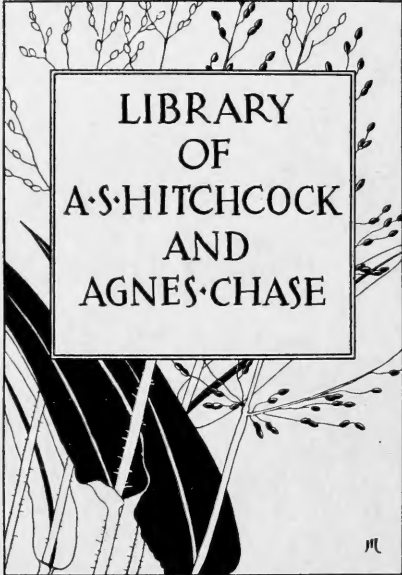
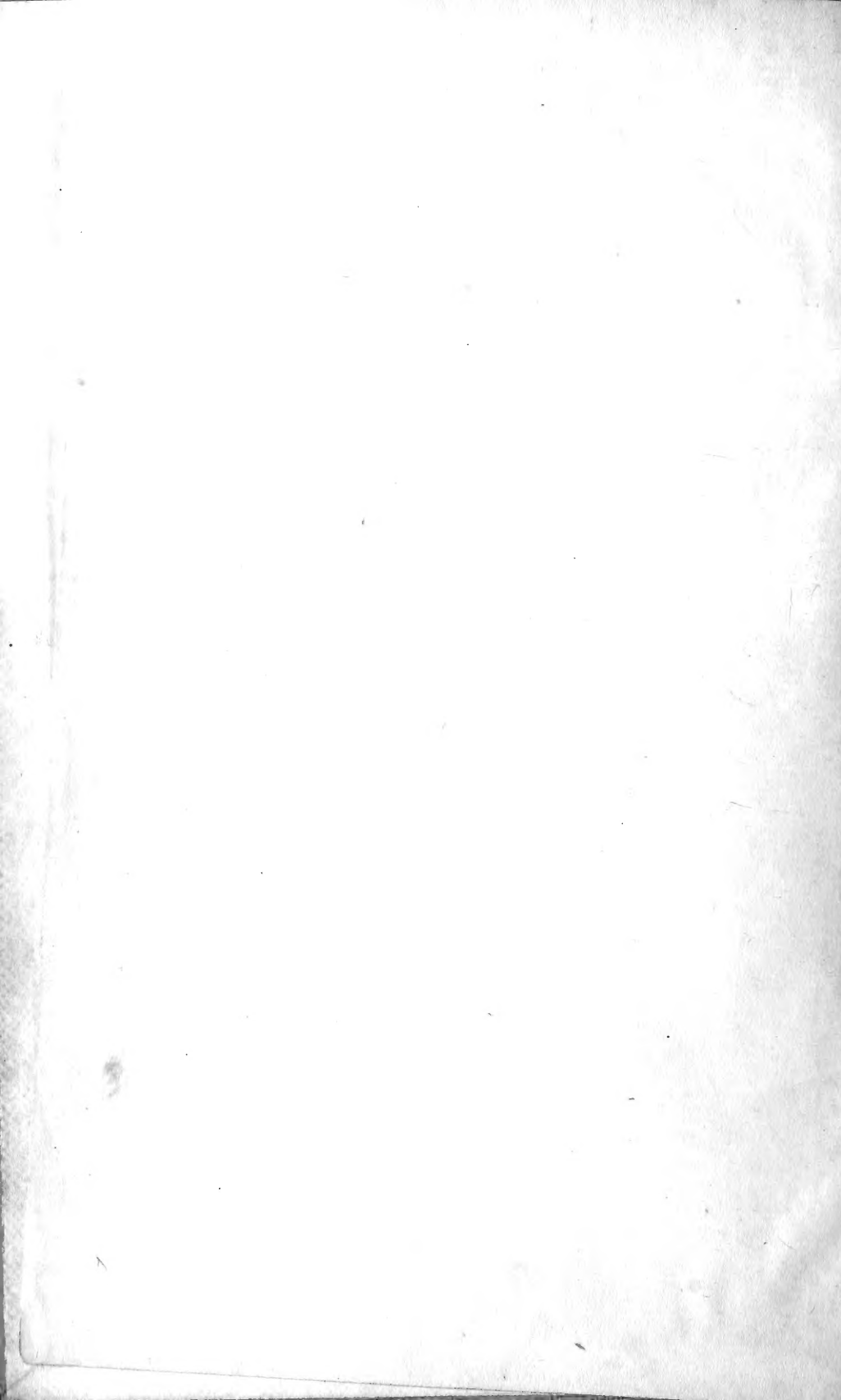
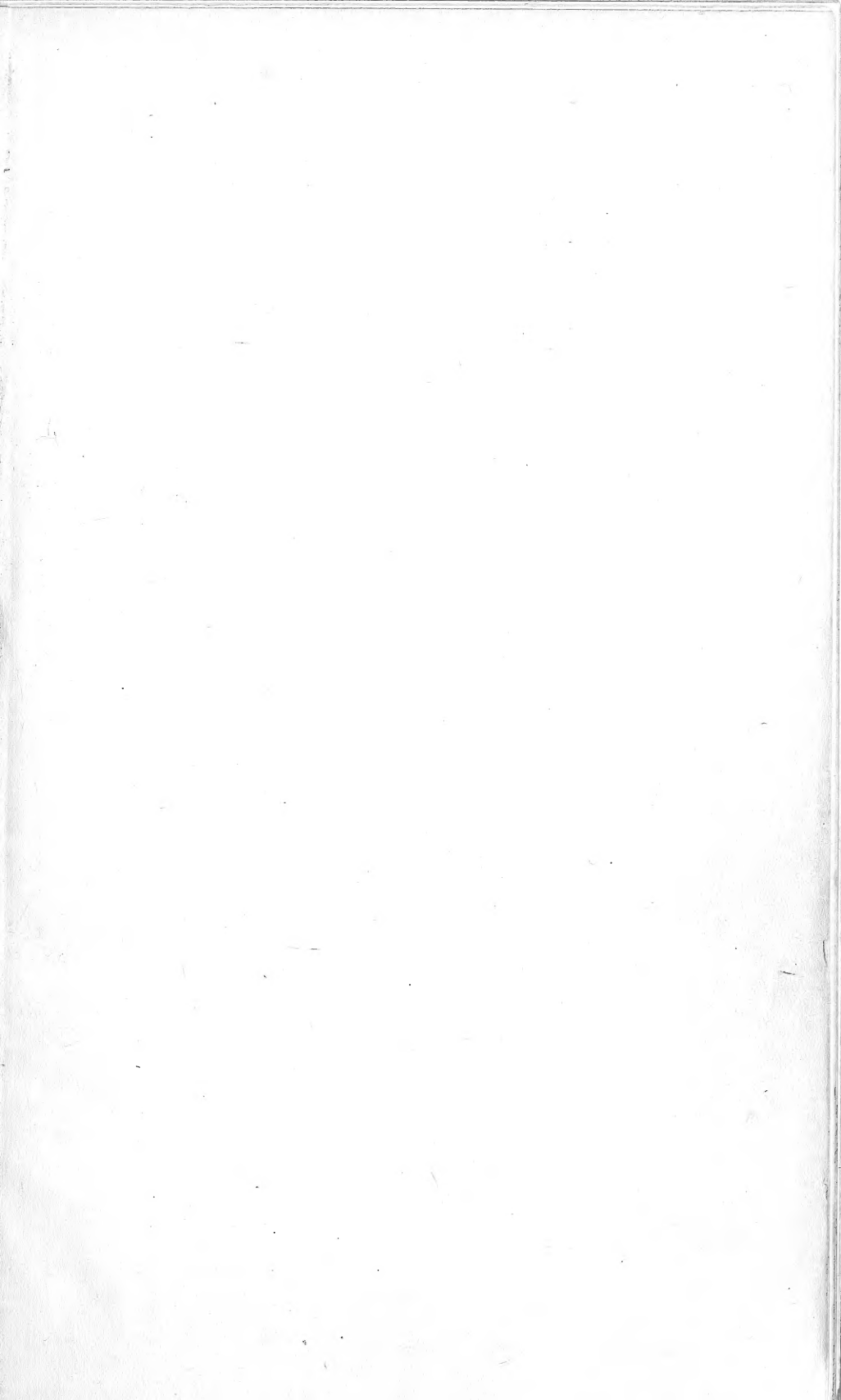


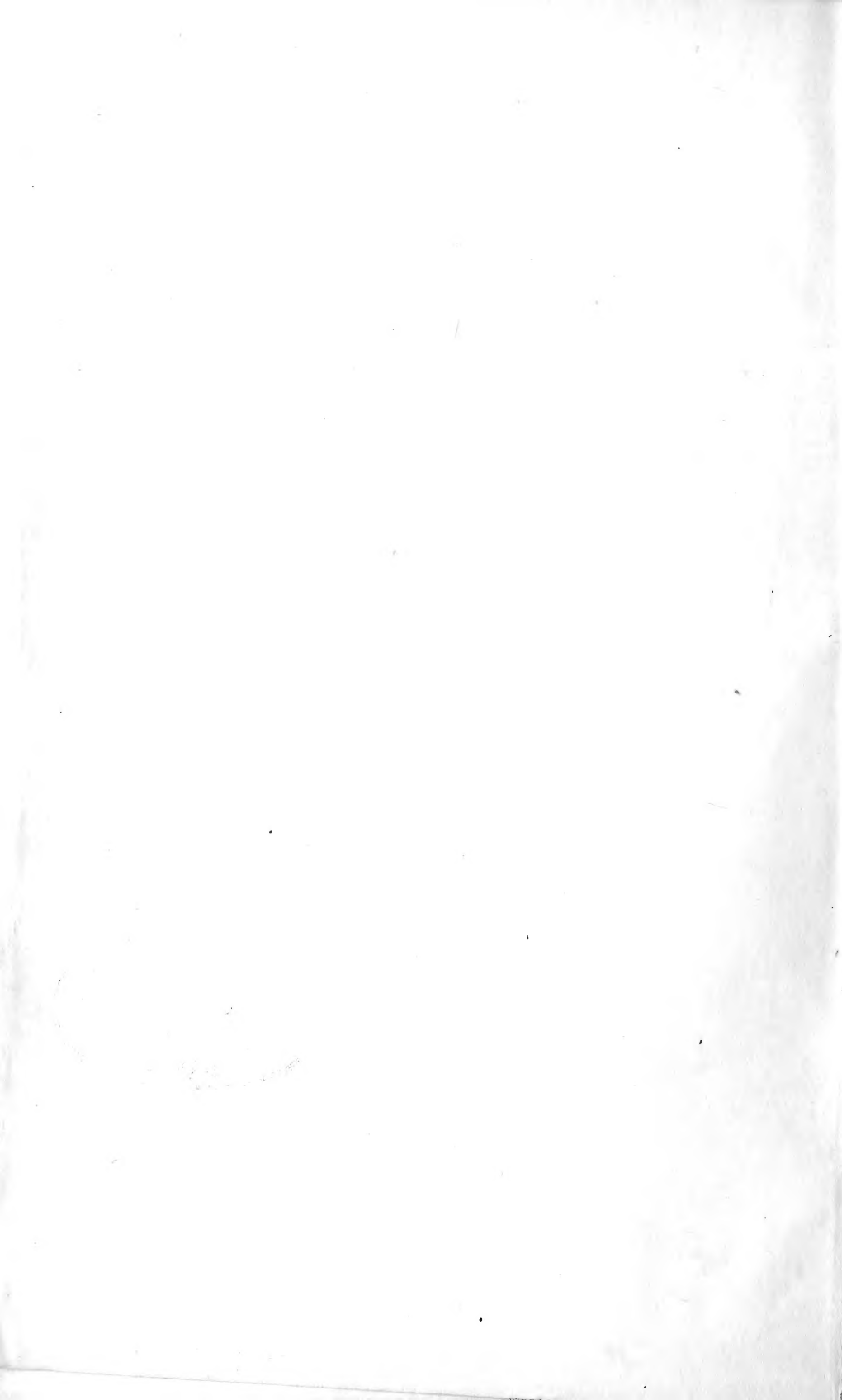
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FROM THE

UNITED STATES NATIONAL HERBARIUM

VOLUME XII, PART 3

TYPES OF AMERICAN GRASSES:

A STUDY OF THE AMERICAN SPECIES OF GRASSES
DESCRIBED BY LINNÆUS, GRONOVIVS,
SLOANE, SWARTZ, AND MICHAUX

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By A. S. HITCHCOCK



WASHINGTON
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1908

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P R E F A C E .

The accompanying paper, by Prof. A. S. Hitchcock, Systematic Agrostologist of the United States Department of Agriculture, entitled "Types of American grasses: a study of the American species of grasses described by Linnæus, Gronovius, Sloane, Swartz, and Michaux," is an important contribution to our knowledge of American grasses.

It is regarded as of fundamental importance in the critical systematic investigation of any group of plants that the identity of the species described by earlier authors be determined with certainty. Often this identification can be made only by examining the type specimen, the original description being inconclusive. Under the American code of botanical nomenclature,^a which has been followed by the author of this paper, "the nomenclatorial type of a species or subspecies is the specimen to which the describer originally applied the name in publication."

The procedure indicated by the American code, namely, to appeal to the type specimen when the original description is insufficient to identify the species, has been much misunderstood by European botanists. It has been taken to mean, in the case of the Linnæan herbarium, for example, that a specimen in that herbarium bearing the same name as a species described by Linnæus in his *Species Plantarum* must be taken as the type of that species regardless of all other considerations. In point of fact, the specimen preserved in the herbarium of Linnæus is often not the type specimen of the species whose name it bears. Linnæus sometimes based a species on the figure and description of an older author, but by mistake placed in his herbarium a specimen belonging to a similar but distinct species. He sometimes failed to preserve the specimen on which one of his species was based, but later preserved some other specimen incorrectly referred to the species. To consider such specimens types would be quite contrary to the letter and the intent of the American code.

An examination of the methods pursued by Professor Hitchcock in locating and identifying the type specimens of American grasses

^a Printed in Bull. Torr. Club 34: 167-178. 1907.

in European herbaria is earnestly commended to those botanists who are not familiar with the method of types or who are opposed to its application.

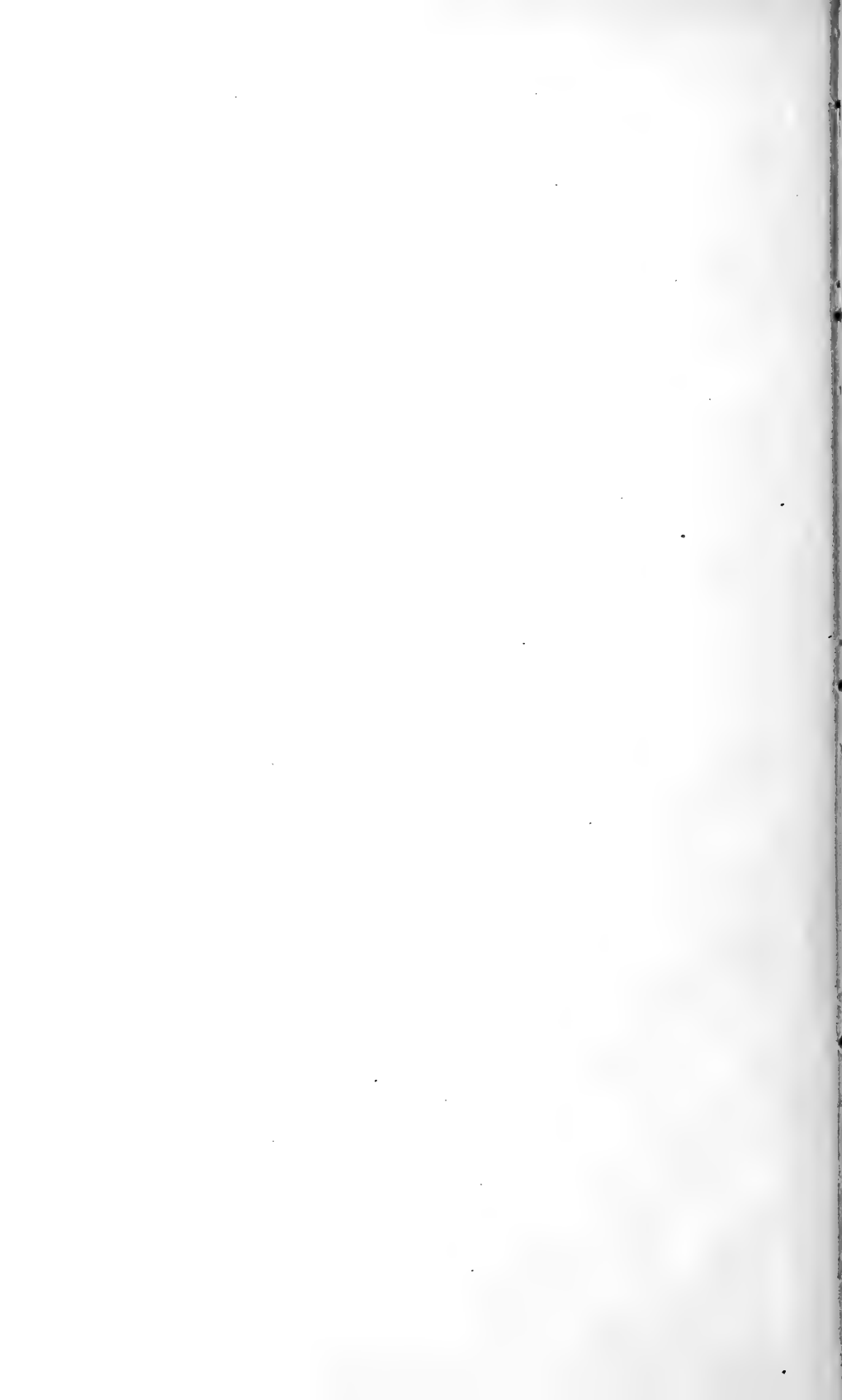
Opportunity was given by various curators for the examination of specimens in their charge. Acknowledgment is made, however, to B. Daydon Jackson, Carl A. M. Lindman, P. H. Lecomte, and A. B. Rendle for special courtesies and assistance rendered by them in facilitating the examination of collections in their charge.

FREDERICK V. COVILLE,

Curator of the United States National Herbarium.

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TYPES OF AMERICAN GRASSES: A STUDY OF THE AMERICAN SPECIES OF GRASSES DESCRIBED BY LINNÆUS, GRONOVIVS, SLOANE, SWARTZ, AND MICHAUX.

By A. S. HITCHCOCK.

INTRODUCTION.

During the spring of 1907 I had the opportunity of examining many types of American species of grasses deposited in European herbaria. In the present paper I have considered the species of grasses described by Linnæus, Gronovius, Sloane, Swartz, and Michaux, the first only so far as they are based upon American material. No attempt is made to determine the types of Old World species.

Since the older authors did not indicate their types, these must be determined from the records which have been preserved. The type specimen is the specimen or one of the specimens from which the author drew up the description. The specimen often supplements or interprets the description. If the author mentions in his original description a definite specimen, if this specimen has been preserved and its identity certified by the data upon the label and by the name of the species added by the author, it is clear that this specimen is the type. However, it often happens that the evidence is less complete. An author may have based his description upon more than one plant (*Panicum pubescens* Lam., see page 147); the supposed type may not agree perfectly with the description (*Andropogon ischaemum* L., page 126); the author may have written the name upon more than one sheet or upon a sheet which is not mentioned in the description (*Panicum latifolium* L., page 118); the locality or other data on the label of the type specimen may not agree with that published (*Zizania fluitans* Michx., page 156); the type specimen may have been sent to another herbarium (*Panicum dichotomiflorum* Michx., page 147); the type specimen may be accompanied by a specimen of a different species upon the same sheet (*Panicum dichotomum* L., page 117); or the type specimen may bear a name on the label which is different from the one published (*Chloris monostachya* Michx., page 152); or

there may be several specimens from which the type must be selected by comparison with the description (*Panicum barbuiatum* Michx., page 148). These and other difficulties complicate the study and make it necessary to examine carefully all the evidence. This evidence not infrequently shows that a species has been misunderstood. The original description may be insufficient to identify the species, but the identity can be established by the type specimen (*Panicum nitidum* Lam., page 148). Tradition may have attached a name to one species, while the description and the type specimen show that the name belongs to another species (*Cenchrus tribuloides* L., page 127; *Agrostis aspera* Michx., page 150).

In the following account I have considered each case upon its merits and have presented the evidence upon which I have based my decision. It will be seen that usually the apparent difficulties disappear and we are able to determine the specimen the author had chiefly in mind when he wrote the description. The earlier authors, especially Linnæus, frequently cited descriptions or plates which they considered as referring to the same plant they were describing. Linnæus even based his binomial upon the description or plate of another author. If an author quotes the diagnosis of a species described by another author and gives a name to this, but has no description of his own, the type of the older author becomes the type of the later (*Panicum capillare*, L., page 118). Linnæus often gave binomial names to species described by others. But if Linnæus wrote a description and there has been preserved a specimen which the evidence shows must have been seen by him when he drew up the description, this specimen is the type, and not the specimen which is the basis of the synonym (*Panicum latifolium* L., page 118; *Paspalum paniculatum* L., page 116). The danger of placing too much weight upon cited synonyms as evidence is shown by the fact that Linnæus sometimes cited a given Sloane plate under different species in different works or even in the same work (*Panicum sanguinale* L., page 117); or the synonyms may be quite different from the species under which they are cited (*Andropogon nutans* L., page 125).

Fortunately the grasses left us by the older authors, though often fragmentary, are in a satisfactory state of preservation, and it is usually possible to determine their identity with certainty.

THE AMERICAN GRASSES DESCRIBED BY LINNÆUS.

The herbarium of Linnæus, preserved at the rooms of the Linnæan Society of London, Burlington House, Piccadilly, contains most of his types. In the following article I have considered only those species based wholly or in part upon American material, nearly all of which was furnished by Kalm, Gronovius, Sloane, or Browne. In the case of Old World species the specimens preserved by Linnæus

may not be type specimens, as he often applied a binomial to a species already well known, but his American species may usually be traced back to definite type specimens. The specimens from Kalm are marked by Linnæus with a small "K." These specimens are credited to Canada by Linnæus, but Kalm traveled as far south as Pennsylvania and New Jersey. The specimens from Patrick Browne in Jamaica are marked "Br." The Gronovius specimens were collected by Clayton and are described in Gronovius's *Flora Virginica*. When Linnæus quotes Gronovius's diagnosis, Gronovius's species is the type and is represented by a specimen in the British Museum. Often Linnæus has a specimen in his own herbarium received from Gronovius which he describes, citing Gronovius as a synonym. In such cases the Linnæan specimen is the type. Linnæus often cites Sloane's plates, but only occasionally quotes his diagnoses. Sloane's specimen is the type only when Linnæus quotes Sloane's diagnosis and has no description of his own. In all cases it must be evident that Linnæus drew up his description wholly or in part from the preserved specimen, which then becomes the type.

Cinna arundinacea L. Sp. Pl. 5. 1753.

This is the species as described in our manuals. The spikelets are nearly 5 mm. long. Linnæus states in his description that Kalm obtained the seed in Canada. The sheet is marked "H U."^a

Phalaris oryzoides L. Sp. Pl. 55. 1753.

There are two sheets, both bearing the name in the handwriting of Linnæus. One of these has a small label pasted on one corner of the sheet, "Gramen miliaceum Vol. 1, pag. 350. n. 1." This, which is clearly the type, is *Homalocenchrus oryzoides* (L.) Poll. Munro states that this specimen is from Gronovius. The type locality of the species, as given by Linnæus, is Virginia. The second sheet, on the other hand, marked "Br" and therefore from Jamaica, is *Homalocenchrus hexandrus* (Sw.) Kuntze. Sloane's plate 71, figure 1, cited later by Linnæus^b is an *Eragrostis*.

Panicum dissectum L. Sp. Pl. 57. 1753.

Upon this sheet Linnæus wrote "*dimidiatum*," which is crossed out, and "*dissectum*;" also "K." The plant is what has been called *Paspalum membranaceum* Walt. Spikes 4, with others hidden in the sheath; spikelets 2 mm. long.

In determining the type of *Panicum dissectum* L. several points must be taken into consideration. Linnæus describes the plant as follows, "*Panicum spiculis alternis; rachi lineari membranacea extrorsum imbricato-florifera*." This applies to the herbarium specimen. The first synonym cited is "*Dactylis spicis alternis numerosis patulis, calycibus unifloris*. Roy. lugdb. 56." The character "*spicis numerosis*" does not apply to the Linnæan specimen. The second synonym, Plukenet, "*Mant. 94. t. 350. f. 2*" (from America), can scarcely be the same as the specimen of Linnæus, for the blades of the figure are long and gradually narrowed to a point. The third synonym is a citation from Sloane, *Hist. Jam. 1: 112. pl. 69. f. 2*. This is the plant now called *Paspalum virgatum*, as shown by the plate and by the specimen preserved in the British Museum. The same plate is cited by Linnæus under *Andropogon fascicu-*

^a An abbreviation for Hortus Upsalensis, indicating that the specimen was cultivated in that botanical garden.

^b Sp. Pl. ed. 2. 81. 1762.

See "Traditional Interpretation of Linnæan Nomenclature" by St. Lager, *Erythraea* 2: 194-201. 1894.

latum.^a The habitat of *Panicum dissectum* is given by Linnæus as "in Indiis." We obtain more light by noting how Linnæus disposed of the species in subsequent works. The next reference is in the tenth edition of his *Systema Naturæ*^b where the genus *Paspalum* is established. The first species is *dimidiatum*, "P. spicis subsolitariis, pedunculo communo membranaceo. *Panicum dissectum*, Sp. Pl. 57. n. 6." Although he bases the new name upon *Panicum dissectum*, he changes the specific name to *dimidiatum*. As his species of *Panicum*. No. 7 in the first edition was called *P. dimidiatum*, and there is no doubt that this is what we now call *Stenotaphrum dimidiatum*, Linnæus apparently became confused, or inadvertently transferred the wrong name. The real *Panicum dimidiatum* is omitted in the tenth edition of the *Systema*, but reappears in the second edition of the *Species Plantarum*. That Linnæus made a slip of the pen in his citation of 1759 is shown by the fact that in the second edition of his *Species Plantarum*^c he restores the name *dissectum* and we have *Paspalum dissectum* based on *Panicum dissectum* of the first edition. Plukenet's figure is still cited, but the other synonyms are omitted. Sloane's plant was taken out and given the name *Paspalum virgatum* L.^d and the same disposition was made of it in the second edition of the *Species Plantarum*. In the latter work Linnæus changes the habitat of *Paspalum dissectum* to "America calidiore," and adds a further description which certainly applies to the specimen from Kalm rather than to any of the others under consideration, "Gramen prostratum foliosum vaginis fere spathaceis. Spicæ paucæ rachi membranacea dilatata ad latitudinem spicæ ipsius distichæ & secundæ. Flores orbiculati."

From the above it seems clear that Linnæus had Kalm's plant before him when he wrote his description of 1753, but that he erred in his synonyms. We must not place too much weight upon the localities, Indies and America calidiore, for at that time there was little knowledge concerning the distribution of American plants. *Paspalum serobiculatum* L.^e from "India orientali" has been considered by some a synonym of *P. dissectum* (as Hooker in *Fl. Br. Ind.* 7: 11. 1896), but I am unable to find any evidence to support this disposition.

It seems proper that we should regard Kalm's specimen in Linnæus's herbarium as the type of *Panicum dissectum* L. and that this name should be taken up for the plant we have been calling *Paspalum membranaceum* Walt., which becomes *Paspalum dissectum* (L.) L.

***Paspalum virgatum* L.** *Syst. Nat.* ed. 10. 2: 855. 1759.

The specimen is from "Br" and is the same as the Sloane plant referred to under the preceding species. The plant from Browne is the type, for, although Linnæus cites Sloane's plate 69, figure 2 under this species, ^f he does not quote Sloane's diagnosis but gives one of his own.

***Paspalum paniculatum* L.** *Syst. Nat.* ed. 10. 2: 855. 1759.

The plant is what has been going under that name in the floras of tropical America. Linnæus here cites Sloane's plate, but uses his own diagnosis, which is quite different from that of Sloane. His description "P. paniculæ spicis inferioribus subgeneris basi villosis," certainly applies to his own plant received from Browne rather than to the Sloane plant or plate. I can not agree with Mr. Nash, who makes Sloane's plant (which is *Panicum fasciculatum* Sw.) the type of this species, and hence calls it *Panicum paniculatum* (L.) Nash.^g This combination could not be used in any case on account of *Panicum paniculatum* (L.) Kuntze,^h which is based on *Paspalum paniculatum* L., without regard to its identity.

^a Sp. Pl. ed. 2. 1483. 1762.

^b 2: 855. 1759.

^c 81. 1762.

^d *Syst. Nat.* ed. 10. 1: 855. 1759.

^e *Mant.* 1: 29. 1767.

^f *Loc. cit.*; also Sp. Pl. ed. 2. 81. 1762.

^g *Bull. Torr. Club* 30: 381. 1903.

^h *Rev. Gen.* 3: 363. 1898.

Paspalum distichum L. Syst. Nat. ed. 10. 2: 855. 1759.

There is no indication on the sheet as to the source of the specimen, though Munro states that it is from Browne. The specimen belongs to this species as generally understood. Spikes 2 or 3; spikelets 3 mm. long, acute, pubescent on the convex side.

Panicum glaucum L. Sp. Pl. 57. 1753.

The type and form β are from the Old World but γ is based on "Panicum spica simplicis, aristis aggregatis flosculo subjectis. Gron. virg. 134." This last form is represented by Clayton no. 579 and is the ordinary form of *Chaetochloa glauca* (L.) Scribn.

Panicum crusgalli L. Sp. Pl. 56. 1753.

One sheet marked "K" is the ordinary small form of this species. This specimen must be considered the type, since it agrees with the description and is the only one to which Linnæus has attached the name. Pinned to this are two other sheets both from Gronovius. One is the large-panicked, short-awned form, with stout erect culms and is the same as the plant in the Gronovius herbarium, cited in Gron. Fl. Virg. as Clayton no. 591, and bears the label, "591 panicum arvense paniculis fuscis densioribus glumis hispidis aristis brevioribus," which is quoted by Gronovius. On the second sheet is the large-panicked, long-awned form with hispid sheaths, now called *Echinochloa walteri* (Pursh) Nash. It bears the label, "579 pl. 2 Panicum arundinaceum spica ampla densa hispida purpurea longis aristatis Clayt.," which is mentioned by Gronovius,^a who also quotes the Bauhin citation given by Linnæus under β . This is, therefore, the specimen upon which the locality "Virginiae cultis" is based and represents Linnæus's idea of *Panicum crusgalli* β .

Panicum sanguinale L. Sp. Pl. 57. 1753.

The specimen upon which Linnæus has written the name is marked "H U" and is the ordinary form of this species, *Syntherisma sanguinalis* (L.) Dulac, as is another sheet pinned to this with a citation from Sloane. Linnæus cites "Gron. virg. 154," in his description. The plant, Clayton no. 457, could not be found at the British Museum, but there is no doubt that Gronovius was describing our ordinary crab-grass—a name which he uses. Linnæus also cites "Sloan. Hist. 1, p. 113. t. 70. f. 2," a synonym which, however, does not affect the identity of the type. In Sloane's herbarium two specimens are covered by this citation. One is *Leptochloa virgata* (L.) Beauv., the other *L. mucronata* (Michx.) Kunth, but the plate is taken from the former. This plate is cited under *Cynosurus virgatus* in the Systema Naturae,^b and under both *Cynosurus virgatus* (page 106) and *Panicum sanguinale* (page 85) in the second edition of the Species Plantarum (1762).

Panicum filiforme L. Sp. Pl. 57. 1753.

The sheet taken as the type is marked "K" and is the ordinary form, *Syntherisma filiformis* (L.) Nash. A second sheet, also marked "K," has this and a specimen of *Muhlenbergia schreberi* Gmel. A third sheet marked "H U" is *Syntherisma sanguinalis* (L.) Dulac.

Panicum dichotomum L. Sp. Pl. 58. 1753.

Linnæus's specimen, marked "K", is *Panicum microcarpon* Muhl. (*P. barbulatorum* of our manuals, not Michaux). Nodes barbed, spikelets 1.5 mm. long. Munro states that this is "the plant described by A. Gray as *dichotomum*." The latter, however, has smooth nodes and spikelets 2 mm. long. It should be noted that since Linnæus gives no description of his own but quotes that of Gronovius the plant of Gronovius becomes the type. Gronovius's specimen (Clayton no. 458) consists of two plants, one of which is the *P. dichotomum* of our manuals and the other *P. oligoanthes* Schultes. The description applies better to the former, which should therefore be taken as the type. This retains the name in the traditional sense.

^a Fl. Virg. ed. 2. 13. 1762.^b Ed. 10. 2: 876. 1759.

***Panicum clandestinum* L. Sp. Pl. 58. 1753.**

The type, from "K", is the autumnal state of this species as commonly understood. Linnæus also cites Sloane, Hist. 1: 120. *pl. 80*, which is *Hackelochloa granularis* (L.) Kuntze (*Manisuris granularis* Sw.), but the description of Linnæus does not apply to this.

***Panicum capillare* L. Sp. Pl. 58. 753.**

The specimen is from "H U." Since Linnæus gives no description of his own, but bases the name on "Gron. virg. 13," the type is Clayton no. 454. This, which is the same as the Linnæan plant, is the broad-leaved form with ample panicle, as described in Britton's Manual. Linnæus's citation ^a of Sloane ^b is *Panicum trichoides* Sw. A specimen in the Stockholm herbarium marked "K" by Linnæus is *P. philadelphicum* Bernh.

***Panicum latifolium* L. Sp. Pl. 58. 1753.**

There are two plants from "K" upon the sheet on which Linnæus has written the name. The left-hand plant is *Panicum macrocarpon* LeConte; the right-hand plant is *Panicum clandestinum* L., both in the vernal state. Pinned to this is a sheet of *Panicum divaricatum* L., but Linnæus has not written the name upon this. There is also a third sheet upon which Linnæus has written the name and "Br." This is *Panicum oryzoides* Sw., but it should be excluded from consideration, as Linnæus appears to have received Browne's plants after he prepared his *Species Plantarum*; at least he does not cite Browne's specimens in the first edition. Linnæus ^c cites Sloane, Hist. Jam. 1: 114. *pl. 71. f. 3*, the species referred to being now called *Panicum sloanei* Griseb. It is the broad-leaved form with large panicle as distinguished from *P. divaricatum* L. Linnæus ^d gives a rather extended description, which applies to the first sheet mentioned above and not to the others. It would apply, I think, to either of the two plants upon this sheet, but rather better to the left-hand plant (*P. macrocarpon* LeConte). It has wider blades and the hairs around the base of the blades are as described: "Folia latitudine Commelinæ ad fauces amplexicaulia; extus collo circum fauces villosa, etiam basi foliorum margine pilosa." Furthermore, he has already described *Panicum clandestinum*. The left-hand plant is therefore taken as the type and the name *Panicum latifolium* L. will stand for what we have been calling *Panicum macrocarpon* LeConte. Some botanists have applied the name *P. latifolium* to the Sloane plant, but Sloane's polynomial is a synonym incorrectly cited. It should be noted that Sloane's polynomial is the second synonym given by Linnæus, the first being from Morison's History, which probably is *P. boscii*, but certainly is not the Sloane species. The plant described as *Panicum latifolium* by Gray and other early American botanists differs from *P. macrocarpon* LeConte in having bearded nodes and larger spikelets. This is described in Britton's Manual as *P. porterianum* Nash, but an earlier name is *P. boscii* Poir., the type of which is in the herbarium at Florence.

***Panicum virgatum* L. Sp. Pl. 59. 1753.**

The type sheet bears the number 578 and Gronovius's polynomial which accompanies this Clayton number in the Flora Virginica.^e It is the species described in our manuals as *Panicum virgatum*. Pinned to this is a sheet of the same species bearing the number 606 and Gronovius's polynomial corresponding to this number of Clayton in his Flora. Linnæus has written the name upon the first sheet only.

^a Sp. Pl. 58. 1753, and ed 2. 86. 1762.

^b Hist. Jam. 1: 115. *pl. 72. f. 3*.

^c Sp. Pl. 59. 1753; ed. 2. 87. 1762.

^d Op. cit. 59.

^e 2: 133. 1743.

Panicum hirtellum L. Syst. Nat. ed. 10. 2: 870. 1759.

The type, from "Br," is *Oplismenus hirtellus* (L.) Roem. & Schult., and is more fully described in Amoen. Acad. 5: 391. 1759. The axes of the spikes are hispid, as also the spikelets, but not the axis of the inflorescence. The awns are about 1 cm. long.

Panicum colonum L. Syst. Nat. ed. 10. 2: 870. 1759.

There are two sheets in the herbarium marked by Linnæus, one being from "Br." Both are *P. colonum* as generally understood, though Munro states that one is *P. crusgalli*. I should consider the specimen from Browne to be the type, as it answers better to Linnæus's description. Linnæus cites Sloane's plate 64, figure 2, but does not use his diagnosis, hence Sloane's plant is not the type.

Panicum reptans L. Syst. Nat. ed. 10. 2: 870. 1759.

This name should replace *P. grossarium*, as indicated below under that title.

Panicum grossarium L. Syst. Nat. ed. 10. 2: 871. 1759.

Nospecimen or locality is cited here by Linnæus but the plant is more fully described, later, in his list of Jamaica plants.^a The specimen in the herbarium is from "Br." The word "reptans" was written on the sheet and then crossed out. *Panicum reptans* L. Syst. Nat. ed. 10. 2: 870. 1759, has been regarded as of uncertain identity. The description applies to this specimen and, as this name is omitted in all the later works of Linnæus, it is quite probable that he described the same plant twice. The description of *Panicum reptans*, placed between *P. hirtellum* and *P. sanguinale*, is as follows: "P. panicula racemis simplicibus alternis secundis, flosculis geminis muticis; pilis rarioribus involucretis." On the next page is the character of *Panicum grossarium* (between *P. miliaceum* and *P. latifolium*): "P. panicula ramis simplicibus, floribus geminis; pedicello altero brevissimo; altero longitudine floris." The specimen is not what has been considered *Panicum grossarium* by most authors but is *Panicum prostratum* Lam. Ill. Gen. 1: 171. 1791. I propose then to take up the name *Panicum reptans* L. for the grass which has been known as *P. prostratum* Lam. Linnæus's description quoted above applies perfectly, even to the occasional long hairs on the rachis. I am assuming that Richter is correct in placing the date of publication of the tenth edition of the Systema in May, 1759, and the dissertation entitled "Pugillus Jamaicensium plantarum" in December, 1759. In the latter work *P. grossarium* is described, but *P. reptans* is not mentioned.

The plant which has been called *Panicum grossarium* and for which a different name must be taken up is *Panicum adpersum* Trin. Gram. Pan. 146. 1826.

Panicum divaricatum L. Syst. Nat. ed. 10. 2: 871. 1759.

The specimen is from "Br." It is the small-leaved clambering form which is also found in southern Florida.

Milium punctatum L. Syst. Nat. ed. 10. 2: 872. 1759.

The type, from "Br," is *Eriochloa punctata* (L.) Hamil. Awn about 1 mm. long; axis pubescent but not villous; no conspicuous hairs around the base of the spikelet.

Agrostis mexicana L. Mant. 1: 31. 1767.

Cultivated, "H U." This is *Muhlenbergia mexicana* (L.) Trin.

Agrostis virginica L. Sp. Pl. 63. 1753.

The Linnean specimen, which is the type, is *Sporobolus virginicus* (L.) Kunth. Linnæus cites after his own diagnosis, "Clayt. virg. 507." Clayton's specimen is the same species. This number is not mentioned by Gronovius in the first edition of his Flora Virginica. In the second edition (page 14. 1762) it occurs under *Uniola subspicata*, etc. This number of Clayton is cited by Linnæus under *Uniola spicata* also.

^a Amoen. Acad. 5: 392. 1759.

Agrostis indica L. Sp. Pl. 63. 1753.

^a The type specimen from "Br." is *Sporobolus indicus* (L.) R. Br. Linnæus^a cites as a synonym, Sloane, Hist. Jam. 1: 115. pl. 73. f. 1. This also is *Sporobolus indicus*. Linnæus cites the same plate under *Poa ciliaris*.^b

Agrostis radiata L. Syst. Nat. ed. 10. 2: 872. 1759.

The specimen in the Linnæan herbarium from "Br" is *Chloris radiata* (L.) Sw. as described in Grisebach's Flora. *Chloris radiata* (L.) Sw. Prod. 26. 1788, is based on *Agrostis radiata* L. Swartz's specimen is also this species. After his own description in the Systema Linnæus cites Sloane's plate 68, figure 3, but does not use his diagnosis, hence the Linnæan plant is the type. Sloane's plant is *Chloris eleusinoides* Griseb.

Agrostis cruciata L. Syst. Nat. ed. 10. 2: 872. 1759.

The specimen is from "Br." Linnæus cites Sloane's plate 69, figure 1 after his own description, but does not use his diagnosis, hence Browne's plant in the Linnæan herbarium is the type. This and Sloane's plant are *Chloris cruciata* (L.) Sw., as generally understood.

^b **Aira spicata** L. Sp. Pl. 64. 1753.

All the species of Aira of Linnæus are based upon Old World material. Linnæus inadvertently gave the specific name *spicata* to two species of Aira in the same publication. The first is on page 63. He discovered this error and in the errata, volume 2, changed the name of the first to *indica*. In the tenth edition of the Systema Naturae he described the first species under the name *A. indica* and the second he changed to *A. subspicata*, thus eliminating the name *spicata* altogether. In the Species Plantarum, ed. 2, 1762, the name *spicata* is retained for the second, probably inadvertently. The two specimens in the herbarium show evidence of these changes. The first sheet, which is *Panicum indicum*, shows the word Aira with a line drawn through, *Panicum* written in front, and the final "a" of the specific name changed to "um." The second sheet, which is *Trisetum subspicatum* (L.) Beauv., shows that "sub" has been later prefixed to "spicata." The specimen of this is pubescent like *Avena mollis* Michx. (*Trisetum molle* (Michx.) Kunth.) Some authors have restricted the Linnæan name to the glabrous form and used Michaux's name for the pubescent form, either as a species or a subspecies. If the two forms are considered distinct, the glabrous form must receive a different name.

As Linnæus corrected the name of the first *Aira spicata* to *Aira indica* in his list of errata, the latter name is valid for that species. The second *Aira spicata* is also valid and the name of the species is *Trisetum spicatum* (L.) Richter, Plant. Europ. 1: 59. 1890 (*T. subspicatum* (L.) Beauv.; *T. molle* (Michx.) Kunth.)

Aira aquatica L. Sp. Pl. 64. 1753 (*Catabrosa aquatica* (L.) Beauv.), *A. caespitosa* L. loc. cit. (*Deschampsia caespitosa* (L.) Beauv.), and *A. flexuosa* L. op. cit. 65 (*Deschampsia flexuosa* (L.) Trin.) appear to be identical with our North American forms.

Poa flava L. Sp. Pl. 68. 1753.

Based on "Gron. virg. 13." Gronovius's specimen, Clayton no. 273, which is the type, is *Triodia cuprea* Jacq.^c I do not consider this species congeneric with *Triodia* R. Br. Beauvois based his genus *Tricuspis* upon this species, changing^d *Poa caeruleascens* Michx. (a herbarium name for this species) to *Tricuspis caroliniana*. But on account of *Tricuspis* Pers. 1807, Roemer and Schultes changed the name of the genus to *Tridens*, citing Beauvois's figure. The type species is *Tridens quinquefida* (*Poa quinquefida* Pursh, which is the same as *Poa flava* L.). Hence the name becomes *Tridens flava* (L.) Hitchc. Rhodora 8: 210. 1906.

^a Sp. Pl. 63. 1753 and ed. 2. 94. 1762.^c Cf. Bot. Gaz. 38: 297. 1904.^b Sp. Pl. ed. 2. 102. 1762.^d Agrost. 77. pl. 15. f. 10. 1812.

a This could scarcely be type as brown specimens were not seen by Linnæus at that time. But the genus is not mentioned by Browne. It is in deff. Jan. but not in Jan. Page
b See note on *Aira spicata* by Hackel, Western Pac. Zool. 8: 64. 1902

Poa capillaris L. Sp. Pl. 68. 1753.

The type specimen, from "K," is *Eragrostis capillaris* (L.) Nees. The Gronovius specimen incorrectly cited by Linnæus (Clayton no. 580) is *Eragrostis pectinacea* (Michx.) Steud.

Poa ciliaris L. Syst. Nat. ed. 10. 2: 875. 1759.

The type specimen, from "Br," is *Eragrostis ciliaris* (L.) Link. Linnæus^a cites Sloane's plate of *Sporobolus indicus* under this.^b

Briza eragrostis L. Sp. Pl. 70. 1753.

The type specimen, from "K," is *Eragrostis megastachya* (Koel.) Link. The Gronovius reference (Clayton no. 582) is the same. Both are the more compact-panicked form. Linnæus's specimen of *Poa eragrostis* L. Sp. Pl. 68. 1753, from Europe is the form with more open panicles, but has the same large spikelets. The European botanists (e. g. Ascherson and Graebner, Syn. Mitteleurop. Fl. 2: 372. 1900.) consider *Poa eragrostis* L. to be the allied species (*Eragrostis minor* Host) with smaller, glandless spikelets, and quite open panicle. Though the Linnæan specimen is *Eragrostis megastachya*, yet the name *Poa eragrostis* may perhaps be considered as applicable to a traditional species rather than to the specimen in his herbarium. This is a question which European botanists will doubtless be prepared to decide. It seems to me, however, that the description applies better to his specimen ("spiculis serratis decemfloris") than to *Eragrostis minor*.

Uniola paniculata L. Sp. Pl. 71. 1753.

The type specimen is marked "Uniola 1," that is, the first *Uniola* described in the Species Plantarum. It belongs to this species as generally understood. Linnæus cites Gronovius, "Uniola calycibus polyphyllis." In the first edition of Gronovius this citation is based upon a reference to Hortus Cliffortianus and not upon a Clayton plant. In the second edition a Clayton plant, no. 909, is mentioned, but this number could not be found in the British Museum. There is no doubt, however, as to the identity of the plant; it is the same as that of Linnæus. Gronovius refers to a figure of Plukenet and gives the common name "sea-side oat."

Uniola spicata L. Sp. Pl. 71. 1753.

The type specimen, from "K," is *Distichlis spicata* (L.) Greene. After his diagnosis Linnæus cites Clayton no. 507, but this is *Sporobolus virginicus* (L.) Kunth. Linnæus had already cited this number of Clayton under *Agrostis virginica*.

Dactylis cynosuroides L. Sp. Pl. 71. 1753.

The Linnæan specimen, which is the type, is from Gronovius and is marked with the number 577 and accompanied by Gronovius's diagnosis. Gronovius's plant cited by Linnæus (Clayton no. 577) is the same, namely, *Spartina polystachya* (Michx.) Ell. and should be called *S. cynosuroides* (L.) Willd.^c

Linnæus subjoins a variety β based on a Gronovian citation. The corresponding plant, Clayton no. 583, is *Spartina glabra* Muhl.

A second sheet pinned to the Linnæan plant mentioned above (no. 577) is marked by Linnæus "1," that is the first species of *Spartina*. There is also a label attached which says "Phalaroides spicis linearibus subternis terminalibus secundis adpressis." This citation is from Loeffling.^d The plant appears to be *Spartina stricta* of Europe, and is probably the basis of the European habitat. (Linnæus gives as habitat, "Virginia, Canada, Lusitania.") There is no evidence of his having seen a plant from Canada. Linnæus's diagnosis "spicis sparsis secundis scabris numerosis" applies to the first Gronovian plant cited rather than to either of the others.

^a Sp. Pl. ed. 2. 102. 1762.

^c Cf. Bot. Gaz. 35: 216. 1903.

^b Pl. 73. f. 1.

^d Iter. 115. 1758.

Cynosurus virgatus L. Syst. Nat. ed. 10. 2: 876. 1759.

The type specimen, from "Br," is *Leptochloa virgata* (L.) Beauv. After his own description Linnæus cites Sloane's plate 70, figure 2, but does not use his diagnosis, hence Sloane's plant, which is also *Leptochloa virgata*, is not the type. Linnæus cites the same plate of Sloane under *Panicum sanguinale*.^a

Bromus purgans L. Sp. Pl. 76. 1753.

One sheet is marked "3 purgans H U." The specimen has rather sparsely retrorse-pubescent, overlapping sheaths and evenly pubescent spikelets. This is *B. latiglumis* (Scribn.) Hitchc.^b (*Bromus altissimus* Pursh, not Gilib.). A second sheet is marked "K 4." In this specimen the sheaths are not overlapping, but the spikelets are pubescent all over like the first. This is *B. purgans* as ordinarily understood and as described in Shear's Monograph of Bromus.^c A third sheet is marked "H U 4" and is like the first sheet. It will be observed that there is considerable confusion here. Bromus no. 3, as described in the Species Plantarum, is called *purgans*, and no. 4 is called *ciliatus*. Both are said to come from Canada, collected by Kalm, the latter (*ciliatus*) being from seed. But none of the specimens is *B. ciliatus* as we understand the species^d nor corresponds to the description given by Linnæus, which is unusually ample. In his description he states "petalorum marginibus (non dorso) valde pilosis," while in the specimens the lemmas are pubescent all over, as described for *B. purgans*. We must conclude that there is no type of *B. ciliatus* in the herbarium and that the specimens marked "4" are not types of this species. We can thus retain the name for the species as described in our manuals and in Shear's Monograph. As to *B. purgans*, Linnæus's description does not distinguish between the three specimens; that is, between *B. purgans* and *B. latiglumis*. Of these three specimens, two are marked "H U," indicating that they were cultivated in the garden at Upsala. The third specimen, marked "K 4," is the only one collected by Kalm. This plant, which is *Bromus purgans* as commonly understood and as described in Shear's Monograph of Bromus,^e should be taken as the type, in spite of the "4" placed upon the sheet by Linnæus, probably inadvertently. In the Stockholm herbarium are two specimens marked *B. purgans*.^e The second specimen, marked by Solander, is *B. latiglumis* (Scribn.) Hitchc. The other, marked by Linnæus "H U 4" and "e semine Canadensi," seems to be the same, though it is only a panicle.

Bromus ciliatus L. Sp. Pl. 76. 1753.

There is no type specimen of this species. The specimens marked "4," that is, *B. ciliatus*, which is the fourth species of Bromus, do not agree with Linnæus's description. The original Linnæan description applies to *Bromus ciliatus* as currently understood and as described in Shear's Monograph of Bromus.^f For a further discussion of this species see notes above under *B. purgans*.

Stipa avenacea L. Sp. Pl. 78. 1753.

The type specimen is from Gronovius, as it bears his diagnosis, "Hordeum spica tenuiori," etc. It is also marked by Linnæus "3 capillata," but does not bear the name *avenacea*. Apparently Linnæus intended first to name the species *capillata*, but subsequently adopted the name *avenacea*. This specimen and that of the Gronovian herbarium (Clayton no. 621) are *Stipa avenacea* as generally understood.

^a Sp. Pl. 57. 1753; ed. 2. 85. 1762.

^b Rhodora 8: 211. 1906.

^c U. S. Dept. Agr. Div. Agrost. Bull. 23: 39. 1900.

^d Shear's Monograph (loc. cit. 31).

^e Cf. Lindman, Arkiv. Bot. 7: 43. 1907.

^f U. S. Dept. Agr. Div. Agrost. Bull. 23: 31. 1900.

a *Avena pennsylvanica* L. Sp. Pl. 79. 1753.

The type specimen, marked "3 K pennsylvanica," is *Trisetum pennsylvanicum* (L.) Beauv.

Avena spicata L. Sp. Pl. 80. 1753.

The specimen is marked "K 10 bromoides." The word *bromoides* has been scratched out with pencil. Since the plant is *Danthonia spicata* (L.) Beauv. and answers to the description of his *Avena* no. 10, *A. spicata*, we may assume that this is the type and that there was some error in marking the name *bromoides* on the sheet. Linnæus later describes an *Avena bromoides* from Europe, a different species.

Arundo phragmites L. Sp. Pl. 81. 1753.

This is based on European material, but there is a reference to Gronovius. In the first edition of Gronovius the number of Clayton's specimen is given as 481. In the second edition the number is 581. Clayton's specimen is numbered 581. It is *Phragmites phragmites* (L.) Karst. (*P. communis* Trin.).

Aristida americana L. Syst. Nat. ed. 10. 2: 879. 1759.

The type specimen, from "Br," is *Bouteloua americana* (L.) Scribn. (*B. litigiosa* Lag.).

Elymus canadensis L. Sp. Pl. 83. 1753.

The type specimen is not the form described as *E. canadensis* in recent manuals, but is the allied glaucous form which has been distinguished as *E. glaucifolius* Muhl. For a discussion of this specimen see note below under *E. philadelphicus*.

Elymus philadelphicus L. Amoen. Acad. 4: 266. 1759.

One sheet is marked by Linnæus "philadelphicus 3" and "H U." Under the latter appears to be the word "Canada." The figure 3 appears to be crossed out. This is the glaucous form called *E. glaucifolius* Muhl. It has a large, pendulous spike, with diverging awns, and blades 1.5 to 2 cm. broad. This is apparently the specimen Linnæus describes under *E. canadensis*, which is *Elymus* no. 3. The diagnosis reads "spica flaccida-pendula." A second sheet has a specimen of the same species, but with erect spike and ascending awns. Linnæus has not written upon this, but there is a transcription of the diagnosis of *E. canadensis* and also "Elymus canadensis, Spec. 3. p. 83," and, "ex seminibus canadensis in hortulo meo [then an illegible word] 1753" followed by "Leche" in pencil. Leche was professor at Åbo. At the Stockholm herbarium there are also two sheets, one marked "Elymus philadelphicus" by Solander and the other "3" by Linnæus and "3 canadensis" by the younger Linnæus. Both are *E. glaucifolius*, but the second is less glaucous, the spike not quite so stout, the awns more ascending. The two specimens correspond very well to the two in the Linnæan herbarium at London, except that the one marked "philadelphicus" at the former place is erect and at the latter place is nodding. It will be noted that in the description of *E. philadelphicus* it is distinguished from *E. canadensis* by having a nodding spike and more flexuous awns. While it seems clear that at the time of describing *E. philadelphicus* Linnæus wished to apply this name to the nodding form and the name *E. canadensis* to the erect form, yet we are left in doubt as to the types of the two. The figure 3 on the specimen in the Stockholm herbarium with erect spike and ascending awns, and marked "canadensis" by Linnæus fil., is said by Lindman^a to have been written by the elder Linnæus. The latter has not marked any specimen with the name *canadensis*. I suspect that the history of the specimen is about as follows: Both forms were growing in the Hortus Upsalensis. Linnæus described *E. canadensis* from the nodding form, and marked the specimen in his herbarium "3." Later he distinguished between the two forms in his garden and

^a Arkiv. Bot. 7: 45. 1907.

2. Scribner has rejected this because L's description states that the ovaries are persistent, I consider this an error of description. In fact the ovaries are persistent again for and there seems to be no doubt that it is as stated above.

decided to call the erect form *canadensis*. So he crossed out the "3" on his specimen and wrote "philadelphicus," but did not mark a specimen "canadensis." In this case the specimen marked "philadelphicus" is the nomenclatorial type of both. Each is described in the second edition of the Species Plantarum, but here he fails to distinguish between them. He copies the diagnosis of *E. philadelphicus*, but not the distinction he has made between that and *E. canadensis*. He also copies the description of *E. canadensis* and distinguishes that from *E. sibiricus* without mentioning *E. philadelphicus*. There is no doubt that all the specimens considered above are the same species, *E. glaucifolius* Muhl., which name must give way to *E. canadensis*. Heretofore the green form with more slender spikes has been considered typical *E. canadensis*. *E. philadelphicus* becomes a synonym of *E. canadensis*. It is interesting to note that in an article on "Demonstrationes Plantarum,"^a in which Linnæus gives a list of plants cultivated in the Upsala garden, he says concerning *E. canadensis*, "Duplex in Horto occurrit; alter spica incurvata, alter spica pendula ut in *E. sibirico*, sed structura plantae vix admittit differentiam specificam."^b

Elymus virginicus L. Sp. Pl. 84. 1753.

The type specimen is marked "4 virginicus." Glumes and lemmas smooth, the former about 1.5 cm. long, including the awn point of about 5 mm., the latter with awns 1 to 1.5 cm. long. The Clayton specimen (no. 446), corresponding to the Gronovian synonym cited by Linnæus, is not in the British Museum.

Elymus hystrix L. Sp. Pl. 560. 1753.

The type specimen is from Gronovius. Linnæus has written upon it "6 Hystrix." The specimen in the Gronovian herbarium at the British Museum (Clayton no. 570) is the same. *Hystrix hystrix* (L.) Millsp. (*Hystrix patula* Moench.).

Hordeum jubatum L. Sp. Pl. 85. 1753.

The type specimen is marked "6 K jubatum." It belongs to this species as described in our manuals.

Coix dactyloides L. Sp. Pl. 972. 1753.

The type specimen is marked "2 dactyloides H U." Linnæus later includes this species in his new genus *Tripsacum*,^b of which it is the type. The specimen is the ordinary form of *Tripsacum dactyloides* (L.) L. with three spikes.

Tripsacum hermaphroditum L. Syst. Nat. ed. 10. 2: 1261. 1759.

Based upon Browne, Hist. Jam. 367. 1756. I did not find a specimen of this. The species is *Anthephora hermaphrodita* (L.) Kuntze (*A. elegans* Schreb.).

Olyra latifolia L. Syst. Nat. ed. 10. 2: 1261. 1759.

This is based on "Olyra, Sloan. Jam. t. 64, f. 2." Sloane's plant, which is the type, belongs to the species as usually described. The Linnæan specimen from "Br" is the same.

Zizania aquatica L. Sp. Pl. 991. 1753.

One specimen marked by Linnæus "Zizania H U" and another marked "1 aquatica" are both the small narrow-leaved form named *Z. aquatica angustifolia* Hitchc.^c The blades are not over 7 or 8 mm. wide. Linnæus gives two synonyms, Gronovius's Clayton no. 574 and Sloane's plate 67, both of which are the ordinary wide-leaved form.

Later Linnæus described a second species, *Z. palustris*.^d There is no specimen in the herbarium marked thus. The description is quite ample, but the only character given which would enable us to tell which form he had in mind is that the leaves are wider than those of *Arundo phragmites*. The latter (*Phragmites phragmites* (L.) Karst.) has blades rarely as narrow as 1 cm. and usually 2 or 3 cm. wide. We may conclude, then, that he is describing the wide-leaved form, or what

^a Amoen. Acad. 3: 401. 1756.

^c Rhodora 8: 210. 1906.

^b Syst. Nat. ed. 10. 2: 1261. 1759.

^d Mant. 2: 295. 1771.

we have been calling *Zizania aquatica*. The description of *Z. aquatica* as given by Linnæus is very short, "panicula effusa," and would apply to either form. He probably did not then distinguish between the two. Both synonyms refer to the broad-leaved form and the habitat given is Jamaica and Virginia, where the narrow-leaved form is not known to occur. However, it seems evident that the only plant that Linnæus saw was the narrow-leaved form. His description was short because he thought there was but one species. The fact that later he described the broad-leaved form as a distinct species confirms the opinion that his idea of *Z. aquatica* was the narrow-leaved species. Consequently we must call the narrow-leaved species *Zizania aquatica* L. and the broad-leaved species *Z. palustris* L.

Pharus latifolius L. Syst. Nat. ed. 10. 2: 1269. 1759.

The type specimen is from "Br," and is the common Jamaican species. Linnæus,^a following his own diagnosis, cites Sloane's plate 73, figure 2, which is the same.

Andropogon divaricatum L. Sp. Pl. 1045. 1753.

The type specimen is marked "2 divaricatum" and is from Gronovius. As pointed out elsewhere,^b this is the same as *A. alopecuroides* L., which is an *Erianthus*. It should be called ***Erianthus divaricatus*** (L.) instead of *Erianthus alopecuroides* (L.) Ell. Linnæus also cites a synonym from Gronovius which is based on Clayton no. 600. This is *Sorghastrum linnaeanum* (Hack.) Nash.

Andropogon nutans L. Sp. Pl. 1045. 1753.

The type specimen is marked "3 K nutans." It agrees with Linnæus's diagnosis and is *Sorghastrum nutans* (L.) Nash, as described in Small's Flora. The panicle is rather compact and the awn bent once. On the back of the sheet is a reference to Gronovius, "Lagurus Clayton 600," but, as indicated above, that is *S. linnaeanum* (L.) Nash. Linnæus cited two synonyms of his *Andropogon nutans*, one from Gronovius based on Clayton no. 621, which is *Stipa avenacea* L., and one from Sloane (plate 14, figure 2), which is *Valota insularis* (L.) Chase (*Andropogon insulare* L.; *Panicum leucophaeum* H. B. K.).

Andropogon alopecuroides L. Sp. Pl. 1045. 1753.

The type specimen is a Gronovian plant and bears Clayton's number 601. The corresponding specimen of Gronovius's herbarium is the same, *Erianthus alopecuroides* (L.) Ell., but should be called *E. divaricatus*, as indicated above in the discussion of *Andropogon divaricatum* L. Linnæus here^c also cites Sloane's plate 70, figure 1, which is *Imperata caudata* Trin.

Andropogon virginicum L. Sp. Pl. 1046. 1753.

The type specimen is marked "7 virginicum," but without indication as to its origin. It belongs to this species as usually understood. Gronovius's specimen (Clayton no. 460) is the same. A second sheet in the herbarium from "Br." is *A. leucostachys* H. B. K. Linnæus^d cites Sloane's plate 68, figure 2, which is *Andropogon leucostachys* H. B. K.

Andropogon bicorne L. Sp. Pl. 1046. 1753.

The type specimen marked by Linnæus belongs to the West Indian species known by this name. A second sheet with a Gronovius label and numbered 602 is *A. scoparius* Michx. The diagnosis of Gronovius, based on this latter specimen, is cited by Linnæus under *A. hirtum*, an Old World plant, but not under *A. bicorne*. Clayton no. 602 in the Gronovius herbarium is also *A. scoparius* Michx. The Gronovian synonym given by Linnæus under *A. bicorne* is supported by a plant in the Gronovian herbarium (Clayton no. 606) which is *Andropogon glomeratus* (Walt.) B. S. P. Linnæus^e cites Sloane, page 42, and later *f* cites his plate 15.

^a Also Sp. Pl. ed. 2. 1408. 1762.

^b Bot. Gaz. 35: 215. 1903.

^c Also Sp. Pl. ed. 2. 1481. 1762.

^d Sp. Pl. ed. 2. 1482. 1762.

^e Sp. Pl. 1046. 1753.

^f Sp. Pl. ed. 2. 1482. 1762.

Andropogon ischaemum L. Sp. Pl. 1047. 1753.

This is an Old World plant, but the only specimen in the herbarium is marked "11 Ischaemum" and is *A. furcatus* ~~Michx.~~ This should not be taken as the type of the species, since it is not the plant Linnæus describes.

Andropogon insulare L. Syst. Nat. ed. 10. 2: 1304. 1759.

The type specimen is from "Br." It is *Valota insularis* (L.) Chase (*Panicum leucophaeum* H. B. K.). After his own description Linnæus cites Sloane's plate 14, figure 2, which is also this species, but he does not use Sloane's diagnosis.

Andropogon barbatus L. Syst. Nat. ed. 10. 2: 1305. 1759.

The type specimen, from "Br," agrees with Linnæus's description. It was first marked *Andropogon fasciculatum*; the specific name was scratched and *barbatus* written above. This latter name is also scratched and *polydactylon* written after. Both changes appear to have been made by Linnæus. The plant is *Chloris polydactyla* (L.) Sw., as described in Grisebach's Flora.^a Linnæus here cites Sloane, plate 65, figure 2, which he earlier referred to *Andropogon fasciculatum*, but which in fact is *Chloris polydactyla*. Later^b Linnæus changes the name *barbatus* to *polydactylon*, citing Browne and also the plate of Sloane just mentioned. Upon these grounds Nash forms the name *Chloris barbata* (L.) Nash,^c but according to the recent code of nomenclature this name can not be used on account of *Chloris barbata* (L.) Sw. Fl. Ind. Occ. 1: 300. 1797, which is *Andropogon barbatus* L. Mant. 2: 302. 1771, from the East Indies.

Andropogon fasciculatum L. Sp. Pl. 1047. 1753.

Munro^d states that there are two Linnæan specimens marked with this name, one being *Eleusine indica* and the other *Pollinia ciliata*. The only plant from America bearing this name in the Linnæan herbarium is the sheet mentioned above under *Andropogon barbatus*, in which the name *fasciculatum* was scratched. But this specimen is marked "Br" and presumably was not available when Linnæus drew up his original description, though the description applies well to this specimen. This specimen is, no doubt, the basis of the Browne synonym cited in Sp. Pl. ed. 2. 1483. 1762, under *A. polydactylon*. Linnæus^e cites Morison, Gramen Dactylon Indicum, etc., but this is an Indian plant and has villous spikes, while Linnæus remarks that the spikes in his specimen are glabrous. The habitat is given in the original publication as "Indies," that is, the West Indies. Linnæus^f doubtfully refers here Sloane, plate 65, figure 2, which is *Chloris polydactyla* (L.) Sw., cited later under *Andropogon barbatus*^g and *A. polydactylon*.^h We may therefore eliminate these two synonyms of Morison and Sloane, which are the only ones given. In the Systema Naturaeⁱ Linnæus retains *A. fasciculatum* along with his new *A. barbatus* to which he transfers the Sloane citation. In the Pugillus Jamaicensium^j he does not mention *A. fasciculatum*, but he gives *A. barbatus*, which is founded on the Browne specimen. In the second edition of the Species Plantarum he still retains *A. fasciculatum* with the original description and the Morison citation, introduces a new citation (Browne Jam. 365), and changes the Sloane citation to plate 69, figure 2, which is *Paspalum virgatum*. It is evident that the type of *A. fasciculatum* is not from America in spite of the continued reference to American citations.

Holcus laxus L. Sp. Pl. 1048. 1753.

The type specimen is a Gronovian plant numbered 589, upon which Linnæus has written "6 laxus." It is *Uniola laxa* (L.) B. S. P. (*Uniola gracilis* Michx.). Clayton no. 589 in the Gronovian herbarium is the same.

^a Fl. Brit. W. Ind. 539. 1864.

/ Loc. cit.

^b Sp. Pl. ed. 2: 1483. 1762.^g Syst. Nat. ed. 10. 2: 1305. 1759.^c Bull. Torr. Club 25: 443. 1898.^h Sp. Pl. ed. 2. 1483. 1762.^d Proc. Linn. Soc. 6: 53. 1862.ⁱ Ed. 10. 2: 1305. 1759.^e Sp. Pl. 1047. 1753.^j Amoen. Acad. 5: 389. 1759.

Holcus striatus L. Sp. Pl. 1048. 1753.

The type specimen is a Gronovius plant numbered 590, upon which Linnæus has written "7 striatus." It is *Sacciolepis striata* (L.) Nash (*Panicum gibbum* Ell.). Clayton no. 590 in the Gronovius herbarium is the same.

Apluda zeugites L. Syst. Nat. ed. 10. 2: 1306. 1759.

The type specimen is from "Br." It is *Zeugites americana* Willd., which, however, must be called **Senites zeugites** (L.) Nash in litt. *Senites* Adans. replaces *Zeugites* R. Br., which is a hyponym.

Cenchrus echinatus L. Sp. Pl. 1050. 1753.

The type specimen, which belongs to this species as usually understood, is marked by Linnæus "echinatus" without indication as to its origin. Following a number of other synonyms Linnæus^a cites Sloane, page 108. The habitat given by Linnæus is "Jamaica, Curassao."

Cenchrus tribuloides L. Sp. Pl. 1050. 1753.

The type specimen, from "K," is the large-burred species of the Atlantic coast which has been called *C. macrocephalus* (Doell) Scribn. and to which the Linnæan diagnosis "*C. glumis semineis globosis muricato-spinosis hirsutis*" and habitat "in Virginiae maritimis" better apply than to the inland plant that has been going under the name *tribuloides*. The inland species must be called *C. carolinianus* Walt. The Gronovian specimen (Clayton no. 206) is the same as the Linnæan. Sloane's plate 65, figure 1, is cited by Linnæus.^b Sloane's specimen is *C. carolinianus* Walt.

THE GRASSES OF GRONOVIVS'S FLORA VIRGINICA.

The herbarium of Gronovius is incorporated in the general herbarium of the British Museum of Natural History. The specimens upon which Gronovius based his description in his *Flora Virginica* were collected in Virginia by John Clayton. Each sheet usually bears a diagnosis and the Clayton number, both of which are given by Gronovius, thus connecting the Clayton specimens with the species described in the *Flora Virginica*. The species are given below in the sequence in which they occur in the first edition of Gronovius's *Flora Virginica* (part 1, 1739; part 2, 1743), the diagnoses being quoted from that work. Many of these polynomials are cited by Linnæus as synonyms under his own species in the first edition of the *Species Plantarum* and are referred to in the discussion of the corresponding Linnæan species, in a preceding portion of this article.

Panicum paniculatum floribus muticis. Gron. Fl. Virg. 1: 1739.

Clayton, no. 381. No specimen was found. I am unable to identify this plant. Gronovius cites also Pluk. *Alm.* 176. t. 92. f. 7. This appears to be a *Panicum* resembling *P. clandestinum* L., but it can not be certainly identified from the figure. This species of Gronovius is not cited by Linnæus.

Panicum panicula capillari erecta, foliis pilosis. Gron. Fl. Virg. 1: 13. 1739.

Clayton, no. 454. The specimen is *Panicum capillare* L., of which it is the type.

Poa spiculis ovatis oblongis nitidis, panicula diffusa. Gron. Fl. Virg. 1: 13. 1739.

Clayton, no. 273. This is cited by Linnæus under *Poa flava*, of which it is the type. The specimen is *Tridens flava* (L.) Hitchc. (*Triodea cuprea* Jacq.).

^a Also Sp. Pl. ed. 2. 1488. 1762.

^b Sp. Pl. 1050. 1753 and ed. 2. 1489. 1762.

Hordeum flosculus omnibus hermaphroditis, involucris flosculos crassitie & longitudine superantibus. Gron. Fl. Virg. 1: 13. 1739.

Clayton, no. 446. This is cited by Linnæus under *Elymus virginicus*. The Clayton specimen could not be found.

Coix seminibus ovatis. Linn. Hort. Cliff. Gron. Fl. Virg. 1: 114. 1739.

Clayton, no. 67. This is cited by Linnæus under *Coix lachryma jobi*. The specimen in the British Museum is a species of *Carex* labeled *C. folliculata*. Gronovius's further description, "Græmen Lacrymæ Jobi affini, fructu in spicam congesto," applies to this specimen of *Carex*, and we may consider it an error of determination.

Coix seminibus angulatis. Linn. Hort. Cliff. Gron. Fl. Virg. 1: 114. 1739.

Clayton, no. 445. This is not cited by Linnæus in the first edition of his *Species Plantarum*. In the second edition he cites Gron. 144 [error for 114] under *Tripsacum dactyloides*. Clayton's specimen is *Tripsacum dactyloides* (L.) L.

Cenchrus capitulis spinosis tomentosus. Gron. Fl. Virg. 1: 122. 1739.

Clayton, no. 206. This is cited by Linnæus under *Cenchrus tribuloides*. The specimen is *Cenchrus tribuloides* L. (*C. macrocephalus* (Doell) Scribn.), the large-burred, maritime form and not the inland *C. carolinianus* Walt.

Andropogon pedunculis conjugatis in medio pilosis, etc. Roy. prodr. Gron. Fl. Virg. 2: 132. 1743.

Under this are included two plants: 1. "*Græmen ischaemum spicis plumosis aristatis, e foliorum alis exeuntibus.*" Clayton, no. 460. This is *Andropogon virginicus* L. In the *Species Plantarum* (page 1046. 1753) under *Andropogon virginicus* Linnæus cites Roy. lugbd. as above and Gronovius by page only, omitting the Gronovian diagnosis. 2. "*Lagurus spicis inter folia brevia ad culmi summitatem dense fasciculatim congestis,*" Clayton, no. 606,^a which is *Andropogon glomeratus* (Walt.) B. S. P. This is not cited by Linnæus. Gronovius cites the same specimen under *Lagurus spicis oblongis*, etc., page 135.

Andropogon spicis conjugatis, calycibus hirsutis. Roy. prodr. Gron. Fl. Virg. 2: 133. 1743.

Clayton, no. 602. This is cited by Linnæus under *Andropogon hirtum*. The specimen is *Andropogon scoparius* Michx.

Andropogon culmo paniculato. Gron. Fl. Virg. 2: 133. 1743.

Clayton, no. 601. This is cited by Linnæus under *Andropogon alopecuroides*. The specimen is *Erianthus divaricatus* (L.) Hitchc. (*E. alopecuroides* (L.) Ell.).

Andropogon foliis arundinaceis. Gron. Fl. Virg. 2: 133. 1743.

Clayton, no. 687. This is not cited by Linnæus. The specimen is *Erianthus contortus* Ell.

Andropogon folio superiori spathaceo, pedunculis lateralibus oppositis unifloris aristis globosis. Gron. Fl. Virg. 2: 133. 1743.

Clayton, no. 621. This is cited by Linnæus under *Andropogon nutans*, the last word of the diagnosis being changed to *fleuosus*, as *globosis* is an obvious error. He

^a There are two sheets marked with this number. The first is *Andropogon glomeratus* (Walt.) B. S. P. It is referred to by Gronovius (page 132) under "*Andropogon pedunculis,*" etc., Roy. prodr., and again (page 135) under "*Lagurus spicis oblongis*" etc., Linn. Hort. Cliff., the Clayton diagnosis being the same in the two cases. (*Lagurus spicis inter folia brevia ad culmi summitatem dense fasciculatim congestis*. Clayton, 606"). The second is *Panicum virgatum* L. referred to by Gronovius (p. 133) under "*Panicum paniculatum glumis acutis,*" with the Clayton diagnosis, "*Græmen miliaceum altissimum,*" etc. In the second edition of the *Flora Virginica* Gronovius disposes of the two specimens in the same way, except that he omits the citation of the page under "*Andropogon pedunculis,*"* etc.

also makes the same citation under *Stipa avenacea*. In the second edition of the Flora Virginica Gronovius refers to Clayton no. 621 under two species, on page 15 under *Stipa*, and on page 158 under *Andropogon*. The Clayton specimen is *Stipa avenacea*.

Panicum paniculatum glumis acutis. Gron. Fl. Virg. 2: 133. 1743.

Two specimens are included: 1. *Gramen miliaceum altum maritimum foliis Arundinis*. Clayton, no. 578; and, 2. *Gramen miliaceum altissimum, panicula omnium maxima sparsa*, etc., Clayton, no. 606. Both are *Panicum virgatum*. This is cited by Linnæus under *Panicum virgatum*, with the proper Clayton diagnosis, "*Panicum paniculatum, glumis acutis* Gron. Virg. 133." Clayton 606^a is also cited by Gronovius under *Andropogon*, page 132, but it is a different diagnosis and a different specimen.

Panicum paniculis simplicibus, culmo ramoso subdiviso. Gron. Fl. Virg. 2: 133. 1743.

Clayton, no. 458. This is cited by Linnæus under *Panicum dichotomum*, of which it is the type. This sheet has two plants, *Panicum dichotomum* L. as usually understood and *P. oligosanthos* Schult. The description applies better to the former, which, therefore, has been selected as the type specimen. For further discussion see page 117.

Panicum spica simplicis, aristis aggregatis flosculo subjectis. Gron. Fl. Virg. 2: 134. 1743.

Clayton, no. 579. This is cited by Linnæus under *Panicum glaucum* γ . The specimen is *Chaetochloa glauca* (L.) Scribn.

***Panicum spicis alternis oppositivis linearibus patentissimis muticis*, etc.** Roy. prodr. Gron. Fl. Virg. 2: 134. 1743. "Crab-grass."

Clayton, no. 457. This is cited by Linnæus under *Panicum sanguinale*. No specimen could be found.

Panicum spicis alternis remotis declinatis compositis. Linn. Virid. Gron. Fl. Virg. 2: 134. 1743.

Clayton, no. 591. This is not cited by Linnæus. Under *Panicum italicum* he cites "Gron. Virg. 134," but the diagnosis is different from anything given by Gronovius. In the second edition of Gronovius the Clayton number is misprinted 561. The specimen is *Echinochloa crusgalli* (L.) Beauv.

Dactylis spicis secundis alternis erectis approximatis, calycibus unifloris subulatis. Gron. Fl. Virg. 2: 134. 1743.

He characterizes this further as "*Gramen maritimum spicatum foliis longis angustis*", etc. Clayton, no. 583. This is cited by Linnæus under *Dactylis cynosuroides* β . The specimen is *Spartina glabra* Muhl.

Gronovius here alludes to two other specimens ("Hujus Generis sunt"). 1. *Gramen maritimum spica crassa dactyloide*, etc. Clayton no. 577. This is cited by Linnæus under *Dactylis cynosuroides*. The specimen is *Spartina cynosuroides* (L.) Willd. (*Spartina polystachya* (Michx.) Ell.) 2. *Gramen avenaceum locustis argenteis speciosis lucidis muticis, uno versu laxe dispositis*. Clayton no. 553. There is no specimen of this and I do not find that it is cited by Linnæus.

***Lagurus spicis oblongis pedunculatis*, etc.** Linn. Hort. Cliff. Gron. Fl. Virg. 2: 135. 1743.

Clayton, no. 606.^a This specimen is cited by Gronovius under the "*Andropogon*" on his page 132 also. Linnæus cites it under *Andropogon bicorne*. The specimen is *Andropogon glomeratus* (Walt.) B. S. P.

Lagurus humilior, panicula unica laxa nutante, culmum terminante. Gron. Fl. Virg. 2: 135. 1743.

Clayton, no. 600. This is cited by Linnæus under *Andropogon divaricatum*. The specimen is *Sorghastrum linnaeanum* (Hack.) Nash.

^a See footnote page 128.

Aira panicula oblonga, floribus muticis, hermaphrodito masculoque, calycibus triphyllis. Gron. Fl. Virg. 2: 135. 1743.

Clayton, no. 590. This is cited by Linnæus under *Holcus striatus*, but he changes the last word of the diagnosis to *diphyllis*. The specimen is *Sacciolepis striata* (L.) Nash (*Panicum gibbum* Ell.).

Aira calycibus trivalvibus trifloris. Gron. Fl. Virg. 2: 136. 1743.

Clayton, no. 589. This is cited by Linnæus under *Holcus laxus*. The specimen is *Uniola laxa* (L.) B. S. P. (*U. gracilis* Michx.).

Poa panicula laxa erecta stricta, spiculis erectis oblongis. Gron. Fl. Virg. 2: 136. 1743.

Clayton, no. 581. This is cited by Linnæus under *Poa capillaris*. The Clayton number on the sheet is 580, and is so cited in the second edition of Gronovius. The specimen is *Eragrostis pectinacea* (Michx.) Steud.

Uniola calycibus diphyllis, spiculis ovato-lanceolatis. Gron. Fl. Virg. 2: 136. 1743.

Clayton, no. 582. This is cited by Linnæus under *Briza eragrostis*. The specimen is *Eragrostis megastachya* (Koel.) Link.

Cynosurus spicis quaternis terminatricibus horizontalibus. Roy. prodr. Gron. Fl. Virg. 2: 136. 1743.

Clayton, no. 597. Linnæus cites the Royen diagnosis under *Cynosurus aegyptius*, but does not cite Gronovius. The specimen is *Eleusine indica* (L.) Gaertn.

Gramen avenaceum locustis aristatis, paniculis forma Echinum referentibus. Gron. Fl. Virg. 2: 136. 1743.

Clayton, no. 570. This is cited by Linnæus under *Elymus hystrix* (Sp. Pl. 560. 1753).

The specimen is *Hystrix hystrix* (L.) Millsp. (*Asprella hystrix* Willd.; *Hystrix patula* Moench).

Arundo panicula laxa, calycibus quinquefloris. Roy. prodr. Gron. Fl. Virg. 2: 137. 1743.

Clayton, no. 581. This is cited by Linnæus under *Arundo phragmites*. The Clayton number in the second edition of Gronovius is misprinted 481. The specimen is *Phragmites phragmites* (L.) Karst. (*P. communis* Trin.).

Arundo maxima. Ad ripas fluminis Maharin & in Carolina boreali crescit. E caudice geniculis perterebratis Angli calamos piscatorios conficiunt. Clayt. Gron. Fl. Virg. 2: 137. 1743.

No Clayton number is given and it is not mentioned in the second edition nor is it cited by Linnæus. It probably refers to the large cane, *Arundinaria macrosperma* Michx.

Gramen arundinaceum glumarum apicibus dilute purpureis. Gron. Fl. Virg. 2: 137. 1743.

Clayton, no. 596. The specimen of this has not been seen, and I am unable to identify it. It does not appear in the second edition of Gronovius.

Oryza glumis carina hispidis. Gron. Fl. Virg. 2: 153. 1743.

Clayton, no. 595. This is cited by Linnæus under *Phalaris oryzoides*. The Clayton number in the second edition of Gronovius is 395. A specimen without number but bearing this diagnosis is *Homalocenchrus oryzoides* (L.) Poll.

Zizania. Gron. Fl. Virg. 2: 189. 1743.

Clayton, no. 574. This is cited by Linnæus under *Z. aquatica*. The specimen is *Z. palustris* L.

The following additional species occur in the second edition of Gronovius's *Flora Virginica*, 1762:

Poa panicula diffusa angulis rectis, spiculis obtusis, culmo obliquo compresso. Linn. Fl. Suec. Gron. Fl. Virg. ed. 2. 13. 1762.

Clayton, no. 936. The specimen is *Poa annua* L.

Uniola subspicata, foliis involutis rigidis. Linn. Spec. Gron. Fl. Virg. ed. 2. 14. 1762.

Clayton, no. 507. Linnæus cites "Clayt. virg. 507" under *Agrostis virginica*^a and also under *Uniola spicata*.^b The specimen is *Sporobolus virginicus* (L.) Kunth. In neither case is a Gronovius or Clayton diagnosis quoted.

Uniola paniculata Linn. Spec. Gron. Fl. Virg. ed. 2. 14. 1762.

Clayton, no. 909. Linnæus cites under *Uniola paniculata* "*Uniola calycibus polyphyllis*. Gron. virg. 136." Gronovius mentions this polynomial in connection with his preceding species, *U. calycibus diphyllis* (*Eragrostis megastachya*). Gronovius's species is without doubt the same as the Linnæan, that is, *Uniola paniculata*, although no specimen was found.

THE GRASSES OF SLOANE'S HISTORY OF JAMAICA.

The grasses described by Sloane are preserved in the Sloane herbarium at the British Museum of Natural History. The list given below is in the same sequence as that of Chapter IV, of Sloane's *History of Jamaica*,^c entitled "Of Herbs with grassie Leaves,"^d from which the diagnoses are quoted. Sloane's plates are frequently quoted by Linnæus in the first edition of his *Species Plantarum*, but in only a few cases are Sloane's specimens the types of the Linnæan species. In the following list it is so stated in connection with each species, if the Sloane plate is cited by Linnæus, or if the Sloane plant is the type of a Linnæan species:

Oryza. Raii hist. 1240.

An account of rice (*Oryza sativa* L.) as cultivated in Jamaica. The specimen is an awned variety.

Milium Indicum arundinaceo caule granis flavescentibus. Herm. Cat.^e p. 425.

An account of sorghum (*Sorghum vulgare* Pers.) as cultivated in Jamaica, "for Provision." The specimen is a form with short compact panicles. There is not enough of the stem to show if it be curved.

^aSp. Pl. 63. 1753.

^bOp. cit. 71.

^cA voyage to the islands Madera, Barbados, Nieves, S. Christophers, and Jamaica, with the natural history of the herbs and trees, four-footed beasts, fishes, birds, insects, reptiles, &c., of the last of these islands; to which is prefix'd an introduction, wherein is an account of the inhabitants, air; water, diseases, trade, &c., of that place, with some relations concerning the neighboring continent and islands of America. By Hans Sloane, M. D. vol. 1, 1707; vol. 2, 1725.

^d1: 102. 1707.

^eSloane's earlier work, *Catalogus plantarum, quae in insula Jamaica sponte proveniunt*, etc. 1696.

Panicum Indicum spica longissima. C. B. Theat. Bot. p. 523.

An account of pearl millet. Said to be cultivated occasionally. No common name is given. The specimen is *Pennisetum americanum* (L.) Schum. (*P. glaucum* L. R. Br.)

Fruentum Indicum Mays dictum. C. B. Cat. p. 26.

An account of Indian corn or maize (*Zea mays* L.) as cultivated in Jamaica. There is no specimen.

Gramen caninum maritimum spicatum quartum. C. B. Cat. p. 29.

The specimen is *Sporobolus virginicus* (L.) Kunth.

Gramen spica brizae singulari, locustis majoribus, villosis, purpurascens.

Cat. p. 30. Tab. 64. Fig. 1.

The specimen is the *Andropogon secundus* of Grisebach's Flora. The awns are all fallen off. The plate appears to have been taken from this specimen. *Heteropogon contortus*

Gramen paniceum maximum, spica divisa, aristis armatum. Cat. p. 30.

Sloane gives the common name "Scotch grass." The specimen is *Echinochloa crus-galli* (L.) Beauv. with medium-long awns. Sloane states that this is cultivated all over Jamaica for fodder.

Gramen paniceum majus, spica simplici laevi, granis, petiolis insidentibus.

Cat. p. 30. Tab. 64. Fig. 2.

This is cited by Linnæus under *Olyra latifolia*^a and the Sloane specimen is the type.

Gramen paniceum spica simplici laevi. Raii hist. p. 1261.

The specimen is *Chaetochloa imberbis* (L.) Scribn.

Gramen paniceum minimum humi stratum, spica divisa mutica, foliis variegatis. Cat. p. 30. Tab. 64. Fig. 3.

This is cited by Linnæus under *Panicum colonum*. There are two specimens, *Echinochloa colona* (L.) Link, from which the plate is made, and *Panicum reptans* L. (*P. prostratum* Lam.).

Gramen echinatum maximum spica rubra vel alba. Cat. p. 30.

The specimen is *Cenchrus echinatus* L., under which it is cited by Linnæus.

Gramen maritimum echinatum procumbens culmo longiori & spicis strigosioribus. Cat. p. 30. Tab. 65. Fig. 1.

This is cited by Linnæus under *Cenchrus tribuloides*. The specimen is (*C. carolinianus* Walt.) *C. pauciflorus* Benth

Arundo saccharifera. C. B. Cat. p. 30. Tab. 66.

The specimen is sugar cane (*Saccharum officinarum* L.) and is cited by Linnæus under *Saccharum officinarum*.

Arundo maxima folio dentato. Cat. p. 32.

There is no specimen. Sloane is evidently describing a bamboo.

Arundo alto gracilis, foliis e viridi caeruleis, locustis minoribus. Cat. p. 33. Tab. 67.

Sloane designates this as "the trumpet reed." The specimen is *Phragmites phragmites* (L.) Karst. (*P. communis* Trin.).

Gramen dactylon bicornè tomentosum minus. Cat. p. 33. Tab. 68. Fig. 2.

This is cited by Linnæus under *Andropogon virginicum*.^b The specimen is *Andropogon leucostachys* H. B. K.

Gramen dactylon spicis brevibus crassis plerumque quatuor cruciformiter dispositis. Cat. p. 33.

The specimen is *Dactyloctenium aegyptium* (L.) Willd.

^aSyst. Nat. ed. 10. 1261. 1759.

^bSp. Pl. ed. 2. 1482. 1762.

Gramen dactylon elatius spicis plurimis tomentosus. Cat. p. 33. Tab. 65.
Fig. 2.

This is cited by Linnæus under *Andropogon barbatus*^a and under *A. polydactylon*^b and, with a question, under *A. fasciculatum*.^c The specimen is *Chloris polydactyla* of Grisebach's Flora.

Gramen dactylon procumbens, crassum & viridius, culmo reclinato. Cat. p. 33.

Sloane gives the common name "Dutch grass." The specimen is *Eleusine indica* (L.) Gaertn.

Gramen dactylon spicis gracilioribus plerumque quatuor cruciformiter dispositis. Cat. p. 33. Tab. 68. Fig. 3.

This is cited by Linnæus under *Agrostis radiata*. The specimen is *Chloris eleusoides* Griseb.

Gramen dactylon bicorne repens, foliis latis brevibus. Cat. p. 33.

There are two specimens, *Paspalum conjugatum* and *Paspalum vaginatum* Sw., as described in Small's Flora. The description applies to the latter. There is no plate.

Gramen dactylon bicorne spicis purpurascens majus. Cat. p. 34. Tab. 65.
Fig. 3.

The specimen is *Eleusine indica* (L.) Gaertn. The same species is described under *Gramen dactylon procumbens*, etc. The plate appears to be the same. There seems to be some confusion here, as the description does not apply in all respects. The spikes are said to be always two, suggesting *Axonopus compressus* (Sw.) Beauv. (*Paspalum compressum* of Grisebach's Flora.).

Gramen dactylon bicorne spicis purpurascens minus. Cat. p. 34. Tab. 68.
Fig. 1.

The species is *Paspalum conjugatum* Berg.

Gramen dactylon bicorne minimum aristas longis armatum. Cat. p. 34.
Tab. 69. Fig. 1.

This is cited by Linnæus under *Agrostis cruciata*.^d The specimen is *Chloris cruciata* (L.) Sw.

Gramen dactylon majus, pannicula longa, spicis plurimis nudis crassis. Cat. p. 34. Tab. 69. Fig. 2.

This is cited by Linnæus under *Panicum dissectum*^e and under *Paspalum virgatum*.^f The specimen is *Paspalum virgatum* L. as commonly understood.

Gramen dactylon, alopecuroides facie, pannicula longissima e spicis plurimis tomentosis constante. Cat. p. 3. Tab. 70. Fig. 1.

This is cited by Linnæus under *Andropogon alopecuroides*. The specimen is *Imperata caudata* Trin.

Gramen dactylon pannicula longa, e spicis plurimis gracilioribus purpureis vel viridibus mollibus constante. Cat. p. 34. Tab. 70. Fig. 2.

This is cited by Linnæus under *Panicum sanguinale*^g and under *Cynosurus virgatus*.^h There are two specimens, *Leptochloa virgata* and *L. mucronata*. The description and plate refer to the former.

^a Syst. Nat. ed. 10. 2: 1305. 1759.

^b Sp. Pl. ed. 2. 1483. 1762.

^c Sp. Pl. 1047. 1753.

^d Syst. Nat. ed. 10. 2: 872. 1759.

^e Sp. Pl. 57. 1753.

^f Syst. Nat. ed. 10. 2: 855. 1759.

^g Sp. Pl. 57. 1753; ed. 2. 85. 1762.

^h Syst. Nat. ed. 10. 2: 876. 1759.

Gramen dactylon panicula longa, spicis plurimis gracilioribus & longis.

Cat. p. 34. Tab. 70. Fig. 3.

The specimen is *Syntherisma setosa* (Desv.) Nash. For a discussion of the name to be used for this species see the account of *Milium digitatum* of the Swartz herbarium, page 142.

Gramini tremulo affine, paniculatum elegans majus, spicis minoribus & longioribus. Cat. p. 34. Tab. 71. Fig. 1.

This is cited by Linnæus under *Phalaris oryzoides*.^a The specimen is *Eragrostis prolifera* (Sw.) Steud., as described in Grisebach's Flora. The plate was made from the specimen. The spikelets are mostly 8 to 10-flowered, the lemmas about 1.6 mm. long, and the paleas minutely ciliate-keeled.

Gramini tremulo affine, paniculatum elegans minimum. Cat. p. 34. Tab. 71. Fig. 2.

This is cited by Swartz under *Poa glutinosa*.^b The specimen is the same as Curtiss, no. 420, from the Isle of Pines, distributed as *Eragrostis bahiensis* Steud.

Gramen miliaceum, sylvaticum, maximum, semine albo. Cat. p. 34. Tab. 71. Fig. 3.

This is cited by Linnæus under *Panicum latifolium*^c and by Swartz under *P. glutinosum*.^d The specimen is *Panicum sloanei* of Grisebach, who cites Sloane's plate.

Gramen miliaceum majus, panicula minus sparsa, locustis minimis. Cat. p. 34. Tab. 72. Fig. 1.

The specimen is *Sacciolepis striata* (L.) Nash (*Panicum gibbum* Ell.).

Gramen miliaceum, panicula viridi, vel purpurea. Cat. p. 34. Tab. 72. Fig. 2.

This is cited by Linnæus under *Paspalum paniculatum*.^e The specimen is *Panicum fasciculatum* Sw.

Gramen miliaceum viridi foliis latis brevibus, panicula capillacea, semine albo. Cat. p. 35. Tab. 72. Fig. 3.

This is cited by Linnæus under *Panicum capillare*.^f The specimen is *Panicum trichoides* Sw.

Gramen pratense panicula & foliis angustissimis, spicis brevibus muticis locustis minimis. Cat. p. 35. Tab. 73. Fig. 1.

This is cited by Linnæus under *Agrostis indica*.^g The specimen is *Sporobolus indicus* (L.) R. Br.

Gramen avenaceum sylvaticum, foliis latissimis, locustis longis non aristatis, glumis spadiceis. Cat. p. 35. Tab. 73. Fig. 2.

The specimen is *Pharus latifolius* L., and Sloane's plate is cited by Linnæus under this species.^h

Gramen cyperoides polystachion, spicis ad nodos ex utriculis seu foliorum alis echinatis prodeuntibus. Cat. p. 36.

This is cited by Linnæus under *Panicum clandestinum*.ⁱ The specimen is *Hackelochloa granularis* (L.) Kuntze (*Manisuris granularis* Sw.).

^a Sp. Pl. ed. 2. 81. 1762.^b Prod. 26. 1788.^c Sp. Pl. 59. 1753; ed. 2. 87. 1762.^d Prod. 24. 1788.^e Syst. Nat. ed. 10. 2: 855. 1759; Sp. Pl. ed. 2. 81. 1762.^f Sp. Pl. 58. 1753; ed. 2. 86. 1762.^g Sp. Pl. 63. 1753; ed. 2. 94. 1762.^h Syst. Nat. ed. 10. 2: 1269. 1759.ⁱ Sp. Pl. 58. 1753; ed. 2. 86. 1762.

In addition to the grasses included in the above chapter, Sloane described four others. Two are from Madeira (Tab. 2. Figs. 4, 5, 6). The other two are described in an account of the plants of the island of Nieves [Nevis].

Gramen dactylon bicornis tomentosum maximum, spicis numerosissimis.

Cat. pl. Jam. p. 33. Table 14 [the plate is numbered 15].

This is *Andropogon bicornis* L. The diagnosis is cited by Linnæus under that species.^a In the second edition^b the plate is also cited.

Gramen avenaceum, panícula minus sparsa, glumis alba sericea lanugine obductis. Cat. pl. Jam. p. 35. Tab. 14. Fig. 2.

This is cited by Linnæus under *Andropogon insulare*.^c It is *Valota insularis* (L.) Chase (*Panicum leucophaeum* H. B. K.).

THE WEST INDIAN GRASSES DESCRIBED BY SWARTZ.

Olof Swartz collected in the West Indies, especially Jamaica, from 1783 to 1787. His collections are preserved in the Natural History Museum at Stockholm.^d His first account of his West India plants was published in 1788 in a small work entitled "Nova Genera et Species Plantarum, seu Prodromus Descriptionum Vegetabilium Maximam Partem Incognitorum quae sub Itinere in Indiam Occidentalem annis 1783-87 Digessit Olof Swartz." This work contains the diagnoses of most of his new species of grasses. A few more appear later in his more comprehensive work entitled "Flora Indiae Occidentalis."^e In the later work the descriptions are considerably amplified and often aid in identifying his earlier diagnoses. A few of his types of grasses are missing from his herbarium, but in all cases I have been able to identify the corresponding species from his descriptions or from authentic specimens distributed by Swartz to other herbaria, such as those of Munich and Madrid. In this article the species accredited to Swartz and published by Wikström in *Adnotationes Botanicae* (1829) have not been considered except when these are based on American material.

Olyra pauciflora Sw. Prod. 21. 1788.

The type specimen, labeled "Jamaica Fl. ind. occ.," belongs to this species as generally understood.

Olyra paniculata Sw. Prod. 21. 1788.

The type specimen is *Olyra latifolia* L. Swartz gives Linnæus's name as synonym.

Sacharum polystachyon Sw. Prod. 21. 1788.

No specimen of this could be found, but it is without doubt the species as generally understood; that is, *Paspalum saccharoides* Nees, as described in Martius's *Flora Bra-*

^a Sp. Pl. 1046. 1753.

^b Sp. Pl. ed. 2. 1482. 1762.

^c Sp. Pl. ed. 2. 1481. 1762.

^d A few of the Swartz types, chiefly species of *Paspalum*, had been loaned to Prof. Carl Mez, who kindly allowed me to examine them at his herbarium in Halle.

^e Vol. 1, 1797; vol. 2, 1800; vol. 3, 1806.

siliensis.^a Swartz's specific name can not be taken up on account of *Paspalum polystachyum* R. Br.^b

Leersia monandra Sw. Prod. 21. 1788.

No specimens of *Leersia* could be found that were types or in any way authentic. This species and the following are probably correctly understood. This species is now called *Homalocenchrus monandrus* (Sw.) Kuntze.

Leersia hexandra Sw. Prod. 21. 1788.

This is now *Homalocenchrus hexandrus* (Sw.) Kuntze.

Leersia oryzoides Sw. Prod. 21. 1788.

This is based on *Phalaris oryzoides* L., now called *Homalocenchrus oryzoides* (L.) Poll.

Paspalum conjugatum Berg.

This is included by Swartz in his Prodrumus (page 21). No specimen of it was found in the Stockholm herbarium, but there is at Madrid a specimen sent by Swartz which belongs to this species as usually understood.

Paspalum vaginatum Sw. Prod. 21. 1788.

There are two Swartz specimens, on one of which is the name in the handwriting of Swartz, but both are said to have come from Mauritius. They show the characters that distinguish this species, as described in Small's Flora, from *P. distichum* L. The spikes are widely spreading or deflexed, the sheaths inflated, the spikelets smooth, the midnerve of the glume on the convex side suppressed. On one specimen the spikelets are 2.5 mm. long, on the other they are 4 mm. long. No specimen from Jamaica was found that appeared to be authentic. In the Copenhagen herbarium is a specimen sent by Swartz to Vahl which is without locality but is labeled *Paspalum vaginatum*. This has pubescent spikelets and corresponds to *P. distichum*.

Paspalum filiforme Sw. Prod. 22. 1788.

No specimen of this could be found in the Swartz herbarium. At Munich there are two sheets sent by Swartz labeled *P. filiforme*. One is *Paspalum (Paspalus) caespitosum* Flüge and the other is *Syntherisma setosa* (Desv.) Nash.^c Neither of these corresponds to the description of Swartz, which, as amplified in his Flora,^d is sufficient to identify the species. It is the species described under this name in Grisebach's Flora. Flüge changed the name to *Paspalus swartzianus* because of his own *Paspalus filiformis* (L.) Flüge based on *Panicum filiforme* L.,^e but Swartz's name is valid.

Paspalum decumbens Sw. Prod. 22. 1788.

There is a specimen in the Stockholm herbarium and also specimens in the herbaria of Berlin and Delessert sent by Swartz. All are the species as generally understood. This has been called *Paspalum pedunculatum* Poir.,^f which name must be used on account of *Paspalum decumbens* Rottb. 1778. *Panicum decumbens* Roem. & Schult.^g is based upon Swartz's species. Fournier has referred this to his genus *Dimorphostachys*,^h but the presence of an outer glume is too variable a character to be used as the basis for separating this group as a genus.

^a 2^o: 92. 1877.

^b Prod. Fl. Nov. Hol. 188. 1810.

^c See *Milium digitatum* Sw., p. 142 below.

^d Fl. Ind. Occ. 1: 136. 1797.

^e Flüge, Mon. Pasp. 96. 1810.

^f Encycl. Suppl. 4: 315. 1816.

^g Syst. 2: 429. 1817.

^h *D. pedunculata* (Poir.) Fourn. Mex. Pl. 2: 15. 1886.

***Paspalum dissectum* Sw. Fl. Ind. Occ. 1: 137. 1797.**

Flügge ^a changes the name of this to *Paspalus caespitosus* on account of *P. dissectum* L. (1759), which is a different species. The Swartz specimen is from Jamaica and is marked *P. dissectum* Sw. and also *P. caespitosum* Flügge. It is *P. caespitosum* as described in Grisebach's Flora.

***Panicum setosum* Sw. Prod. 22. 1788.**

The specimen in the Stockholm herbarium is *Chaetochloa setosa* (Sw.) Scribn. as described by Scribner and Merrill.^b It is also described by Grisebach^c under *Setaria setosa* Beauv.

***Panicum pilosum* Sw. Prod. 22. 1788.**

The type specimen is labeled "Jamaica, Swartz. fl. ind. occ." It belongs to the species described under this name in Martius's Flora Brasiliensis. It differs from *P. laxum* in the densely flowered, comparatively short panicle branches (2 to 3 cm. long) and in the pilose rachis. *Panicum distichum* Lam.^d is the same, as indicated by the type specimen at Paris labeled by Lamarck "*Panicum distichum* lam. dict." Another synonym is *Panicum pilisparsum* G. F. W. Mey.^e In the Trinius herbarium there is a specimen of this sent by Meyer, apparently a fragment from the type at Göttingen.

***Panicum molle* Sw. Prod. 22. 1788.**

The type specimen is labeled in the handwriting of Swartz "P. molle fl. ind. occ." This specimen is not the species which has been generally described under this name, but *P. velutinatum* Nees,^f a South American species allied to *P. fasciculatum* Sw., and not known to occur in the West Indies. The^g panicle is like that of *Panicum reticulatum* Torr., while the spikelets are very much like those of *Panicum arizonicum* Scribn. & Merr. The spikelets are 3 mm. long, brown, sparsely reticulate-nerved, and finely velvety-pubescent. The description in the Prodrum under *P. molle* is brief and applies to this specimen, except that the branches of the panicle are said to be spreading, while in the specimen they are erect-appressed. Swartz cites as a synonym "Panicum 2. Brown. Jam. 133," which is the plant commonly understood as *Panicum molle*, that is, *Panicum barbinode* Trin. The locality is given by Swartz as "India occidentalis." Swartz gives a more extended description in his Flora, where the habitat is given as "in pascuis fertilioribus subhumidis Jamaicae." We must decide whether Swartz is describing the specimen he has preserved or whether he is describing the forage plant of Jamaica, that is, the Browne plant. The description of the culm applies to either except "inferne subdivisus" and "crassus," which are not true of the Swartz specimen but are true of *P. barbinode*, and "pubescens," which does not apply to *P. barbinode*. The blades are said to be "villosa, mollia," which applies only to the Swartz specimen. The spikes are described as "fuscis," which applies to the Swartz specimen and not to *P. barbinode*, on which the inflorescence is green or purple tinged. Referring to glumes, "valvula exterior minuta" applies best to *P. barbinode*, as, in the specimen, the first glume is half as long as the spikelet, and in *P. barbinode* only about one-fourth as long. Second glume "pubescens" applies to the Swartz specimen; in *P. barbinode* the spikelets are glabrous. The interior valve (palea) of the neutral flower is said to be minute, but in both species it is well developed. The transversely rugose fertile lemma common to both species is not mentioned. In a note Swartz states that the species is distinguished by its soft pubescence and the thick, somewhat succulent culm, for which latter feature it is much liked by cattle for fodder. He

^a Mon. Pasp. 209. 1810.

^b N. A. Species Chaetochloa; U. S. Dept. Agr. Div. Agrost. Bull. 21: 39. 1900.

^c Fl. Brit. W. Ind. 555. 1864.

^d Encycl. 4: 731. 1797.

^e Prim. Fl. Esseq. 57. 1818.

^f Agrost. Bras. 121. 1829.

further states that it is called in Jamaica Dutchgrass and is indigenous in Surinam. Swartz probably thought his specimen to be the same as Browne's plant, and, while he described his own specimen, his description was modified by his knowledge of the habit of the other species. Under these circumstances I think we should consider the specimen in Swartz's herbarium as the type of *Panicum molle*, which name should be taken up for *Panicum velutinatum* Nees. A specimen in the Munich herbarium labeled *P. molle* from Jamaica, sent by Swartz, is *Panicum sloanei* Griseb. or some closely allied species. I am not yet prepared to say whether or not *Panicum numidianum* Lam. (1791) of Africa is the same as *Panicum barbimode* Trin. (1835) of Brazil. They are made synonymous in Martius's *Flora Brasiliensis*. In the type of *P. numidianum* the spikes are rather loosely flowered, the rachis lacks bristles, and the lower glume is half as long as the spikelet. According to Hooker,^a this should be *Panicum muticum* Forsk.

***Panicum fasciculatum* Sw. Prod. 22. 1788.**

There are two forms upon the sheet, which is labeled "Jamaica, Swartz. *P. fasciculatum*. fl. ind. occ." The chief specimen (which I accept as the type) is a good match for Maxon no. 1659, collected in Jamaica in 1903. The spike-like racemes are slender and 6 to 8 cm. long, the axis and pedicels pilose with scattered long, white hairs. The spikelets are 2 mm. long, strongly reticulated, glabrous, rather dark brown in color. The right-hand specimen, also *P. fasciculatum*, has a more compact panicle, with shorter spikes and spikelets about 2.5 mm. long.

***Panicum chartaginense* Sw. Prod. 22. 1788.**

The specimen is marked "Panicum chartaginense Fl. Ind. Occ. Swartz." It is the same as to floral character as the right-hand specimen of *P. fasciculatum* mentioned above, and has compact panicles with spikes about 2 cm. long. The habit of the plant is somewhat different. The culms are more or less prostrate-spreading, the leaves short and crowded and more or less pubescent, especially the sheaths; the panicles are somewhat included at the base; the spikelets are 2.5 mm. long. The general appearance is that of *Panicum reticulatum* Torr. of Mexico. This form can be recognized as a subspecies under the name of *Panicum fasciculatum chartaginense* (Sw.) Doell.^b (*Panicum chartaginense* Sw.; *P. reticulatum* Torr.)

***Panicum nemorosum* Sw. Prod. 22. 1788.**

The type specimen is marked by Swartz with the name and "fl. ind. occ." It is *Ichnanthus nemorosus* (Sw.) Doell.

***Panicum acuminatum* Sw. Prod. 23. 1788.**

The type sheet is marked by Swartz "*P. acuminatum* fl. ind. occ. Jamaica. Swartz." The plants are all the autumnal state. This has recently been described as *Panicum comophyllum* Nash, Bull. Torr. Club 30: 380. 1903.

***Panicum rigens* Sw. Prod. 23. 1788.**

The type specimen is marked "*P. rigens* fl. ind. occ. Jamaica. Swartz." It is an *Isachne*, and is the same as that described by Grisebach in his *Flora of the British West Indies* under the name of *I. rigens* Trin. Grisebach's plant collected by Macfadyen in Jamaica, preserved in the herbarium of Grisebach at Göttingen, is the same. *Isachne rigens* Trin. is based upon *Panicum rigens* Sw. and the name of our plant is *Isachne rigens* (Sw.) Trin. Gram. Pan. 252. 1826, although the plant described here and in Martius's *Flora Brasiliensis* appears to be *Isachne rigidifolia* (Poir.) Urb. (*Agrostis rigidifolia* Poir. The type specimen of *Agrostis rigidifolia* Poir. was examined in the herbarium at Florence. It has distichous, glabrous leaves, and rigid, spreading, panicle branches quite different from those of *Panicum rigens* Sw. Sieber no. 265 from Martinique is *I. rigidifolia* and is cited by Grisebach, indicating that he confused the two species. Some of the plants sent by Swartz to other herbaria under the name of

^a Fl. Brit. Ind. 7: 34. 1896.

^b In Mart. Fl. Bras. 2^o: 205. 1877.

Panicum rigens are not the same as the plant in his own herbarium. The specimen at Florence is *I. rigidifolia*. The specimen from the general herbarium at Stockholm, which was seen by me at Halle, is *Panicum acuminatum* Sw. The specimen at Berlin I think is the same as the original at Stockholm, though it has longer leaves, the blades being 6 cm. or more long; but, as in the case of the other, the surface of the blades is scabrous to the touch as described by Swartz. There are some points in Swartz's description which lead one to think that he had seen *Isachne rigidifolia*. He says, in the more extended description in his Flora,^a "Gramen rigiditate peculiare." But in the original diagnosis in the Prodrromus he states that the leaves are scabrous, which applies to his specimen, but not to *Isachne rigidifolia*. Swartz's type at Stockholm is well matched by Fendler no. 1637 from Venezuela (U. S. National Herbarium no. 822538).

***Panicum fuscum* Sw. Prod. 23. 1788.**

The type specimen is marked "*P. fuscum* Flor. ind. occ. Jamaica, Swartz." The panicles are small and compact like those of *P. chartaginense* Sw., and the spikelets are like those of *P. fasciculatum* Sw., but slightly larger. A good match for this is Maxon no. 2361 from Jamaica. It should be considered a synonym of *P. fasciculatum*.

***Panicum laxum* Sw. Prod. 23. 1788.**

The type specimen is marked "*P. laxum* fl. ind. occ. Jamaica, Swartz." It belongs to this species as usually described. Synonyms are: *P. agrostidiiforme* Lam. 1791, type at Paris marked "lam. ill. gen. ex D. Richard;" *P. tenuiculmum* Meyer, 1818, portion of type in the herbarium of Trinius at St. Petersburg marked "Prim. Fl. Esseq.," sent by Meyer; *P. diandrum* Kunth, 1829, type in the Berlin herbarium, collected in Guadaloupe by Balbis (the second specimen cited by Kunth, Rio Janeiro, collected by Gaudichaud, is also in the Berlin herbarium); *P. ramuliflorum* Hochst. in Steudel, Syn. Pl. Glum. 1854, type in the herbarium of Steudel at Paris. This last specimen is also marked *Agrostis nigrescens* Salzm. and is from Bahia. Steudel's cited specimen, Kappler Pl. Surin. no. 1523 is the same species (fide specimens seen in various herbaria, such as those of Munich and Leipzig).

***Panicum flavescens* Sw. Prod. 23. 1788.**

The type specimen is marked "*P. flavescens* fl. ind. occ. Jamaica, Swartz." It is the same as *P. fasciculatum*. The panicle is somewhat more open, but the branches of the panicle are slender, about 8 cm. long, resembling in this respect the specimen of *P. fasciculatum* rather than that of *P. fuscum*, but nearly devoid of bristles. The spikelets are brownish, strongly reticulated, slightly exceeding 2 mm. in length. *Panicum flavescens* as described by Grisebach^b and by Hooker^c is very different, being a species of the section Ptychophyllum.

***Panicum diffusum* Sw. Prod. 23. 1788.**

The type specimen is labeled "diffusum fl. ind. occ.," and belongs to that species as generally understood.

***Panicum oryzoides* Sw. Prod. 23. 1788.**

The type specimen labeled "*P. oryzoides* fl. ind. occ. Jamaica, Swartz." is the same as *P. zizanioides* H. B. K. (1815), which name must be used on account of *Panicum oryzoides* Ard. Animad. Spec. Alt. 16. 1764.

***Panicum pallens* Sw. Prod. 23. 1788.**

The type specimen marked "*P. pallens* fl. ind. occ." is *Ichnanthus pallens* (Sw.) Munro.

^a Fl. Ind. Occ. 1: 154. 1797.

^c Fl. Brit. Ind. 7: 56. 1896.

^b Fl. Brit. W. Ind. 547. 1864.

Panicum lanatum Sw. Prod. 24. 1788.

The type specimen marked "*P. lanatum* fl. ind. occ. Jamaica. Swartz," is allied to *P. divaricatum* L. and *P. sloanei* Griseb. The species is characterized by the densely lanose-velvety sheaths and blades. On account of the earlier *Panicum lanatum* Rottb. Descr. Pl. 3. 1776 (*Valota insularis* (L.) Chase), I suggest for Swartz's species the name **Panicum swartzianum** (*Panicum lanatum* Sw., not Rottb.).

Panicum arundinaceum Sw. Prod. 24. 1788.

There are two plants upon the type sheet, which is marked "*Panicum arundinaceum* fl. ind. occ. Jamaica. Swartz," one with a large spreading panicle, the other with a narrow compact panicle. The description applies better to the first, although they are both *Isachne arundinacea* (Sw.) Griseb.

Panicum polygamum Sw. Prod. 24. 1788.

The type specimen marked "Prodr." is *Panicum maximum* Jacq., an earlier name, which Swartz himself uses in his Flora.^a

Panicum glutinosum Sw. Prod. 24. 1788.

The type specimen marked "*P. glutinosum* fl. ind. occ." from "Jamaica. Swartz," belongs to this species as generally understood.

Panicum trichoides Sw. Prod. 24. 1788.

There are two plants upon the type sheet, which is labeled "*trichoides* fl. ind. occ." from "Jamaica. Swartz." The left-hand specimen is the form described as *P. brevifolium* in Grisebach's Flora; the other is the same as the type of *Panicum trichanthum* Nees in the Berlin Herbarium, examined at Halle. The leaf blades of the right-hand specimen are longer and the spikelets somewhat larger than in the left-hand one. Sloane's plate^b of *Panicum brevifolium* is cited by Swartz. It is evident from the more complete description given later in his Flora that Swartz considered his species the same as *P. brevifolium* L. and variable enough to include both the plants preserved, but wished to change the name. The type of *P. brevifolium* L. is from India. The species is shown by description and the specimen in the Linnæan herbarium to be *P. ovalifolium* as described in Hooker's Flora of British India. Hence we may consider *P. trichoides* Sw. as applying to the Tropical American species usually described as *P. brevifolium* L. (*P. capillaceum* Lam. Tabl. Encycl. 1: 173. 1791), the left-hand plant being taken as the type, and adopt *Panicum trichanthum* Nees for the larger form.

Panicum caespitosum Sw. Fl. Ind. Occ. 1: 149. 1797.

The type specimen marked "*P. caespitosum* fl. ind. occ." from "Jamaica. Swartz" is *Panicum prostratum* Lam., but, as shown previously (page 119), we should use the name *Panicum reptans* L. for this species. The Mexican plant which has been distributed under the name *P. caespitosum* in recent collections is a different species.^c

^aFl. Ind. Occ. 1: 170. 1797.

^bHist. Jam. pl. 72. f. 3.

^cThis was brought to my attention by Professor Mez, of Halle, for whom I propose to name this species:

BRACHIARIA MEZIANA sp. nov.

Perennial; culms caespitose, glabrous, at first erect, 20 to 30 cm. high; later branched and decumbent becoming as much as 70 cm. long; leaves light green, sheaths densely ciliate on the margin, sometimes sparsely pilose on the surface, blades 5 to 12 cm. long, 5 to 10 mm. wide, moderately stiff and firm, glabrous or sparsely pilose on either surface, ciliate on the margin near the base with papillose hairs; early panicles long-exserted, later ones less so or scarcely exserted, consisting of several spike-like racemes 2 to 3 cm. long, along the upper 2 to 3 cm. of the culm; spikelets placed with the first glume toward the axis, arranged in 2 rows on one side of a somewhat flattened narrow rachis interspersed with pilose hairs, nearly sessile, glabrous, 3 mm. long, ovate, subacute; first glume ovate, 3-nerved, 1 mm. long, second glume as long as

Panicum hirsutum Sw. Fl. Ind. Occ. 1: 173. 1797.

The type specimen from "Jamaica, Swartz" is, as described by Swartz, a robust plant with appressed-hirsute sheaths and a large, somewhat compact panicle about 20 cm. long, with glabrous acute spikelets about 2 mm. long. Pringle no. 5573 from Mexico is the same.

Panicum kalmii Sw. Adnot. Bot. 6. 1829.

The type specimen, from Kalm marked *P. kalmii* and also *P. heterophyllum*, is *Panicum sphaerocarpon* Ell.^a

Panicum compactum Sw. Adnot. Bot. 14. 1829.

The type specimen is from Jamaica, and belongs to this species as described by Grisebach.^b Grisebach describes this as a new species "Sw. Herb.," overlooking the description by Wikström in the Adnotationes cited above. There is an earlier *P. compactum* Kit.,^c but this is mentioned as a synonym under *Panicum germanicum* and hence, not being actually published, is not a valid name. I do not find that Kitaibel's name was taken up before the publication of *P. compactum* Swartz.

Milium compressum Sw. Prod. 24. 1788.

No specimen of this could be found, but the excellent description of Swartz in his Flora^d leaves no room for doubt. It is the common pasture grass of the West Indies called *Paspalum compressum* Rasp. and *Anastrophus compressus* Schlecht. The characters of the species and its allies seem sufficiently distinct from *Paspalum* to warrant the segregation of the group as a genus. Schlechtendahl suggested for it the name *Anastrophus*. *Axonopus* Beauv. has been rejected by some authors on account of the dubious characters assigned to it; and has been accepted by others for diverse groups, usually centered around *Panicum ciminicum* Retz. Beauvois^e assigns four species to this new genus, none of which he figures: *Milium compressum*, *M. digitatum*, *M. ciminicum*, *M. panicum*. In a note he mentions another species, *Axonopus aureus*, which he characterizes very briefly, and which he says seems to him as if it ought to belong to that genus. He complicates matters somewhat by placing the mark of doubt in the index after all the species of this genus except *A. aureus*. The type of the genus must be

spikelet, convex, prominently 5-nerved, sterile lemma as long as spikelet; flat on back, prominently 5-nerved, the first pair of nerves forming the angle of the incurved edges, the second pair of nerves near the margin, sterile floret with three stamens and a well-developed palea as long as the lemma, fertile lemma and palea minutely roughened but not rugose, the former bearing a prominent apiculation about 0.5 mm. long.

Low moist places on the plains of Mexico.

Specimens examined:

Pringle 9592, Federal District, Cerro de Guadalupe, altitude 2,770 meters, August 19, 1901; Palmer 533, 254; Conzatti & Gonzales 348; Bourgeau 222, 439; Nelson in 1893; Pringle 375.

Besides these specimens which are in the National Herbarium I have examined the following cited by Fournier under *P. caespitosum* (Mex. Pl. 2: 18. 1886): Bourgeau 679, Berlandier 575, 795, Liebmann 382, Schaffner 190, 317, Virlet 1309.

The type specimen is no. 156925 of the U. S. National Herbarium (Pringle's 9592).

The genus *Brachiaria* was established by Grisebach (in Ledeb. Fl. Ross. 4: 469. 1853) with a single species, *B. eruciformis* (Sibth.) Griseb., which is the type. *Brachiaria* differs from *Panicum* chiefly in having spikelets so placed that the fertile floret stands with its palea toward the axis, i. e., with the first glume toward the axis. The spikelets are subsessile in one-sided racemes, these racemose on an elongated axis.

^a Bot. S. C. & Ga. 1: 125. 1816.

^d Fl. Ind. Occ. 1: 183. 1797.

^b Fl. Brit. W. Ind. 552. 1864.

^e Agrost. 12. 1812.

^c In Schultes, Oester. Fl. ed. 2. 1: 212. 1814.

either *Milium compressum* Sw. or *Axonopus aureus* Beauv. I believe the former should be taken as the type, though I think the two species are congeneric. Swartz species then should be known as *Axonopus compressus* (Sw.) Beauv.

Milium paniceum Sw. Prod. 24. 1788.

The type specimen is *Syntherisma filiformis* (L.) Nash (*Panicum filiforme* L.).

Milium digitatum Sw. Prod. 24. 1788.

The type specimen is *Syntherisma setosa* (Desv.) Nash as described in Nash's review of *Syntherisma*.^a The long-exserted peduncles bear 2 to 4 slender spikes, with narrow rachis. It is well matched by Heller no. 4398 from Porto Rico and Wright no. 764 from Cuba. The spikelets are narrow, slightly exceeding 2 mm. in length. Swartz's name is earlier than the other names for this, hence the species becomes **Syntherisma digitata** (Sw.).

Milium villosum Sw. Prod. 24. 1788.

The type specimen is *Valota insularis* (L.) Chase (*Andropogon insulare* L.; *Panicum leucophacum* H. B. K.).

Agrostis purpurascens Sw. Prod. 25. 1788.

The type specimen is *Sporobolus purpurascens* (Sw.) Hamilt., as described in Grisebach's Flora.

Manisuris granularis Sw. Prod. 25. 1788.

This is based on *Cenchrus granularis* L. The specimen belongs to this species, i. e., *Hacklochloa granularis* (L.) Kuntze.

Manisuris myuros L.

The specimen is a Rottboellia from the East Indies. Swartz gives no locality in the Prodrromus.

Chloris cruciata Sw. Prod. 25. 1788.

This is based on *Agrostis cruciata* L. The specimen belongs to this species.

Chloris ciliata Sw. Prod. 25. 1788.

The type specimen belongs to this species as generally understood. It is well matched by Curtiss no. 600 from Cuba.

Chloris petraea Sw. Prod. 25. 1788.

The type specimen belongs to this species as generally understood, and as described in Grisebach's Flora. Doell^b changes the name of this to *C. swartziana* on account of *C. petraea* Thunb., which, however, is a later name.

Chloris polydactyla Sw. Prod. 26. 1788.

This is based on *Andropogon polydactylon* L. The specimen belongs to that species.

Chloris radiata Sw. Prod. 26. 1788.

This is based on *Agrostis radiata* L. The specimen belongs to that species. ?

Chloris barbata Sw. Fl. Ind. Occ. 1: 200. 1797.

This is based on *Andropogon barbatum* L. Mant. 2: 302. 1771.

No specimen of this could be found in the Swartz herbarium.

Chloris virgata Sw. Fl. Ind. Occ. 1: 203. 1797.

There is no specimen of this. A cover was found marked with the name, but containing nothing, and upon which some one has added an "0." From the description it would appear to be the species represented by plate 18 in Martius's *Flora Brasiliensis*, vol. 2, part 3. Grisebach includes it under *C. radiata* in his Flora, but from this species it is excluded by the statement in Swartz's diagnosis "corollina exteriore gibbosa, dorso apiceque ciliata."

^a The genus *Syntherisma* in North America, Bull. Torr. Club 25: 300. 1898.

^b In Mart. Fl. Bras. 2³: 68. 1877.

Andropogon saccharoides Sw. Prod. 26. 1788.

There is no specimen of this from Swartz at Stockholm, but at Munich there is a specimen sent by Swartz and marked "prodr." It belongs to the species described under this name in Grisebach's Flora.

Andropogon fastigiatum Sw. Prod. 26. 1788.

The type specimen from "Jamaica, Swartz" belongs to this species, as described in Grisebach's Flora.

Andropogon brevifolium Sw. Prod. 26. 1788.

There is no specimen of this at Stockholm from Swartz, but at Munich there is a sheet of specimens from Jamaica sent by Swartz and marked "prodr." This is partly *A. brevifolium* as generally understood and as described by Swartz, and partly *A. leucostachys* H. B. K. In the absence of other evidence we may consider the Munich specimen as the type, excluding the portion which is *A. leucostachys*.

Cenchrus setosus Sw. Prod. 26. 1788.

The type specimen marked "fl. ind. occ." is *Pennisetum setosum* (Sw.) Rich. as described in Grisebach's Flora. Leeke refers this to *Pennisetum indicum* (Murr.) Kuntze.^a

Poa glutinosa Sw. Prod. 26. 1788.

The type specimen from Swartz in herbarium Casström at Stockholm, marked "e Jamaica" is *Eragrostis glutinosa* (Sw.) Trin., *E. sudans* Griseb.

Poa prolifera Sw. Prod. 27. 1788.

Swartz's type of this is not in his herbarium, but there is a specimen marked "No. 17 *Poa prolifera* Sw. Carthagera Ins. Manzanillo, Febr. 1826 Billberg" which may be a compared specimen, as it is in the Swartz herbarium. It is *Eragrostis prolifera* (Sw.) Steud. as described in Grisebach's Flora. This is the same as Sloane's specimen mentioned under *Gramini tremulo affine*, etc., and illustrated in his plate 71, figure 1.

THE GRASSES OF MICHAUX'S FLORA BOREALI-AMERICANA.

The plants collected by Andreas Michaux in North America in the latter part of the eighteenth century, which form the basis of his Flora Boreali-Americana published in 1803, are deposited in the herbarium of the Muséum d'Histoire Naturelle at Paris.

The species are here considered in the same sequence in which they occur in Michaux's work. Following the name of the species as published is the habitat as given upon the label accompanying the corresponding specimen in the herbarium. The herbarium contains the types of all except *Dilepyrum aristosum* Michx., *Poa crocata* Michx., and *Poa pectinacea* Michx. Richard distributed some of Michaux's plants to other herbaria. Many of these duplicates are found in the herbarium of Drake de Castillo at Paris. As will be seen from the notes accompanying certain species in the following list, it has not always been easy to determine which is the type specimen, especially in the critical species of Panicum. In certain cases the plant differs slightly from the description, or is from some other locality than the one cited. These cases are considered upon their merits in the notes accompanying each species.

^a Zeitschr. Naturwiss. 79: 17. 1907.

Cinna arundinacea L.

There is a specimen of *C. latifolia* (Trev.) Griseb., which is the plant described, and a panicle of *C. arundinacea* L. One label, which probably applies to the first specimen, reads: "A Sinu Hudsonis ad Pensylvaniam praesertim in borealibus Canada juxta lacus." A second label, which probably goes with the panicle, reads: "Cinna de Linneus. Cinna envoyé par Linn. a Jussieu qui lui avait été apporté de Canada par Kalm."

Anthoxanthum odoratum L.

"In Pennsylvania." The specimen belongs to this species.

Leersia oryzoides Sw.

"In excelsis montibus Carolina." The specimen belongs to this species. In another cover is a sheet of *L. virginica* which is labeled *L. oryzoides*, but without locality. It is to be noted that Michaux gives *L. virginica* as a synonym of *L. oryzoides*. By priority of *Homalocenchrus* Mieg. the name becomes *H. oryzoides* (L.) Poll.

Leersia lenticularis Michx.^a

"In paludosis regionis Illinoensibus [sign for annual]."

The specimen^b belongs to this species, i. e., *Homalocenchrus lenticularis* (Michx.) Scribn.

Dilepyrum aristosum Michx.

No specimen of this could be found. It is, according to description and tradition, *Brachyleytrum erectum* (Schreb.) Beauv. and is the type of the form known as *B. aristatum* Roem. & Schult. and *Muhlenbergia aristata* Pers., though the specific name is altered.

Dilepyrum minutiflorum Michx.

"In apricis, pratis Kentucky, Illinoensium pabulum praestantissimum in Kentucky." The specimen is *Muhlenbergia schreberi* Gmel. 1791 (*M. diffusa* Willd. 1797).

Aristida dichotoma Michx.

"In Carolina septentrionali juxta Lincoln." The specimen belongs to this species as described in our manuals. Lower glume 5 to 6 mm., upper glume 6 to 7 mm. long, slightly scabrous on keel and sides, the midnerve extended into a very short awn 0.3 mm. long; lemma sparsely appressed-pubescent, 3-nerved, 5 mm. long to base of awns; central awn 4 mm. long, curved at base to form a half coil, lateral awns erect, 1 mm. long.

Aristida stricta Michx.

"In Carolina [sign for perennial]." The specimen belongs to this species as described in our manuals. Glumes glabrous, 1-nerved or the lower obscurely 3-nerved at base, the lower 9 mm., the upper 11 mm. long, each extended into an awn about 2 mm. long; lemma glabrous or somewhat hispid below the awns, about 8 mm. long; awns about equal, spreading, 1.5 to 2 cm. long.

Aristida oligantha Michx.

"In apricis pratensibus regionis Illinoensium. Route des Illinois au fort Mossac lieux alternativement submergés." The specimen belongs to this species as described in our manuals. A scant specimen with a few spikelets. Lemma 1.5 cm. long; awns spreading, about 3.5 cm. long, nearly equal, all of them more or less curved or loosely coiled at base. On the same sheet is mounted a specimen of *Sporobolus*, apparently *S. vaginaeflorus* (Torr.) Wood.

^aAll the species credited to Michaux were published as new species in his *Flora Boreali-Americana*, 1803. It is well known that this work was edited by L. C. Richard, for which reason many authors credit the new species to "Richard in Michaux."

^bThe specimens mentioned under the new species are types unless otherwise indicated.

Trichodium laxiflorum Michx.

"*Cornucopiae hyemalis* Walt. Hab. in pratensibus apricis a Canada ad Floridam [sign for male]." The specimen is *Agrostis hiemalis* (Walt.) B. S. P.

Trichodium decumbens Michx.

"Hab. in Carolina praesertim in umbrosis ripariis amnium. Trichod. (certissime) majus *Cornucopiae perennans* Walt." The specimen is *Agrostis perennans* (Walt.) Tuckerm.

Alopecurus aristulatus Michx.

No specimen labeled with this name could be found, but there is a very poor specimen of an *Alopecurus* from which the spikelets have fallen, leaving the axis of the spike, and this is labeled "*Alopecurus breviaristatus* Hab. in Canada ad ripas Lacus Champlain legi [sign for perennial]." As Michaux's description states that the plant has an erect culm and scarcely exerted awns, there is no doubt that the species is *Alopecurus aristulatus*, as usually understood.

Phalaris arundinacea L.

The specimen belongs to this species.

Phalaris villosa Michx.

"In Sabulosis Carolinae." The specimen is *Anthraenantia villosa* (Michx.) Beauv. as usually understood.

Paspalum setaceum Michx.

"In aridis apricis Carolina, Georgia [sign for perennial]." Terminal spike single, slightly curved; spikelets glabrous, 1.5 mm. long; blades pubescent. It belongs to the species described under this name in Small's Flora.

Paspalum debile Michx.

"Hab. in Carolina [sign for perennial]." Blades densely woolly on both sides, about 10 cm. long and 6 mm. wide; spike single, the culm smooth below the spike; spikelets 1.5 mm. long, pubescent. This is *Paspalum villosissimum* Nash,^a which name should give way to that of Michaux. *P. debile* of Elliott's herbarium is *P. blepharophyllum* Nash (*P. debile* Michx.; Ell. Bot. S. C. & Ga. 1: 105. 1816.)

Paspalum ciliatifolium Michx.

"In Carolina, Georgia." There are three specimens on the sheet. One without spikelets may be eliminated from consideration, also one with pubescent spikelets, since the description states that the spikelets are glabrous. The third specimen has ciliate blades, these somewhat hispid above, more so below, upper sheath ciliate on the margin; spikes 2; spikelets glabrous, 2 mm. long. This specimen, which I consider the type, is in poor condition, but appears to belong to the species described under this name in Small's Flora.

Paspalum praecox Walt.

"A Carolina ad Floridam." The specimen belongs to the species as described in Small's Flora.

Paspalum laeve Michx.

"In Georgia." The specimen, consisting of a single culm with three short spikes and smooth foliage, belongs to this species, as described in Small's Flora.

Paspalum floridanum Michx.

"Georgia et Florida."³ A single culm about 60 cm. high; lowermost sheath pubescent, the remainder glabrous; blades short, the middle blades about 18 cm. long; spikes 3, about 6 cm. long, erect, spikelets smooth, 3 mm. wide by 4 mm. long. This

^a In Small, Fl. So. States 73. 1903.

appears to be described in Small's Flora as *P. altissimum* Le Conte. *P. floridanum* as described in Small's Flora is a taller plant, with hirsute sheaths and longer spikes. It may be that these should be considered extreme forms of one species.

Paspalum plicatulum Michx.

"In Georgia, Florida." The specimen belongs to the species commonly so called.

Digitaria sanguinalis [Scop.]

"A Pensylvania ad Caroliniam [sign for annual]. *Syntherisma precox* Walt." This is *Syntherisma sanguinalis* (L.) Dulac. (*Panicum sanguinale* L.) Michaux cites no authority for his combination. It is to be noted that in his Flora he states under habitat: "in cultis [sign for annual]: in Florida maritima [sign for perennial]."

Digitaria pilosa Michx.

"In sabulosis Carolina, Georgia [sign for perennial]." This plant corresponds to the description, and the habitat is similar to that given in the book. The plant is *Syntherisma filiformis* (L.) Nash. (*Panicum filiforme* L.) A second sheet is referred to below under *Digitaria serotina*.

Digitaria paspalodes Michx.

"In pascuis aridis Carolinae." The specimen is *Paspalum distichum* L. The spikelets are pubescent.

Scribner,^a misunderstanding this species, transferred the name to *Paspalum* as *P. paspaloides* (Michx.) Scribn., giving *P. elliottii* S. Wats. (which is *Paspalus furcatus* Flüge) as synonym. Nash^b with the same conception of the species transferred the name to *Anastrophus* as *A. paspaloides* (Michx.) Nash, but described *P. furcatus* Flüge under it. *P. furcatus* Flüge becomes *Axonopus furcatus* (Flüge) Hitchc.^c

Digitaria serotina Michx.

There is no sheet thus labeled, but the plant evidently referred to here is in the herbarium accompanied by a label "*Digitaria pilosa*. Hab. in Carolina, Georgia. *Syntherisma serotina* Walt." (Compare note under *D. pilosa*.) This specimen belongs to the species described in Small's Flora as *Syntherisma serotina*.

Panicum glaucum L.

Michaux appends to his description the sign for an annual, but all the specimens in his herbarium are *Chaetochloa imberbis* (Poir.) Scribn., a perennial species common in the Southern States.

Panicum crus galli L.

"Ad ripas rivorum Virginiae, Carolinae." This is the tall form with somewhat hirsute sheaths and long awns, now called "*Echinochloa walteri* (Pursh) Nash."

Panicum muricatum Michx.

"Lac. Champlain." This specimen which is the type is *Echinochloa crus-galli* (L.) Beauv. A second specimen of the same is labeled, "in Canada, Connecticut [sign for annual]." Both have rather short awns, and small panicles like the introduced form. Michaux distinguished this from the last, but applied Linnæus's name to the wrong species. Michaux's specimen is also the type of *Panicum pungens* Poir.^d

Panicum hirtellum L.

"In umbrosis sylvarum a Carolina maritima ad Floridam." The specimen is *Oplismenus setarius* (Lam.) Roem. & Schult. as described in Small's Flora.

Panicum molle Michx.

"In sabulosis maritimis Florida." A second label, with diagnosis, reads "Lieux tres humides a 15 miles de St. Augustin." The specimen is *Eriochloa mollis* (Michx.)

^a Mem. Torr. Club 5: 29. 1894.

^c Rhodora 8: 205. 1906.

^b In Britton, Man. 75. 1901.

^d Encycl. Suppl. 4: 273. 1816.

Kunth as described in Small's Flora. There is only a panicle, but the pilose rachis is characteristic. According to the American code *Eriochloa mollis* is not a valid name. It must therefore be changed to ***Eriochloa michauxii*** (Roem. & Schult.). (*Panicum michauxii* Roem. & Schult. Syst. Veg. 2: 427. 1817; *P. molle* Michx., not Sw., 1788). I do not find sufficient evidence for taking up the name *Monachne*^a for this genus, accepted by Nash.^b *Monachne* is based on *M. unilateralis* Beauv. and *Saccharum reptans* Lam. The former species has no description and can not be identified from the plate, though it is evidently some species of *Eriochloa*. The latter does not belong to the genus *Eriochloa*.

***Panicum capillare* L.**

"A Pennsylvania ad Carolinam." This is similar to the Linnæan plant, that is, the large erect form with broad leaves, as commonly understood.

***Panicum dichotomiflorum* Michx.**

This is the species which in the United States has been going under the name of *Panicum proliferum* Lam. An examination of the latter plant in Lamarck's herbarium shows that it has been misunderstood. It is *Panicum miliare* of Asia. In the original description^c the author states that the plant was cultivated in the jardin du Muséum and that its native country was unknown, although he ventured the guess that it might be from Virginia or some other part of North America. He also mentions seeing specimens of this in Vaillant's herbarium. The plant in Vaillant's herbarium is the same. This species was distributed in several of the larger herbaria under the name of *Panicum proliferum*. Pursh took up this name for our plant and has been followed by later authors. Michaux's name appears to be the oldest for this. The type of *P. dichotomiflorum* is in the herbarium of Drake de Castillo. It was sent by Richard, having been collected by Michaux "ad occidentem montium Alleganiis," the type locality as published. The specimen (a very poor one) in the Michaux herbarium is labeled, "in regione Illinoensium."

***Panicum virgatum* L.**

"A Pennsylvania ad Georgiam ad ripas fluviorum, copiose in occidentalibus regionibus [sign for perennial]." A second label reads, "Pres le Debarquement du vieux * * * Sur Coper River, Carolina. * * * Rare en basse Carolina." The specimen belongs to this species.

***Panicum anceps* Michx.**

"In herbosis humidis Carolina, Virginiae, Georgiae [sign for perennial]. Mêté avec le *P. melicarium*." The same as *Panicum rostratum* Muhl., a later name.

***Panicum scoparium* Lam.**

"In pratis sylvestris Carolina [sign for perennial]." The specimen belongs to this species—that is, *Panicum viscidum* Ell. (1816)—and is identical with Lamarck's type, which was received from Michaux.

***Panicum latifolium* L.**

"In pratis sylvestris Virginiae, Carolinae, [sign for perennial]." A somewhat pubescent autumnal state of *Panicum boscii* Poir. (*Panicum porterianum* Nash, as described in recent manuals).

***Panicum pubescens* Lam.**

"In pratis sylvestris Carolinae [sign for perennial]." The autumnal state of *Panicum scoparium* Lam. This was not found in the herbarium of Lamarck, who states that he saw the plant collected by Michaux in South Carolina.^a In the Drake de Castillo herbarium is a sheet of specimens from Michaux sent by Richard. The left-hand spec-

^a Beauv. Agrost. 49. 1812.

^b Bull. Torr. Club 30: 374. 1903.

^c Lam. Encycl. 4: 747. 1796.

The specimen in Michaux's herbarium is the autumnal state of *P. scoparium* Lam. It is labeled, "Hcb in pratis sylvestribus Carolinae."

imen is *Panicum lanuginosum* Ell. The other specimen is the same as the specimen of *P. pubescens* in the Michaux herbarium. Lamarck mentions having seen a dwarf specimen of this species in the herbarium of Vaillant, who received it from Sherard in 1721. This specimen is in the general herbarium of the Paris Museum. I was not able to identify this, but it is apparently different from any of our North American species. Although this Sherard specimen is the first mentioned, I do not think it should be taken as the type, as Lamarck was evidently describing Michaux's plant, though the description is modified by the Sherard plant, e. g., "La tige qui quelquefois n'a guère plus de six pouces de hauteur [the Sherard plant], s'élève d'autres fois à la hauteur d'un pied ou un peu plus." It is scarcely surprising that the vernal and autumnal states of *Panicum scoparium* should be described as different species.

***Panicum nitidum* Lam.**

"In Pensylvania, Carolina." The specimen lacks spikelets, but is evidently *Panicum angustifolium* Ell. or one of the closely allied species such as *P. arenicoloides* Ashe. It is the vernal state, somewhat pubescent on lowermost portions, otherwise glabrous.

Panicum nitidum Lam. was first described in 1791.^a The description is very meager and would not serve to identify the species. Only the panicle is described. The plant was collected by Fraser. A somewhat more extended description is given by Lamarck in the Encyclopedia,^b but is only an amplification of the original with the addition of leaf characters. We are told, for example, that the stem is jointed and provided with leaves. The type specimen in the Lamarck herbarium consists of a panicle and the uppermost joint of the culm with its leaf. The blade is reflexed, and the node shows sparse reflexed hairs. It is *Panicum barbulatum* Ell., not Michx. (*P. subbarbulatum* Scribn. & Merrill). The panicle is purplish. The most important character given by Lamarck in his second description is the pubescence at juncture of the blade and sheath. The label on this plant is "de la Caroline[,] Fraser." This is evidently the type specimen. In the herbarium of Drake de Castillo there is a sheet obtained from Richard marked "Herb. Michaux from Pennsylvania" which is *Panicum tenue* Muhl. and probably is the specimen referred to by Lamarck^c as a small-flowered variety collected by Michaux in Pennsylvania. *Panicum tenue* is not known to occur in Pennsylvania, and the location is probably an error. It will be noted that the published locality for *P. nitidum* is "Pennsylvania et Carolina," which accords with Michaux's label. Richard in sending out the plant may have shortened the locality to "Pennsylvania." *Panicum tenue* Muhl. occurs from southern Virginia southward. Scribner and Merrill^d have discussed *Panicum nitidum* Lam. and identified it with *P. spretum* Schult. (*P. eatoni* Nash and *P. paucipilum* Nash.). The figure was taken from the plant in the Michaux herbarium, which, as stated above, is *P. angustifolium* Ell. The name *P. nitidum* Lam. must be used for what has been called *P. subbarbulatum* Scribn. & Merrill, while the plant described by Scribner and Merrill as *P. nitidum* must be called *P. spretum* Schult.

***Panicum barbulatum* Michx.**

There are three specimens and two labels upon this sheet. The label upon which the name is written prominently at the top has "Hab. in Canada P. capillari affine ad ripas amnis: Riviere a Jacques Cartier dicti legi." The other has "Riviere a Jacques Cartier Route a Queb. P. barbulatum." The two larger plants are the vernal state of *P. gravior* Hitchc. & Chase. There is also a small specimen of *P. lindheimeri* Nash. In the Drake de Castillo herbarium is a specimen from Michaux sent out by Richard which is labeled *P. barbulatum*, "Caroline." This is *Panicum ashei* Pearson. There

^a Tabl. Encycl. 1: 172.

^c Encycl. 4: 748. 1797.

^b 4: 748. 1797.

^d U. S. Dept. Agr. Div. Agrost. Bull. 24: 31. 1900.

is also on this sheet a small specimen of *P. lindheimeri* Nash. There are two other sheets from the same source, but without locality. One is *P. verrucosum* Muhl. The other appears to be *P. gravius* Hitchc. & Chase, though it may be *P. dichotomum*. In determining which plant shall be taken as the type it is to be noted that the locality given in the description is "Carolina." The only specimen having this locality upon the label is the one in the herbarium of Drake de Castillo, which is *P. ashei*. The description, however, mentions that the nodes are barbed, which applies to *P. gravius*, the plant in the Michaux herbarium, and to none of the others concerned. The specimen in the Michaux herbarium (excluding the small plant *P. lindheimeri*) has therefore been taken as the type, although it does not come from Carolina. Michaux evidently confused several species, but we must surely apply the name to a species with barbed nodes. The type is not what has been called *P. barbulatorum* in all recent botanical works. This latter species has a smaller spikelet (1.5 mm. long), while *P. gravius* has spikelets 2 mm. long. The plant commonly called *P. barbulatorum* must take the name *P. microcarpon* Muhl.; Ell. Bot. S. C. & Ga. 1816 (not Muhl. Gram. 1817, which is *P. polyanthes* Schult.).

Panicum ramulosum Michx.

"In pratis, cespitosum Carolinae." A poor specimen without spikelets, but certainly of the *angustifolium* group, apparently *P. angustifolium* Ell. This name antedates any of those applied to *P. angustifolium* and its allies, but on account of the fragmentary condition of the specimen it would not be wise to take it up. There is nothing in the description which will identify the plant any more certainly. In the herbarium of Drake de Castillo are two specimens from Michaux sent by Richard under this name. One is *P. dichotomum* L., the other is *P. lindheimeri* Nash. There is also a specimen of the latter species in the Berlin herbarium sent by Richard under the name of *P. ramulosum*.

Panicum melicarium Michx.

"In Carolina ad ripas rivorum affluente mari inundatus [sign for perennial]." The specimen is not a *Panicum* at all, but *Panicularia elongata* (Torr.) Kuntze. The species has been much misunderstood and was rendered doubtful by the character mentioned in the description of a sterile rudiment of a second flower, a character not found in the genus *Panicum*. The spikelets of the specimen are past maturity and consist of empty glumes or with the lowermost florets still attached. This floret bears behind it the joint of the rachilla leading to the second floret, thus explaining the character mentioned by Michaux. This species becomes **Panicularia melicaria** (Michx.)

Panicum divaricatum Michx.

"In cespitosis excelsarum montium Carolinae Septentrionalis [sign for perennial]." This is *Festuca obtusa* Spreng. (*F. nutans* Spreng.). Michaux doubted that this was referable to *Panicum*. The spikelets are past maturity and like the preceding species consist of empty glumes or with the addition of the lowermost floret, which bears, of course, the joint of the rachilla. Michaux describes the spikelet as being 2-flowered, the second flower being a sterile pedicel. This species is of course quite different from *Panicum divaricatum* L.

Oryzopsis asperifolia Michx.

"In praeruptis et saxosis per tractus montium a sinu Hudsonis ad Canadam [sign for perennial]." The specimen belongs to the species described under this name in Gray's Manual.

Agrostis indica "Sw. obs."

"A Virginia maritima ad Floridam [sign for perennial]." The specimen is *Sporobolus indicus* (L.) R. Br.

Agrostis juncea Michx.

"In aridis Carolinae." The specimen is *Sporobolus junceus* (Michx.) Kunth, as usually understood.

Since Michaux's name is untenable on account of *Agrostis juncea* Lam. 1783, this species should be called *Sporobolus gracilis* (Trin.) Merrill, *Rhodora* 4: 48. 1902 (*Vilfa gracilis* Trin.). I have examined the type in the Trinius herbarium at St. Petersburg, labeled "Zimmermann misit Carolina 1836."

Agrostis dispar Michx.

"In Carolina inferiore." The specimen is *Agrostis alba* L.

Agrostis aspera Michx.

"Illinois." The specimen is *Sporobolus longifolius* (Torr.) Wood, and not the species to which the name *Sporobolus asper* (Michx.) Kunth has been applied in recent manuals. The latter grass has an acuminate lemma and long-acuminate palea, while Michaux's description states that the flowers are muticous.

Apparently the earliest name for the plant which has been going under the name of *Sporobolus asper* is *Agrostis clandestina* Spreng. Mant. Prim. Fl. Hal. 32. 1807, which becomes ***Sporobolus clandestinus*** (Spreng.) C. Sprengel's type has not been examined, but the description leaves scarcely room for doubt. The plant is described as erect, and, what is particularly to the point, as having long-acuminate "corolla glumes." The plant was received from Muhlenberg, who also describes it in his *Descriptio Graminum*. Both Muhlenberg and Torrey distinguished between this and *Agrostis involuta* Muhl. (*A. aspera* Michx.; *A. longifolia* Torr.) using among other characters the shape of the lemma and palea, acuminate or awned in the first and obtuse in the second.

Agrostis lateriflora Michx.

"In praecipitibus saxosis fluminis Mississippi ripariis Illinoensibus [sign for perennial]." The specimen is *Muhlenbergia mexicana* (L.) Trin. The panicles are rather dense, somewhat branched, and more or less included in the sheaths at base.

Agrostis racemosa Michx.

"In ripis sabulosis inundatis fluminis Mississippi [sign for perennial]. Affinis *A. lateriflora*." The specimen is *Muhlenbergia racemosa* (Michx.) B. S. P. Glumes larger, longer than the acuminate lemma; panicle dense, more or less interrupted or lobed.

Stipa barbata Michx.

"In sylvis Virginiae Carolinae [sign for perennial]." The specimen is *Stipa avenacea* L. On this sheet is also a label which doubtless goes with the next, "*Stipa sericea*. Hab. in Carolina, Georgia maritima."

Stipa sericea Michx.

The specimen is *Muhlenbergia capillaris* (Lam.) Trin., as described in Small's *Flora*. Many of the sheets in Michaux's herbarium bear two labels, one with name and locality, the other with a diagnosis, and usually also the name written upon it somewhere as if added later. The sheet of *Stipa sericea* bears a label with diagnosis and name, but the other label seems to have been transferred to the sheet of *S. barbata*, mentioned above.

Stipa juncea Michx.

There is no specimen with this label, but among the Avenas is a sheet marked "Montagnes steriles a la hauteur du Terres," which without doubt is the type. It bears the name *Avena uniflora* with the word *juncea* written above, and in the manuscript diagnosis it is compared with *Avena siberica* L., as is the case in the published description of *Stipa juncea*. The specimen is *Stipa macounii* Scribn. The description merely states that the flower is aristate, but the diagnosis upon the sheet states that the awn is three times as long as flower. Michaux's name can not be used on account of the earlier

S. juncea L., for which reason it was changed by Poiret to *S. canadensis*.^a Hence this species should be called *Stipa canadensis* Poir. (*Stipa macounii* Scribn. in Macoun, Cat. Can. Pl. 5: 390. 1890.) The species of Britton's Manual described as *Oryzopsis juncea* (Michx.) B. S. P. should be called *Oryzopsis pungens* (Torr.) (*Milium pungens* Torr. in Spreng. Neue Entdeck. 2: 102. 1821.)

***Erianthus saccharoides* Michx.**

There are two sheets of this, both labeled by Michaux, but no locality is given. They belong to the species described in Small's Flora under this name. This species was described by Walter in 1788 as *Anthoxanthum giganteum*. His specimen is among the few grasses preserved in his herbarium at the British Museum. In both types the panicle is tawny and the awn straight. The specific name can not be taken up because there is an *Erianthus giganteus* Muhl.,^b based upon *Andropogon alopecuroides* L. and described in his Descriptio Graminum.^c The awn is there stated to be twisted, as in the Linnæan plant.

***Erianthus brevibarbis* Michx.**

"In collibus desértis ab amnio Wabash ad Ostium Missouri 5 diebus distantibus." The specimen belongs to the species described in Small's Flora under this name. The range as originally published is "in collibus Tennassée et Carolinae." The known range is from Delaware southward along the coast to Florida, and west to Louisiana. We do not know of its occurrence in southern Illinois, as given on Michaux's label.

***Holcus odoratus* L.**

"In pratensibus Canada [sign for perennial]." The specimen is *Savastana odorata* (L.) Scribn.

***Andropogon macrourum* Michx.**

"A Virginia ad Carolina [sign for perennial]." The specimen is *Andropogon glomeratus* (Walt.) B. S. P. This agrees with Walter's specimen in the British Museum in having roughened spathes, rather loose instead of tightly rolled as in the type specimen of *Andropogon corymbosus* (Chapm.) Nash (*A. macrourus corymbosus* Chapm.; Hack. in DC. Monogr. Phan. 6: 409. 1889. Curtiss, N. A. Plants 3639c).

***Andropogon dissitiflorum* Michx.**

"In Carolina Georgia Florida." The specimen is *Andropogon virginicus* L.

***Andropogon ternarium* Michx.**

"In regione Wabash Georgia montosa &c." The specimen is *Andropogon argyraeus* Schult. which is *A. argenteus* Ell., not DC. There is a single rather fragmentary specimen which is undoubtedly this species. Besides the label quoted above, the sheet bears two others, but the name *A. ternarium* is questioned upon both. One gives the locality as "Wabash & Illinois," the other as Florida. As the diagnosis on the first of these two labels states that the staminate flower is pediceled, *A. furcatus* Muhl. may be referred to. However, the published locality is "in montosis Carolinae." Some of the awns of the specimen are somewhat twisted. There appears to be no reason why this name (as *A. ternarius*) should not be taken up in place of *A. argyraeus* Schult.

***Andropogon scoparium* Michx.**

The label bears the name, but no locality. The published locality is "in aridis sylvarum Carolinae." The specimen belongs to this species as generally understood. The sheet bears another label with "*Andropogon avenaceum*," which has evidently been misplaced.

***Andropogon avenaceum* Michx.**

"In regione Illinoensium [sign for perennial]." The specimen is *Sorghastrum nutans* (L.) Nash (*Andropogon nutans* L.), agreeing with the Linnæan specimen in having once-bent awns.

^a Encycl. 7: 452. 1806.

^b Cat. 4. 1813.

^c 192. 1817.

Andropogon ambiguus Michx.

"In sabulosis Carol." The specimen is *Gymnopogon ambiguus* (Michx.) B. S. P. Branches floriferous from base.

Chloris petraea Sw.

"Carolinis & Florida." The specimen belongs to this species.

Chloris monostachya Michx.

There is no plant with this name, but there is a good specimen which answers to the description labeled *Chloris piperita*, without locality, however. The published locality is, "in sylvis Carolinae inferioris." Michaux states that the fresh plant has a peppery taste. The specimen is *Campulosus aromaticus* (Walt.) Scribn.

Chloris mucronata Michx.

"In cultis Carolinae." The specimen is *Dactyloctenium aegyptium* (L.) Willd.

Chloris curtipendula Michx.

"Hautours du Missouri et Poste Vincenne." The specimen is *Bouteloua curtipendula* (Michx.) Torr. as usually understood.

Tripsacum dactyloides L.

"Illinois, Basse Carolina." The specimen is of this species.

Tripsacum cylindricum Michx.

"In florida." The specimen is *Manisuris cylindrica* (Michx.) Kuntze (*Rottboellia cylindrica* (Michx.) Chapm. of our manuals).

Rottboellia dimidiata L.

No locality is given. The specimen is *Stenotaphrum secundatum* (Walt.) Kuntze.

Cenchrus tribuloides L.

No locality is given on the sheet but the specimen must have been collected along the seashore, for it has the large villous fruits characteristic of the true *C. tribuloides* L., which has been named *C. macrocephalus* (Doell) Scribn. and *C. vaginatus* Steud. The common inland form which has been going under the name of *C. tribuloides* should be called *C. carolinianus* Walt.

Aira flexuosa L.

"Connecticut." The specimen is *Deschampsia flexuosa* (L.) Trin.

Aira ambigua Michx.

"Riv. que tombent au Lac St. Jean." The specimen is *Deschampsia caespitosa* (L.) Beauv.

Aira melicoides Michx.

"Canada." The specimen is *Graphephorum melicoideum* (Michx.) Beauv. as described in Britton's Manual.

Aira obtusata Michx.

"In sabulosis Carolinae, Georgiae, Floridae [sign for perennial]. In Florida juxta domum Wiggin." The specimen is *Sphenopholis obtusata* (Michx.) Scribn. (*Eatonia obtusata* (Michx.) Gray as described in our manuals).

There are two individuals. One is slender, about a foot high, nearly glabrous throughout, with a narrow rather compact panicle; the other, more robust, but consisting only of panicle and upper leaf, is pubescent (under a lens) upon sheath and blade. This panicle, which is attached to a label with "herb. de M. de Pinckney 11.2," is lobed like the western form called *S. obtusata lobata* (Trin.) Scribn. The first specimen should be taken as the type, as it no doubt represents Michaux's own collection from Florida.

Professor Scribner has pointed out^a that *Eatonia* of Rafinesque could not be the *Eatonia* of Endlicher and later authors, but he was not able to identify *Eatonia* Raf.

^a *Rhodora* 8: 137. 1906.

except as to the point that it was probably based on a species of *Panicum*. While going through the Panicums of the De Candolle herbarium I found a specimen of *Panicum virgatum* which was sent by Rafinesque and which was labeled *Eatonia purpurascens*. This is undoubtedly a duplicate type and fixes the identity of the genus *Eatonia* Raf. The original description applies well to the common purple form of this species found in brackish marshes along the coast.

Melica glabra Michx.

One label reads, "a Carolina ad floridam;" the other reads, "florida f. Matança No. 5." The plants are glabrous and have a simple slender raceme of about ten spikelets. Without much doubt *M. nutica* Walt. is the same.

Trachynotia cynosuroides Michx.

There are two labels, "Illinoensis" and "hauteurs des terres." The specimen belongs to the inland species with several somewhat scattered spikes and awned glumes, the lower being as long as the spikelet, which in most manuals is described under *Spartina cynosuroides* (L.) Willd. Michaux's description also applies to this species. Michaux, however, takes up Linnæus's specific name and bases his name *Trachynotia cynosuroides* upon *Dactylis cynosuroides* L. As has been already pointed out,^a the Linnæan plant is the large seacoast form usually called *Spartina polystachya* (Michx.) Ell. This name must become a synonym of *Spartina cynosuroides* (L.) Willd., while the plant of the inland marshes previously known by this name must receive a different name. The name **Spartina michauxiana** is therefore proposed for the plant described by Michaux under the name of *Trachynotia cynosuroides* (not *Dactylis cynosuroides* L.). It has been proposed to take up the name *Spartina pectinata* Link, Jahrb. Gewächsk. 1³: 92. 1820,^b but *S. pectinata* was collected by Bosc probably in South Carolina, where *S. michauxiana* does not grow.

Trachynotia polystachya Michx.

"Basse Caroline." Another label reads, "Trachynotia (a dorso valvarum scabro) *Dactylis cynosuroides* L." Since both this and the preceding species have scabrous-keeled glumes, one suspects that the second label has been misplaced, or that Michaux was uncertain as to the identity of *Dactylis cynosuroides* L. As stated under the preceding species, the name *Spartina cynosuroides* (L.) Willd. should apply to this species, since Michaux's type of *Trachynotia polystachya* is identical with the type of *Dactylis cynosuroides* L. *Spartina cynosuroides* Willd. is also founded upon *Dactylis cynosuroides* L. Both Michaux and Willdenow describe, through error of determination, a different plant, that is, *Spartina michauxiana* Hitchc.

Trachynotia juncea Michx.

One label has the name only. A second label has "Dactylis sabulata bords des Creeks salés Basse Caroline." Spikes one or two; spikelets closely appressed upon the rachis. The specimen is *Spartina juncea* (Michx.) Ell. as described by Merrill. ^c

Eleusine indica [(L.) (Gaertn.)].

"In cultis a Carolina ad floridam." "Dans les champs Illinois." The specimen belongs to this species.

Eleusine mucronata Michx.

"Illinois." The specimen is *Leptochloa mucronata* (Michx.) Kunth as described in the manuals.

This is the same as *Leptochloa filiformis* (Pers.) Roem. & Schult. (*Eleusine filiformis* Pers. 1805.), the type of which is from "Americ. meridion." It may be the same as *Festuca filiformis* Lam. ^d from "Amer. merid. Comm. D. Richard." The description

^a Bot. Gaz. 35: 216. 1903.

^b Piper, Contr. Nat. Herb. 11: 145. 1906.

^c N. A. Spec. *Spartina*, U. S. Dept. Agr. Bur. Pl. Ind. Bull. 9: 12. 1902.

^d Tabl. Encycl. 1: 191. 1791.

is insufficient for identification and the type has not been examined. The species does not appear to be described by Lamarck in his Encyclopedia. The name *Leptochloa filiformis* has been applied to the species of southern Asia, which I think is different from our species.

Elymus virginicus L.

There is no locality given. The specimen is similar to the Linnæan type, having smooth lemmas and awns 2 to 2.5 cm. long.

Bromus canadensis Michx.

"Canada: Lac St. Jean." The specimen is *Bromus ciliatus* L. Lemmas pubescent on the margins, glabrous on the back.

Festuca myuros L.?

"Env. de Charleston." There are several specimens on the sheet. Some are *Festuca octoflora* Walt.; some are *F. sciurea* Nutt., the lemmas pubescent toward apex. The description applies to the latter.

Festuca bromoides L.?

"In pascuis juxta Charleston." The specimen is *Festuca octoflora* Walt.

Festuca fluitans L.

"Canada, Connecticut, Pennsylvania." The specimen is *Panicularia borealis* Nash.

Festuca polystachya Michx.

"Illinois." The specimen is *Leptochloa fascicularis* (Lam.) Gray, the erect short-awned form.

Festuca distichophylla Michx.

"In maritimis Carolinae." The specimen is *Distichlis spicata* (L.) Greene, staminate form.

Festuca poaeoides Michx.

"In Canada [sign for perennial]." "Herb. de M. Jussieu Fleuve St. Laurent." The specimen is *Festuca clatior* L., the small form with slender panicle sometimes known as *F. pratensis* Huds.

Festuca diandra Michx.

"Illinois." The specimen belongs to the species described as *Diarrhena americana* Beauv. in Gray's Manual and *Korycarpus diandrus* (Michx.) Kuntze in Britton's Manual. The specific name is invalidated by *Festuca diandra* Moench^a. *Korycarpus* was substituted for *Diarrhena* by Kuntze^b on the strength of a citation by Lagasca ("Koryc. arundinaceus Ze. Ac. Matr. 1806" Lag. Nov. Gen. 4. 1816). I am unable to find any evidence that this name was published earlier than 1816. In the absence of such evidence it is best to use *Diarina festucoides* Raf. Med. Repos. 5: 252. 1808, based on *Festuca diandra* Michx.

Poa capillaris L.

"Carol." The specimen is *Eragrostis refracta* (Muhl.) Scribn.

Poa crocata Michx.

No specimen of this could be found. The description applies to *Poa triflora* Gilib. (*P. scrotina* Ehrh.).*

Poa hirsuta Michx.

"Carol." The specimen is *Eragrostis hirsuta* (Michx.) Nash as described in Small's Flora.

^aMeth. 191. 1794.

^bRev. Gen. 2: 772. 1891.

Prof. Piper informs me that he examined the type of this in the Cornell Herbarium, and states that it is *P. serotina* (*P. palestinensis*).

Poa seslerioides Michx.

The name does not appear on the label, but a sheet which answers to the description bears the locality "Carol." The plant is *Tridens flava* (L.) Hitchc. (*Triodea cuprea* Jacq.).^a

Poa compressa L.

"Environs de Montreal et La Prairie extremite du lac Champlain." The specimen belongs to this species.

Poa striata Michx.

"Pennsylvania, Virginia, Carolina." The specimen is *Panicularia nervata* (Willd.) Kuntze (*Poa nervata* Willd. 1797).

Poa pectinacea Michx.

No specimen of this could be found. This is unfortunate, as the species is somewhat uncertain. The description points toward the species generally understood and described under the name *Eragrostis pectinacea* in our manuals. But this is a perennial, while Michaux places the sign for annual after the locality, which is given as Illinois. Research in other herbaria at Paris, such as the General Herbarium and the herbarium of Drake de Castillo, may yield specimens collected by Michaux and sent out by Richard, which will determine the identity of the species.

Poa reptans Michx.

"Rivierre Kaskaskia in limosis ripariis hujus annii," the pistillate plant. "In limosis ripariis annium regionis Illinoensibus [sign for annual]," the staminate plant. These are *Eragrostis hypnoides* (Lam.) B. S. P. Lamarck ^b states that his plant is the same as the one collected by Michaux on the Kaskaskia. Lamarck's first description of this, *Poa hypnoides*, appeared several years earlier.^c

Uniola latifolia Michx.

"Illinois." This belongs to this species as described in our manuals. No specimen was found from the published locality, the Alleghany Mountains.

Uniola gracilis Michx.

No locality is given. The same as *Holcus laxus* L. in the Linnæan herbarium, now called *Uniola laxa* (L.) B. S. P.

Uniola maritima Michx.

"Carol. sur la bord de la mer. Sea-side oat." The specimen is *Uniola paniculata* L.

Briza canadensis Michx.

No locality is given. The specimen is *Panicularia canadensis* (Michx.) Kuntze as described in Britton's Manual.

Briza eragrostis L.

"Carol." The specimen is *Eragrostis eragrostis* (L.) Karst. (*Eragrostis megastachya* (Koel.) Link).

Avena mollis Michx.

"Montreal." The specimen is *Trisetum spicatum* (L.) Richter (*T. subspicatum* (L.) Beauv.) The sheaths and blades are pubescent. In some manuals the glabrous form is given this name while the pubescent form is made a variety. However, the Linnæan specimen of *Aira spicata* is pubescent.

Avena glumosa Michx.

"A Canada et Carolina [sign for perennial]." The specimen is *Danthonia spicata* (L.) Beauv. The plant is glabrous.

^aSee above, page 120. ^bEncycl. 5: 88. 1804. ^cTabl. Encycl. 1: 185. 1791.

Avena palustris Michx.

"Georgia Lieux humides." The specimen is *Sphenopholis palustris* (Michx.) Scribn. (*Trisetum palustre* (Michx.) Torr.).^a

Avena striata Michx.

"A sinu Hudsonis ad Lacus Mistassins," "Lac des Cygnes, Montagn. ent. la Baye de Hudson et le Canada Mistassins." The specimen belongs to this species as generally understood. It is, however, a *Melica* and would be, according to the Vienna Code, *M. striata* (Michx.) Hitchc.^b By the American Code this name is invalidated by *Avena striata* Lam. 1783, and must be changed to **Melica purpurascens** (Torr.) (*Trisetum purpurascens* Torr. Fl. U. S. 1: 127. 1823; *Avena striata* Michx., not Lam.).

Arundo canadensis Michx.

"A Sinu Hudsonis ad Canadam praesertim ad ripas lacuum [sign for perennial]." The specimen is *Calamagrostis canadensis* (Michx.) Beauv. as described in our manuals.

Arundo arenaria L.

"Ad ripas fluminis S. Laurentii a mare affluenti inundatus." The specimen is *Ammophila arenaria* (L.) Link.

Arundinaria macrosperma Michx.

"Gramen altissimum ramosum a Virginia ad Floridam & in occidentalibus juxta fluviis ab Illinoensibus ad ostium Misissippi [sign for undershrub]." The specimen is fragmentary and one can not be certain which species of *Arundinaria* it represents. Michaux probably included the large and small canes in one species. As he described the plants as being very high, we may retain this names for the tall cane, as is done in our manuals.

Zizania miliacea Michx.

There is no sheet bearing this name, but the plant described by Michaux bears the label "Zizania palustris," without locality. It is *Zizaniopsis miliacea* (Michx.) Doell & Aschers as described in Small's Flora.

Zizania clavulosa Michx.

This name does not appear upon any sheet, but a corresponding specimen, answering to the description, is marked *Zizania aquatica*, "Lac Champlain New Jersey Carolines Illinois & Lac d'Am." It is *Zizania palustris* L., the large, broad-leaved form.

Zizania fluitans Michx.

"In stagnantibus Carolinae Georgiae et alibi copiosissime juxta Charleston." The specimen is *Hydrochloa carolinensis* Beauv. (*H. fluitans* (Michx.) Nash.) Michaux's specific name can not be taken up on account of the earlier *H. fluitans* Hartm. Michaux's published locality, "ad lacum Champlain," must be an error, for the plant is not known to occur in the north.

Manisuris granularis Sw.

"In Carolina." The specimen is *Hackelochloa granularis* (L.) Kuntze.

^a See Scribner, *Rhodora* 8: 145. 1906.

^b *Rhodora* 8: 211. 1906.

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much to give a clearer idea of the ecology of the original prairies.

Type Specimens of American Grasses in

European Herbaria: Professor A. S. НИТЦОК, Bureau of Plant Industry. In order to complete a revision of the North American species of *Panicum* it was necessary to consult the types deposited in European herbaria. The following list of collections consulted may be of interest to those who contemplate doing similar work, for the exact location of some of these is not generally known.

Antwerp: Herbarium of Dr. Van Heurek. Collection of Salzmänn from Bahia.

Brussels: Jardin Botanique de l'Etat. Collection of Galeotti from Mexico. Some Fournier types. *Martius, Brazil*

Paris: Muséum d'Histoire Naturelle. General herbarium: types of Desvaux, Steudel, Fournier, Richard, Kunth

Presl's types; part at the Botanical Garden of the German University and part at the Bohemian Natural Museum.

Halle: Botanischer Garten. Professor Mez allowed me to consult the collections of *Panicum* loaned him by several institutions.

Leipzig: Botanischer Garten. No grass types from America.

Göttingen: Botanischer Garten. Types of Grisebach (Wright's Cuban plants and types from Argentina) and of Meyer (Prim. Fl. Esseq.).

Berlin: Botanischer Garten at Dahlem. Types of Link, Sprengel, Kunth, C. Mueller and Nees (Sellow plants from Brazil). The Willdenow herbarium is segregated.

St. Petersburg: Herbarium Trinius at the Imperial Academy of Sciences and the general collection at the Botanical Garden with Fournier's types based on plants of Karwinsky and F. Mueller.

Stockholm: Natural History Museum.

Caen: Lemaire and Herb. with various types of Steudel
 and collections by Boivin, S'Wright and others coll. on French Explor. Exped.
 destroyed by German bombs in 1918

Montpellier: Courmerai, S'Wright & others descr. by Lemaire and Smith. Originals of drawings for Smith Bot. Gram. made by E. de la Roche.

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 destroyed

part of Fournier's types
 destroyed by German bombs in 1918

(H.B.K.). Segregated: herbaria of Michaux and of Lamarek; herbarium of Cosson with some Poiret types; and of Drake del Castillo with some Michaux types sent by Richard.

Madrid: Jardin Botánico. Types of Lagasca and Cavanilles.

Florence: Orto Botanico. Types of Poiret (cited in Encyc. Suppl. as "herb. Desfont.'). *Raddi Brazil*

Padua: Orto Botanico. A collection of Bosc from Carolina.

Geneva: Herbarium. Delessert and the private herbaria of de Candolle and of Barbey (Herb. Boissier).

Munich: Botanisches Museum. Collection of Martius from Brazil, with types of Nees and Döll. *only a few, coll. coll'd in Brazil*

Vienna: K. K. Naturhistorisches Hofmuseum. *A now in Vienna*

Graz: Private herbarium of Professor Hackel, now at Attersee.

Prague: Collection of Haenke with

Herbarium of Swartz's West Indian plants and the types of Fries and Lindmann from Argentina.

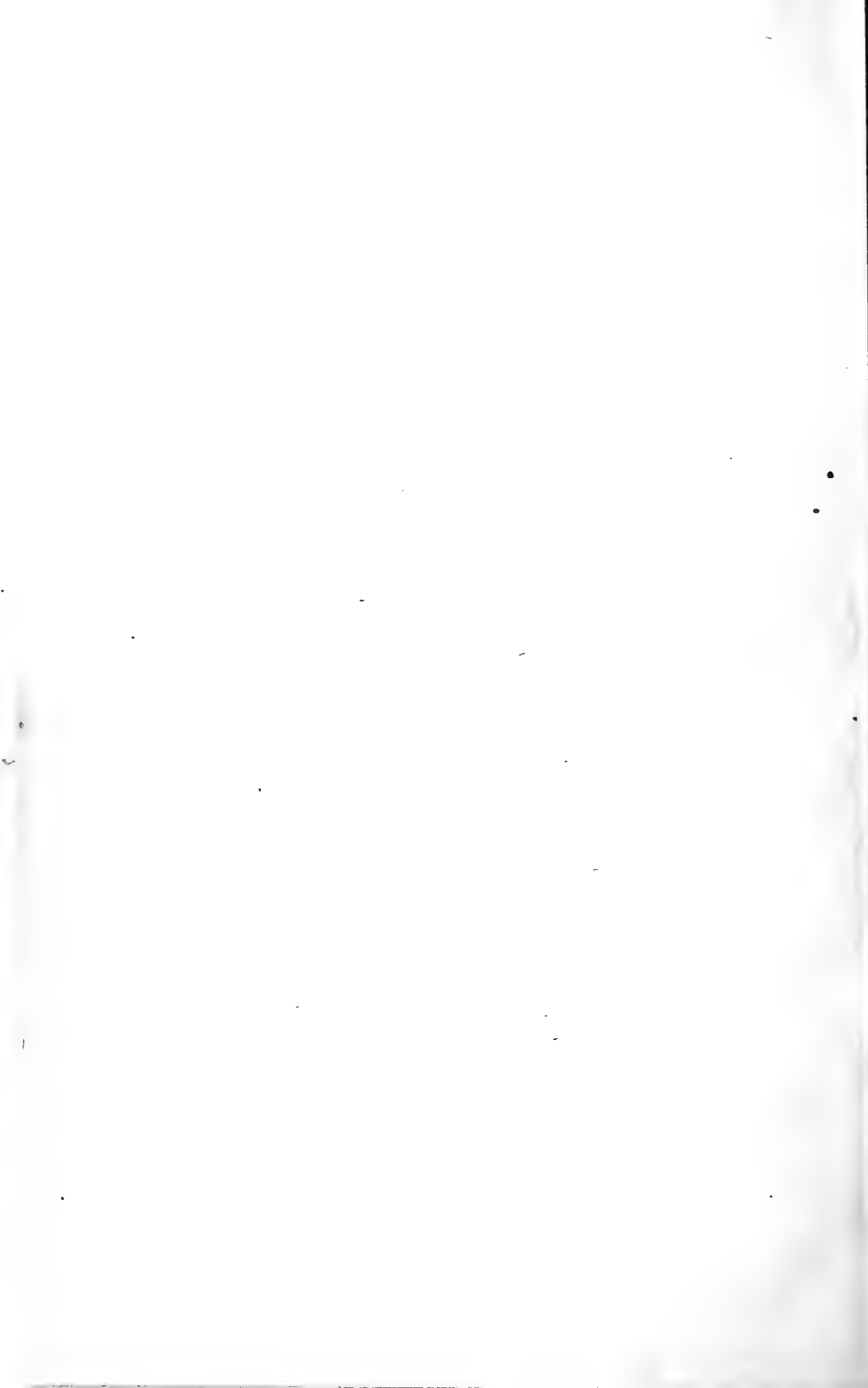
London: Three large collections. Royal Gardens at Kew, with types of Grisebach (Fl. Br. W. I.), Bentham and Pursh. British Museum (Dept. Botany), the collections of Walter and of Sloane, segregated and those of Raddi, Rudge, Robert Brown, and Gronovius. The Linnean herbarium at the rooms of the Linnean Society.

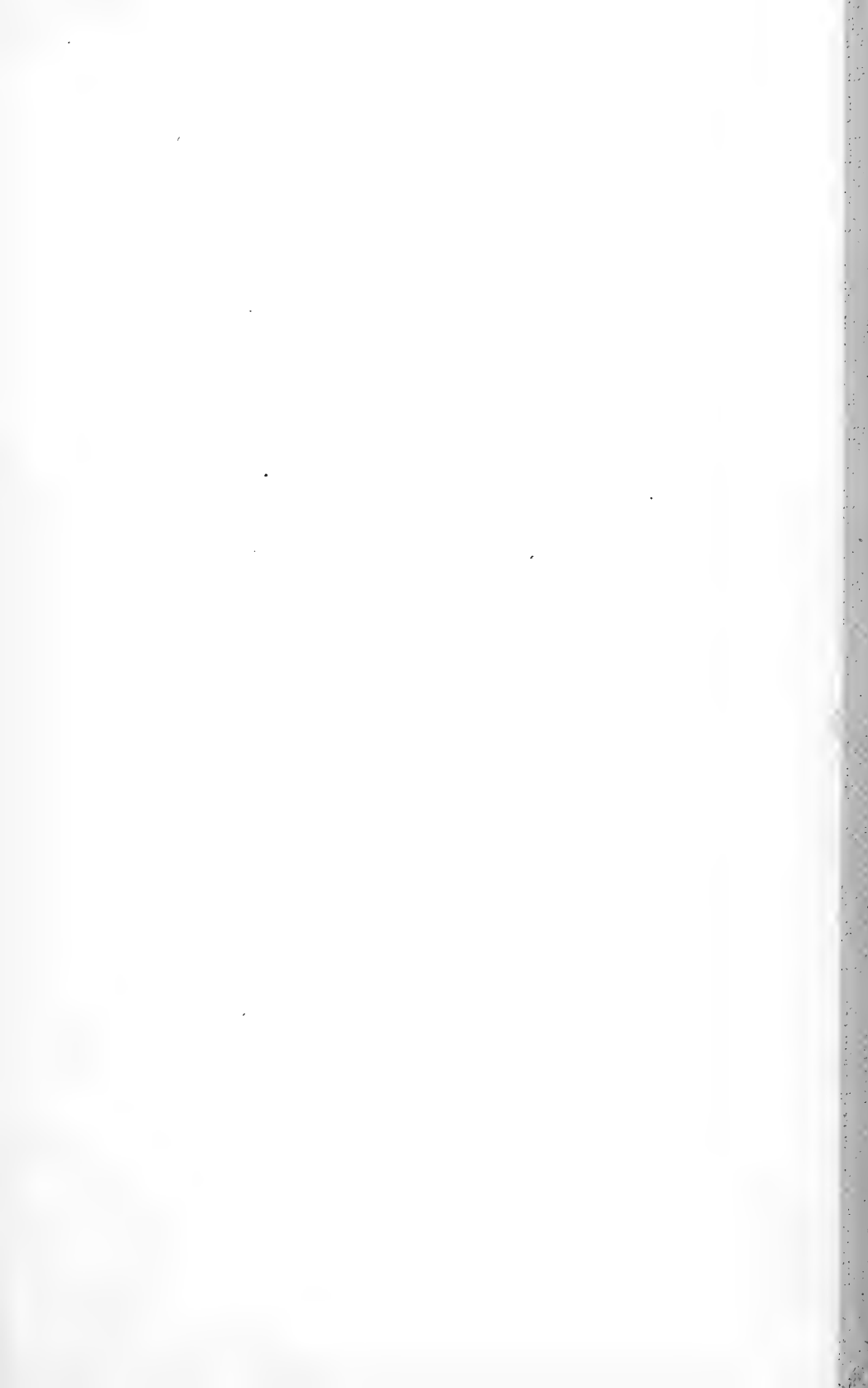
The Bisexual Inflorescence of Humulus lupulus: Dr. W. W. STOCKBERGER, Bureau of Plant Industry.

Humulus lupulus L. is regarded as a strictly dioecious plant, but at rare intervals cultivated forms of the common hop have been observed bearing on the same flowering branches both staminate and pistillate flowers. By several observers these pistillate flowers are regarded only as aborted

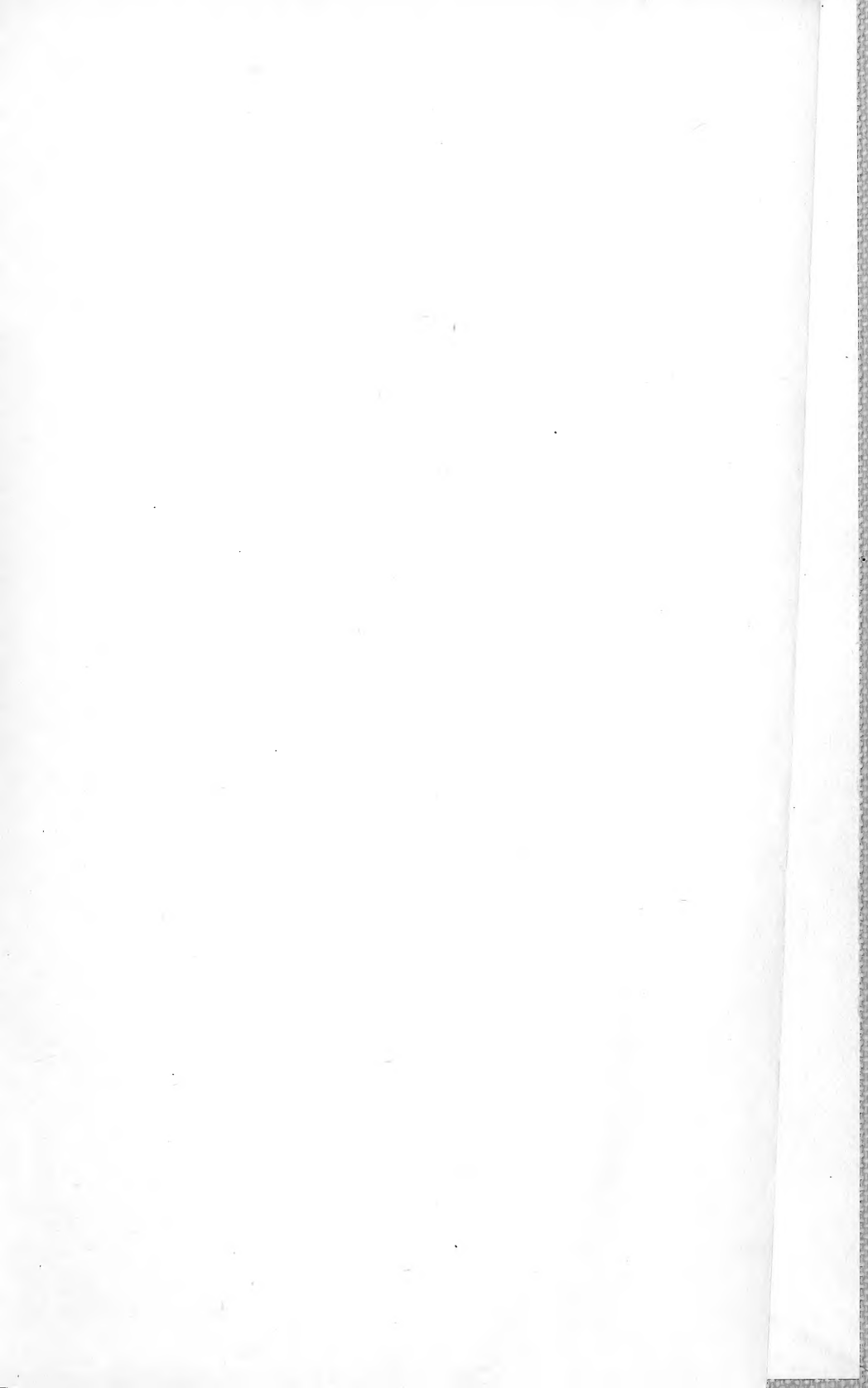
Prus: Raddi Brazil grasses

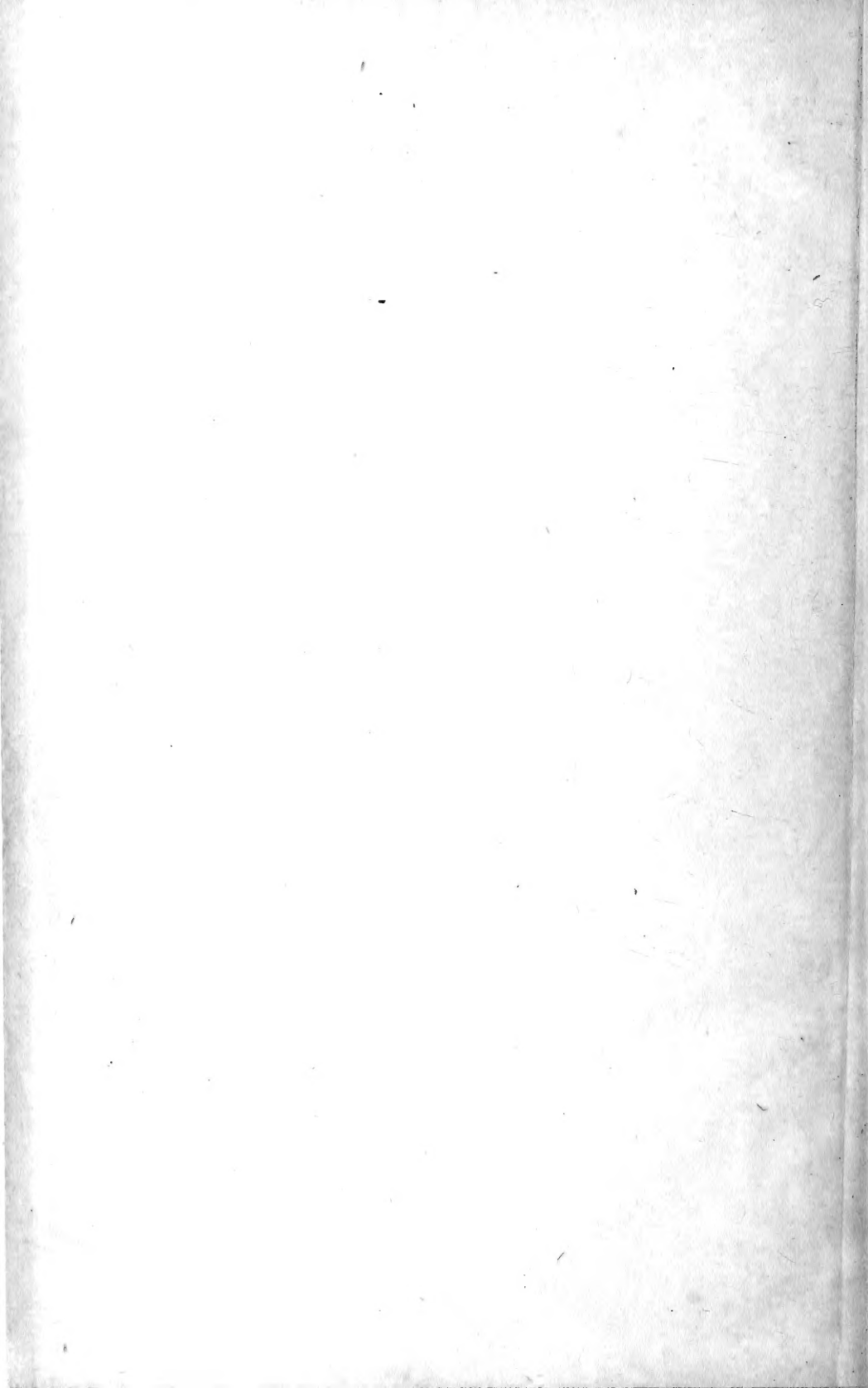














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