediano albo crasso

supra et subtus bene prominulo praeditae, circa 4—5 mm. latae, e basi aequilata lineares, sensim angustatae, apice leviter convolutae quasi setaceae, ad 15 cm. longae, marginibus albis undulatis, incrassatis, laevibus, vel minute scaberulis praeditae, glabrae vel inferne ad basin pilis nonnullis albis, longis, basi tuberculatis, obsitae; pedunculus strictus, teres, crassus, striatus; panicula erecta, axis communis circa 1½ em. longus, racemi circa 8, digitati, porrecti, in axillis pubescentibus, sessiles, subaequiloni, ad 10 cm. longi, virides, dense spiculati, spiculis imbricatis, rhachi recta, spiculis subaequilata, 0.6 mm. lata, valide albo-striata, margine viridi latitudine striae cineta, margine scabra; spiculae binatae, pedieellis seabris, triquetris, altera pedieello ipsa subaequiloni, altera ipsa multo breviore fulta, virides, lineari-lanceolatae, acutae, superne leviter sed distinete acuminatae, 3—3.2 mm. longae, gluma inferior parvula, triangulari-acuta, enervis, glabra, superior spicula $\frac{1}{5}$ brevior, vel haud raro spiculam subaequans, lanceolata, 3-nervis, inter nervos et versus margines longe porrecte villosa, gluma III sterilis 7-nervis, nervis aequidistantibus, dorso subglabra, juxta nervum medium glabra, marginibus dense longiter adpresse villosa, villis vix ultra apicem glumae exsertis, gluma IV fertilis viridi-purpurascens, spiculam subaequans vel eam paulo brevior, lanceolata, acuta, minute puncticulato-striolata.

SOUTHERN RHODESIA: Matabeleland; District Belingwe, Gold Fields (southeast of Bulawayo) leg. POTTENSY, 11.2.1932 no. 5503, ex Government Herbarium Salisbury, southern Rhodesia. Typus in H. L. B.

Digitaria lancifolia HENR. nov. spec. Culmus — in specimine basi incompletus — decumbens, demum adseendens, plurinodus, e nodis inferioribus ramosus, ramis sterilibus elongatis erectis, ad nodos glabros radicans; internodia ad basin culmi 3 cm. longa, sensim accrescentia, glaberrima, compressa, carinata, leviter striata, purpurascens; vaginae internodiis breviores, laxiusculae, hiantes, apice a culmo solatae vel eae ramorum arctae, multinervosae, plus minus carinatae, inter striis hirsutae, pilis basi tuberculatis, praesertim ad margines, ligula fusca, membranacea, glabra, lacera, abbreviata, truncata, circa 1 mm. longa; laminae e basi subcordata lanceolatae, sensim acutatae sed haud acuminatae, 5—7 cm. longae, circa 1 cm. latae, multinervosae, nervis primariis circa 11, subaequidistantibus, crassiuseulis percurrentes, nervis secundariis numerosis indistinetis, nervo medio crasso albo valde prominulo, scabrae, pilis longis sparsis basi tuberculatis praeditae, marginibus crispis leviter incrassatis, flaccidae; panicula erecta, longe pedunculata, pedunculo circa 20 cm. longo, nudo, glabro, striato, inflorescentia flabellata, bene bipinnata circa

17 cm. longa, siccando ad 15 cm. lata, axis 10.5 cm. longus, glaber, canaliculatus, superne in racemum erectum, 5 cm. longum abiens, racemi erecto-patuli, numerosi, ad basin paniculae verticillati, superne binati vel solitarii, subaequidistantes, inferiores inferne regulariter pinnati, ad 14 cm. longi, ramulis erecto-patentibus ad 4 cm. longis, superiores sensim decrescentes et in racemum simplicem abeuntes, ramuli etiam subaequidistantes, racemi ultimi minus ramosi vel simplices, spiculae et ramuli in paniculam aequaliter vel subaequaliter dispositae, rami ramulisque triquetri, angustissime vel vix marginati, scabri, in axillis puberuli, racemi hinc inde prope basin pilis albis paucis praediti; spiculae erctae, inferne haud raro 4—5-natae, superne ternatae, summae binatae, pedicellis inaequilongis, longiores 2—3 mm. vel plus longae, breviores haud raro vix 1 mm. longae; spiculae vix 2 mm. longae, vix $\frac{3}{4}$ mm. latae, linearilanceolatae, viridi-purpureae, gluma inferior adest, triangularis, $\frac{1}{10}$ spiculae aequans, glabra, gluma superior concava, spiculam brevior, circa 1.4 mm. longa, ovata, acuta, 3-nervis, inter nervos et versus margines pilis adpressis praedita, gluma III (fertilis) spiculam aequans, apice cuneullata, circa 5-nervis, juxta nervum medium glaberrima, cetera pilis adpressis ut in II praedita, gluma IV leviter acuminata, punctulato-striata, purpurascens.

AFRICA ORIENTALIS: Nyassa Hochland, Station Kyimbila, 16—1800 m.s.m. leg. A. STOLZ no. 1237. 3/5. 1912. Typus in H. L. B.

Digitaria tangaensis HENR. nov. spec. Perennis, longe repens, stolonibus crassis, multinodis, squamosis praedita, squamis multinervosis, inter nervos minute puberulis; culmi sine paniculis ad 50 cm. longi, plurinodes, subcompressi, striati vel canaliculati, glaberrimi, nodis glabris; vaginae valde striatae, carinatae, glabrae, inferiores internodiis longiores, summae interdum valde elongatae, hiantes, ligula glabra, truncata, abbreviata, vix $\frac{1}{2}$ mm. longa; laminae lineares, subtus carinatae, tenuinerves, nervo medio valde prominulo, glabrae, marginibus undulatis subinerassatis, planae, 3—4 mm. latae, valde inaequilongae, circa 10 cm. vel haud raro multo longiores, superne ad apicem leviter involutae et sensim acuminatae; inflorescentia 8—9 cm. longa, pedunculo glabro circa $\frac{1}{2}$ mm. crasso; panicula e racemis circa 8 formata, rhachi communi 3—5 cm. longa, inferne teretiuscula, striata, superne valde sulcata vel canaliculata, glabra, ramis solitariis vel interdum hinc inde geminatis, remotis. Racemi inferiores paniculae ad 5 cm., superiores ad 4 cm. lg., omnes gracillimi, laxiflori, dorso plani, ventre carinati, marginibus vix alatis, rhachi quasi trigona, glaberrima, ad insertionem vix vel minutissime puberula. Spi-

culae binae, pedicellis tenuibus, teretibus, laevibus, apice leviter patellatis, altero spiculam aequante vel subaequante, altero eam plus quam triplo breviore fultae, spiculae 2 mm. longae, vix $\frac{3}{4}$ mm. latae, pallide brunneac, linear-lanceolatae, gluma I spicula 6-plo brevior, triangulari-ovata, enervis, glabra; II spicula distinete sed paullo brevior, lanceolata, apice rotundata, herbaceo-membranacea, quiuenervis, nervis ut videtur haud anastomosantibus, haud excurrentibus, inter nervos medianos brevissime longitudinaliter puberula, versus margines breviter ciliolata; gluma III spiculam aequans, linear-lanceolata, acuta, elevate 5-nervis, nervis aequidistantibus, juxta nervum medium glaberrima, ceterum longitudinaliter puberula; gluma IV (fertilis) spiculam aequans, linear-lanceolata, acuminate, punctulato-striata, scaberula, violascens.

AFRICA ORIENTALIS: Kigombe in districtu Tanga. B. L. Institut Amani. no. 1613. leg. G. SCHOLZ. 5. 1. 1908. Typus speciei in Herb. Berolinensis.

Digitaria proxima HENR. nov. spec. Perennis, probabiliter caespitosa, culmi erecti, simplices, circa 4-nodes, superne longe nudi, basi squamis villosis praediti, glabri, lateraliter compressi, longitudinaliter sulcati vel superne striati, nodis patentim barbatis, nodo summo circa medium culmi sito; vaginae arctae vel lateraliter compressae, dense striatae, superne plus minus hiantes, inferiores breviores, internodiis longiores, superiores valde elongatae, patule villosae vel pubescentes, pilis basi tuberculatis, ligula glabra, lacera, fulva, basi pilis stipata; laminae linear-lanceolatae, multinervosae, nervo medio subtus valde prominulo, marginibus sebris undulatis parum incrassatis, ad 5 mm. latae, ad 15 cm. longae vel inferiores breviores, subadpresso vel patule villosae, sensim acutatae, apice leviter involutae; inflorescentia longe pedunculata, pedunculus teres, striatus, interdum ad 50 cm. longus, praesertim superne pilis albis longis sparsis patentibus praeditus; panicula densa, contracta, cuneata, ad 20 cm. longa, axis elongatus, inferne subcarinatus, superne angulatus, scaber, hinc inde ut in pedunculo, pilis albis ornatus; racemi numerosi, omnes gracillimi, laxiflori, inferiores ad 12 cm. longi, superne sensim deercentes, in axillis pubescentes et hinc inde praesertim ad basin pilis longis praediti, rhachi trigona, dorso applanata, ventre carinata, anguste marginata, scabra; pedicelli bini vel ad basin racemi terni vel quaterni, scabri, trigoni, alter spiculam aequans vel superans, alter ea triplo vel plus brevior; spiculae linear-lanceolatae, viridi-purpurascentes, $2\frac{1}{2}$ mm. longae, circa $\frac{3}{4}$ mm. latae, acutae sed haud acuminatae, gluma inferior deest vel vix evoluta, gluma II et III aequilongae, IIa 7-nervis, inter nervos et versus margines pilis adpressis vestita, gluma IIIa

7-nervis spiculam aequans, juxta nervum medium glabra, gluma IVa spiculam aequans, linear-lanceolata, acuminata et distincte apiculata, convexa, punctulato-striata, seaberula, livide violaceens.

AFRICA ORIENTALIS: District Uhehe, Iringa, prope Kambi ya mboga. Amani Institut no. 2603. leg. ZIMMERMANN 20. 2. 09. Typus speciei in Herb. Berolin.

Digitaria Zeyheri (NEES) HENR. nov. comb. == *Panicum Zeyheri* NEES, Fl. Afric. austr. (1841). The *Digitaria horizontalis*, as described by WILLDENOW from the New World, was accepted by STAPP as an inhabitant of tropical Africa. The east African plants from Abyssinia and South Africa differ in important characters from the New World plants, the latter have a very distinct lower glume and an upper one $\frac{1}{2}$ as long as the spikelet. The specimens from Abyssinia and the plants described as *Panicum Zeyheri* have a wanting or much reduced lower glume and a much longer upper one, $\frac{2}{3}$ as long or nearly as long as the length of the spikelet. Such plants were described (or issued in exsiccatae by HOCHSTETTER) as *Panicum psilostachyum* HOCHST. (Schimper 2256); *Panicum horizontale* RICCIARD (Schimper 1618); *Panicum fenestratum* HOCHST. (Schimper 85) and *Panicum Zeyheri* NEES (Drège). It is noteworthy that the very accurate NEES did not mention the true *Digitaria horizontalis* from South Africa and described only 2 varieties (*glabriuscum* and *subcompositum*). His *P. Zeyheri* was indicated as having an obsolete lower glume and an upper one $\frac{1}{3}$ shorter than the spikelet, two important differences with the actual *D. horizontalis*. Accepting the east african plants as a succedaneous species of the *D. horizontalis*, I have given it the earlier name published by NEES. Some abyssinian plants of HOCHSTETTER may represent once more a different species as *D. fenestrata* RENDLE.

Digitaria Gardneri HENR. nov. spec. Annua, florendi tempore innovationibus nullis. Culmi striete erecti, longissimi, simplices, circa 5—6-nodes, nodis glaberrimus, nodo summo circa prope medium culmi sito, eum panicula plus quam 1 m. alti, teretes, vel superne subcompressi, glaberrimi; vaginae striato-sulcatae, inter striis pilis basi tuberculatis obsitae, internodiis longiores, apice vulgo hiantes vel partim a culmo solutae, ligula brevissima, vix 1 mm. longa, puberula, apice subscariosa, pilis longis stipata; laminae e basi subaequilatae lineares, complicatae, explicatae 3—4 mm. latae, 15 cm. vel plus longae, erectae, multinervosae, nervo mediano crasso valde prominulo praeditae, nervis primariis subaequalibus crassiusculis percursae, secundariis tenuissimis, marginibus

scabris haud incrassatis, pagina superior pilis sparsis praesertim inferne praedita, pedunculus teres, elegans, longissimus, inflorescentia erecta, cuneata, subfastigiata, racemi circa 6, secus axin communem ad 5 cm. longum solitarii vel superiores oppositi, axis teretiuseulus, seaber, racemi ad 15 cm. longi, vel superiores circa 12. em. longi, inferne sublaxiflori, superne subdensiflori, in axillis pilosi, rhachi trigona, spiculis multo angustiore, seabra, vix vel angustissime viridi-marginata, marginibus scabris, spiculae vulgo ternatae, pedicellis tenuibus, linearibus, seaberri-
mis, vix patellatis, primario spiculam multo superante, secundario et tertiaro pluries breviore fultac, racemi inferiores ad basin quasi ramosi, ibique racemuli secundarii formantes et tune 5—6-ni, spiculae 2 mm. longae, 0.7 mm. latae, ovato-lanceolatae, leviter sed distinete acuminatae, gluma inferior deest vel margo indistincto indicatea, gluma superior spicula circa $\frac{1}{4}$ brevior, lanceolata, acuta, 3-nervis, pilis longis undique villosa, pili ultra apicem glumae producti, gluma III spiculam aquans, circa 5-nervis, juxta nervum medium glabra, ceterum adpresso pilosa, pilis strictis, sat rigidulis, fulvis, vel rufidulis, apice non clavatis, porrectis, ultra apicem glumae subpenicillatim productis, gluma IV (fertilis) 1.8 mm. longa, apiculata, distinete puncticulata, atro-purpurea.

BRASILIA: Piauhy in 1839 leg. GARDNER no. 2340. Typus speciei in Herb. Lugd. Bat. sub no. 934. 121—149.

In the group of the annual *Ternata* very characteristic by the stiff, rather rigid rufous hairs on the sterile lemma.

Digitaria villiculmis HENR. nov. spec. Probabiliter annua, sed tempore florendi innovationibus sterilibus paucis munita. Culmi cum paniculis ad 45 cm. alti, striete erecti, binodes, nodis constrictis, villosis, nodo summo infra medium culmi sito, internodia dense erecto-adpresso villosa, pilis basi tuberculatis, pedunculus exsertus, sulcatus, longe patenter pilosus, pilis sordide albis vel subrufidulis; vaginae striatae, dense adpresso villosae, internodiis breviores, ligula vix 1 mm. longa, glabra, hyalina, superne fusca, scariosa; laminae e basi subaequilata lineares, sensim subsetaceo-acutatae, inferiores angustae, 8—9 cm. longae, culmeae planae, multo longiores, interdum 20 cm. longae, ad 3 mm. latae, undique dense villosae, nervo medio prominulo crasso, nervis secundariis distinctis praeditae, marginibus leviter involutis; inflorescentia erecta, e spicis duabus formata, racemus inferior circa 6 cm. longus, sessilis, erecto-patens, superior circa 9 cm. longus, striete erectus, pedunculatus, pedunculo 1—1½ cm. longo, angulis villosis, racemi ad insertiones villosi; spiculae ternatae subdense imbricatae, rhachi trigona, villosa, vix viridi-

marginata, angulis scaberulis, pedicelli seabri, triquetri, ad apicem distinete patellati, sparse longeque pilosi, pilis superioribus ultra apicem excedentibus, pedicellus primarius spiculam circa duplo superans, secundarius eam subaequans, tertarius illa circa duplo brevior; spiculae ovato-ellipticae, 1.8—1.9 mm. longae, circa 1 mm. latae, undique pilis brevibus distinete clavatis dense puberula, gluma inferior deest vel vix distincta, gluma superior spicula paullo brevior, 3-nervis, apice rotundata, gluma III spiculam subaequans, ovali-elliptica, obtusa, 5-nervis (vel sub-7-nervis), gluma IV spiculam aquans, subacuminata, apiculo distinete exserto, valde convexa, seriato-punctata, atropurpurea.

VENEZUELA: Biscaina prope coloniam Tovar. legit A. FENDLER no. 1740. Typus in herb. Vindebonensis sub no. 22949.

A very characteristic species of the group of the „*corynotrichae*” all belonging to the Ternata, with densely puberulous spikelets, the short hairs capitate. In this group the species is striking by the villosity of all the vegetative parts, especially the internodes.

The only other species with such villous internodes is *D. corynotricha* (HACK.) HENR. from Brazil, a more robust perennial plant with sheaths much longer than the internodes, longer blades, about 1 cm. broad, more racemes, glabrous rhachis of the racemes and longer spikelets.

Digitaria Lehmanniana HENR. nov. spec. Annua, radicibus tenuibus; culmi cum paniculis ad 60 cm. alti, ventre valde canaliculati, erecti, graciles, vel geniculato-adscendentes, basi ramosi, paucinodes, nodis glabris, internodio summo longissimo; vaginæ inferiores internodiis parum longiores, striatae, scaberulac, haud pilosae, teretiusculae vel carinatae, ligula interdum ad 2 mm. longa, vulgo 1 mm. longa, albo-fusea, glabra, apice lacera, pilis nonnullis stipata; laminæ e basi subrotundato-cordata lineares, sensim acutatae, ad 6 cm. longae, ad 5 mm. latae, sed vulgo multo breviore et angustiores, nervo mediano albo crasso percursae, marginibus albis crassiusculis undulatis praeditæ, pedunculus strictus, glaber; inflorescentia subpaniculata, axis communis circa 5—6 cm. longus, inferne teres, superne angulatus, glaber, racemi elegantes, inferne solitarii, superne subbinati, subaequaliter remoti, 5—8 cm. longi, superne sensim decrescentes, ad basin (præsertim inferiores) ramulosi, ramulis interdum ad 2 cm. longis, in axillis breviter pubescentes, rhachi scabra, trigona, non vel vix marginata, spiculis multo angustiore, pedicelli erecti, leviter flexuosi, seabri, triquetri, ternati vel superne binati, inferne ad basin racemorum 4—6-ni, valde inaequilongi, pedicelli longiores spiculam 2—3-plo superantes; spiculae perfecte glaberrimæ, pusillæ, 1.2—1.3 mm.

longae, ellipticae, gluma inferior deest, gluma superior apice subrotundata, 3-nervis, nervis infra apicem anatomosantibus, spiculae distincte brevior, gluma III spiculam subaequans, subobtusa, nervis 7 subaequidistantibus praedita, gluma IV apiculata, apiculo distincte exserto, violacea, longitudinaliter lineolato-puncticulata.

COLUMBIA: Forests of highlands of Popayan, 1500—2000 m. leg. LEHMANN in 1886 sub no. B. T. 632. Typus in Herb. Lugd. Bat. sub no. 908, 349—559.

Allied to the old world *Digitaria pedicellaris*, but distinguished by the smaller glabrous spikelets, also allied to the *D. curvinervis*, an annual too, which has however a very short common axis, simple, not branched racemes and a shorter second glume. The same species was collected by Prof. L. R. PARODI in Bolivia: La Florida, Sur Yungas, 1700 m. in the year 1932 in coca plantations (Parodi no. 10058 bis).

Digitaria sabulicola HENR. nov. spec. Annua, caespitosa; culmi erecti, elegantes, circa 3-nodes, vaginæ inferiores dense villosae, pilis horizontaliter patentibus, vel ad nodos reflexo-barbatae, vaginæ internodiis breviores, laminae inferiores breves, planae, latae, villosae, nervo mediano albo crasso, marginibus albis undulatis vel rectis haud vel parum incrassatis, ligula scariosa, truncata, glabra, stramineo-fulva; pedunculus inflorescentiae elegans, striatus, glaber, panicula e racemis 3—4 formata, in axillis pubescens, racemi laxe floriferi, stricte erecti, rhachis angustata marginata, triquetra, secura; spiculae binatae, pedicelli triquetri, securi, apice subcupulati, spiculae virides, erectae, circa 2 1/4 mm. longae, angustae, acutae, vel leviter acuminatae, gluma inferior deest, gluma II 3-nervis spicula paulo brevior, gluma III 5- vel sub-7-nervis, nervis acqidistantibus, gluma IV pallida, acuta, leviter striolata.

Rather densely cespitose plant, forming small tufts, culms together with the panicle 30—40 cm. high, thin, rather few-noded, nodes about 3, internodes terete, the lower ones short, scarcely 1 cm. long, glabrous, gradually becoming longer, the uppermost one (peduncle) very long, exserted, the upper node below half the length of the whole plant, upper nodes glabrous; sheaths densely villous especially the lower ones, with horizontally spreading hairs or the lower nodes bearded with reflexed hairs, the minutely thickened bulbous-based hairs as long as the diameter of the sheath, the leaves thickly velvety, the hairs concealing the nerves, upper leaves becoming narrower and more glabrous, the uppermost blade only up to 1.5 cm. long and scarcely 1 mm. wide, the normal blades in the lower part of the plant about 5 cm. long and 2 mm. broad,

slightly inrolled at the top and quasi pointed or acuminate, ligule scarcely 2 mm. long, peduncle very thin, racemes up to 6 cm. long, solitary, the internodes of the panicle 5—7 mm. long, axis very narrowly winged, almost triquetrous, thin, scabrous, spikelets paired, one nearly sessile, the other pedicelled, the pedicel about 2 mm. long and triquetrous, scabrous, with a slightly discoid tip, spikelets narrowly acute, narrowed at both ends, slightly acuminate, glume I wanting or a rim only, glume II a little shorter than gl. IV, which is a little shorter than the sterile lemma, the nerves of gl. II and III are scabrous and there is a very fine pubescence along the margins of both, the fertile lemma is yellowish, acute and finely striolate.

BRASILIA: Provineia de Espiritu Santo. Voyage d'AUGUSTE DE SAINT-HILAIRE, de 1816 à 1821. Catal. B 2, 2me part. no. 369. Typus speciei in Herb. Mus. Paris.

Digitaria Petelotii HENR. nov. spec. Perennis, culmi creeto-adscendentis, vel decumbentes, ad nodos repentes, multinodes, internodiis dense pubescentibus, pedunculus glaber, nodi adpresso pubescentes; vaginae nervosae, pilis basi tuberculatis praeditae, internodiis breviores, marginibus hyalinis, ligula abbreviata, ciliolata, laminae planae, 4—5 cm. longae, 3—5 mm. latae, marginibus inerassatis, panicula e racemis 2—5 formata, rhachi distinete viridi-marginata; spiculae albo-virides, adpresso villosae, ternatae, pedicelli teretes, glaberrimi, apice eupulati, circa 2.5 mm. longae, 0.8 mm. latae, lanceolatae, gluma inferior deest, superior et gluma III aequilongae, spiculam aequantes, gl. II 3-nervis, inter nervos et versus margines sericea, gl. III 5—7-nervis, versus margines villosa, nervis subaequidistantibus, gl. IV straminea, leviter acutata, minute striolato-puncticulata.

Perennial species but with a rather faint rootstock with small villous scales at the base, decumbent, sending out long runners that root at the lower nodes, ascending upwards, 30—70 cm. long, the internodes densely pubescent, the lower ones becoming less pubescent at age, the uppermost ones glabrous, especially the peduncle which is glabrous throughout, the nodes are adpressedly rather long pubescent; sheaths strongly nerved with tubercle-based hairs between the nerves, the hairs adpressed or slightly ascending; ligule a very short ciliolate rim only, blades flat, erectly adpressed or somewhat spreading, panicle at least afterwards exserted, the racemes hairy at their insertion, about 10 cm. long, solitarily placed along a short, common, striate or grooved axis, rhachis broadly green-winged with scabrous margins, spikelets ternate, one nearly sessile,

the second with a pedicel shorter than the length of the spikelet, the third with a pedicel as long as or slightly longer than the spikelet, the pedicels nearly smooth or upwards slightly scaberulous, terete, often curved, with discoid tips; spikelets adpressed, the lower glume reduced and a rim only, the upper as long as the spikelet, 3-nerved, adpressedly hairy between the nerves and along the margins, the hairs not overtopping the spikelet, sterile lemma as long as the second glume, glabrous along the midnerve, adpressedly villous laterally and along the margins, hairs verrucose, the fertile lemma pointed, striolate-punctate.

CAMBODGE: Campong Chnang, bords des chemins, juillet 1921, leg. M. PETELOT no. 263. Typus speciei in Herb. Mus. Paris.

A beautiful species, remarkable by its tomentous internodes.

Digitaria manongarivensis A. CAMUS nov. spec. Perennis, laxe caespitosa, innovationibus extravaginalibus; culmi stricte erecti, 3—4-nodes, nodis glabris; vaginae internodiis breviores, superne hiantes, subcompressae, albo-striatae, pilis longis albis horizontaliter patentibus, basi tuberculatis dense vestitae, ligula circa 1 mm. vel paulo plus longa, scariosa, denticulata, glabra, sed pilis albis stipata; laminae anguste linearae, sensim subangustatae, marginibus sub apicem involutis et quasi setaceo-acuminatae, undique pilis vestitae, nervo mediano crasso praeditae, praesertim subtus valde prominulo, marginibus albis incrassatis vix scaberulis; pedunculus inflorescentiae longe exsertus subteres vel sub-compressus, glaber, racemi circa 2 subconjugati, 7—8 cm. longi, axis triquetrus, elegans, rhachi plana, distinete viridi-marginata, laevis; spiculae ternatae, pedicelli teretes, glaberrimi, apice distinete cupulati, spiculae albo-virides, erectae, circa 2 mm. vel paulo plus longae, lanceolatae, gluma I deest, gluma II et III aequilongae, inter nervis longitudinaliter adpresse villosae, sed pilis haud excedentibus, II 3-nervis, III 7-nervis vel sub-7-nervis, gluma IV straminea, leviter striolata.

Perennial plant with slightly villous scales at the base of the culms, culms subracemos at the base, the internodes from the base to the summit of the culms gradually becoming longer, culms very elegant, about $\frac{1}{2}$ mm. thick, together with the panicle about 30 cm. high, lower sheaths short, upper ones longer, about 10 cm. long, the lower ones only $4\frac{1}{2}$ cm. long, those of the sterile shoots less than $4\frac{1}{2}$ cm. long, blades 4—7—9 cm. long, about 2 mm. broad or a little narrower, the uppermost leaves of the culms are much reduced, about 1½ cm. long, very narrow and glabrous; racemes about 2, one sessile, the other with a 1 cm. long peduncle, insertion of the racemes pubescent or barbulate, spikelets ter-

nate or quasi alternately binate and solitary on account of the third pedicel which is adnate to the midrib, one pedicel very short, the other one longer, the third one the longest. Hairs of the spikelets verrucose.

MADAGASCAR: Herbier Perrier de La Bâthie. Prés marécageux. Manongarivo (Ambongo) Xre 1904. leg. PERRIER DE LA BÂTHIE no. 11112. Typus speciei in Herb. Mus. Paris.

Digitaria truncata HENRARD et A. CAMUS nov. spec. Perennis, longe repens, culmi ad nodos infimos bulboso-incrassati, multinodes, ibi fasciculatim ramosi, culmi fasciculorum 3—4-nodes, internodio summo longissimo; vaginae et folia glabrae, carinato-compressae, glaucescentes, angustae, circa 5 cm. longae, 1½ mm. latae, nervo mediano vix conspicuo, marginibus albis incrassatis subscaberulis, ligula glabra, circa 1 mm. longa, albo-hyalina, truncata, denticulata; pedunculus inflorescentiae teres, substriatus, glaber, racemi 3 vel 2, digitati, vel 2 sessiles, alter pedunculatus, in axillis leviter pubescentes, 5—6 cm. longi, angusti, rhachi anguste sed distinete viridi-marginata, spiculis angustiore, margine scaberula; spiculae ternatae vel superne binatae, breviter pedicellatae, adpressae, pedicelli inaequilongi, triquetri, scabri, spiculae virides, quasi glabrae, 2½ mm. longae, gluma I distineta, truncata vel emarginatodentata, gluma II 3-nervis, spiculam aequans, quadriseriatim villosa, marginibus longiter villosis, gluma III (sterilis) spiculam aequans, 5—7-nervis, marginibus tantum villosis, gluma IV (fertilis) flavescente, leviter striolato-punctata.

A long decumbent, creeping perennial plant with a many-noded main culm, the nodes bulbous-thickened, sending out fascicles of sterile and fertile erect shoots of about 10 cm. length, the culms of the fascicles few-noded, nodes only 3—4, the uppermost internode of the fascicles long and exserted, the scales at the base of the fascicles villous; leaves glaucous or more or less violaceous upwards, at the tip somewhat inrolled and setaceously acuminate, fascicles together with the inflorescences about 30 cm. long; peduncle elegant, terete and substriate, glabrous, the 2 or 3 racemes digitate or the central one shortly peduncled, spikelets ternate, or at the top of the racemes upwards binate, the shorter pedicels half as long as the spikelets, the longer ones as long as and the longest twice as long as the flowers. The species is as to the vegetative parts very striking and the fascicles resemble those of the *Digitaria glauca*, the lower, very distinct, truncate glume and the equal glumes II and III are however very different and good characters to recognize the species.

MADAGASCAR: Bevilany (Androy), bords de l'eau, 25 mars 1924. leg.

RAYMOND DECARY no. 2455. Typus speciei in Herb. Mus. Paris.

Digitaria psammophila HENR. nov. spec. Perennis, radix crassa, culmi erecti vel erecto-adscendentes, innovationibus extravaginalibus, paucis, ad 5 cm. altis, culmi floriferi multinodes, nodis 5—6, glabris; vaginae internodiis longiores vel breviores, vaginae inferiores sparse hirsutae, vel glabrescentes, adpressae vel subhiascentes, ligula circa 2 mm. longa, alba, glabra, truncata vel fissa; laminae subglaueae, lineares, angustae, planae, sensim angustatae, vulgo 2.5 cm. longae, 2 mm. vel vix 2 mm. latae, margine albo, subincrassato, scaberulo, subundulato, multinervosae, sed nervo mediano haud conspicuo, pagina superior hinc inde pilis sparsis praedita; pedunculus elegans, erectus, teres pro ratione plantae, glaber, striatus; panicula erecta subcongesta e racemis 2—4 formata, racemi stricte digitati, a basi spiculifera, ad insertionem leviter incrassati et puberuli, racemi 3.5—5 cm. longi, erecti, subdense spiculati, axis albus, distincte viridi-marginatus, spiculae binatae, pedicello altero subsessili, altero dimidiata spiculam aequans, pedicelli triquetri, scabri, spiculae flavo-virides vel stramineae, gluma inferior distineta, gluma II (superior) $\frac{3}{4}$ spiculam aequans, 3-nervis, inter nervos et versus margines villosula, pilis adpressis, gluma III (sterilis) spiculam aequans, 5—7-nervis, ad margines tantum villosa, gluma IV (fertilis) straminea, leviter striolata.

Perennial with a rather thick rootstock with villous scales at the base, culms with glabrous internodes, the lower sheaths longer than the internodes, the upper internodes much longer, the uppermost ones rather long with sheaths shorter than the internodes, lower sheaths sparingly hirsute, soon becoming quite glabrous, with here and there a few long hairs at the auricles or at the collar, tightly adpressed or slightly gaping at the summit, the culm-nodes perfectly glabrous, the racemes distinctly winged, the margins as broad as the whitish midrib, spikelets 2.5—2.8 mm. long, the fertile valve slightly shorter than the third glume.

MADAGASCAR: Localité Ambovombe, dans les prés sableux, 3 fév. 1931. leg. RAYMOND DECARY no. 8488. Typus speciei in Herb. Mus. Paris.

Digitaria planiculmis HENR. nov. spec. Perennis, laxe caespitosa, innovationibus extravaginalibus, culmi cum paniculis ad 80 cm. alti, ad basin dense villoso-bulboso-incrassati, striete erecti, 7—10-nodes, nodis subaequaliter dispositis, glabris ut tota planta; vaginae compressae, striatae, internodiis breviores; internodia substriata, distincte compressa, auriculae distinctae, glabrae, ad ligulam connatae, ligula glabra, hyalina, 1 mm. longa, truncata; laminae breves, inferiores 4 cm. longae, superiores longiores, circa 7 cm. longae, e basi subcordata, 2 $\frac{3}{4}$ —4 mm. latae, mar-

ginibus incrassatis, scaberulis, nervo mediano vix vel subtus tantum conspicuo, laminae subsetaceo-acuminatae, pallide glauco-virides, ut tota planta, pedunculus longe exsertus, compressus vel superne tantum teres, striatus, glaber; inflorescentia e racemis digitatis 3—4 formata, in axillis nigris subpubescentibus vel glabris, racemi longissimi, vulgo ad 10 cm. longi, rhachi distinete viridi-marginata, marginibus scabris, spiculis angustiore; spiculae binatae, altera breve, altera longiter pedicellata, pedicellis scabris triquetris, circa 2½ mm. longae, lanceolatae, gluma inferior adest, gluma II (superior) quam spicula duplo brevior, 3-nervis, minute pubescens, ad margines plus minus villosa, gluma III vulgo 5-nervis, interdum sub-7-nervis, nervis validis, inaequidistantibus, tantum versus margines appresse villosa, gluma IV pallida, leviter striolato-punctata.

Culms with a thick bulbous base, densely obtected with villous scales, which become glabrous when old, nodes rather equally distributed, the uppermost internode the longest, plants nearly glabrous throughout, culms and sheaths much compressed, except the uppermost part of the peduncle, the auricles are distinct and slightly protruding, glabrous and united with the ligule, sometimes there is a single hair at the base of the blades, the latter are mostly less than 4 mm. broad. The species has somewhat the habit of *Digitaria compressa* STAPF, and agrees also in the short second glume, but STAPF's species has a fibrous coat at the base of the culms and the lower glume is wanting there.

MADAGASCAR: environs de la baie de Bombetoka, envers 1906. leg. PERRIER DE LA BÂTHIE no. 11049. Typus speciei in Herb. Mus. Paris.

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