

South African Gramineae.

Some new species of *Digitaria*.

By SYDNEY M. STENT.

THE following species and varieties of *Digitaria* with the exception of *D. apiculata* and *D. trichopodia* have been described from living plants that were collected from many different and widely separated localities in the Union of South Africa and brought to the Government Experiment Station Prinshof at Pretoria where they have become well established. There is a pure stand of each grass of about 1/40 acre in size so that in describing the species I have been able to study a very large number of plants of each.

I have found it exceedingly difficult, in many cases to describe the grasses so that they may be recognized from the herbarium sheet, in the field the differences, especially in the vegetative habit, are so marked that it is impossible to class them as one species, but on the sheet naturally these characters are not so obvious, and I am not surprised that systematists who have only had dried material with which to work have classified most of these grasses under *D. eriantha* adding forma or var. to account for any variations observed. As it is I have only, out of the mass of material studied—some 60 separate stands—classified 16 as distinct species of which 11 are new, although the Agriculturist claims that no two stands are exactly alike and has given to each grass its distinguishing vernacular name.

In most cases the distinguishing characters of the inflorescence are very slight. I find the size of spikelets and degree of hairiness very variable, within certain limits, in each species and one must depend on a correlation of characters rather than on any specially outstanding character in determining the species.

A detailed account of all the *Digitarias* at Prinshof with their agricultural and grazing value will appear in another publication.

The letters N.H.P. before a number signify National Herbarium, Pretoria.

D. Pentzii.

Perennial, densely tufted, much branched from the crown with intravaginal innovation shoots, sending out numerous surface runners or stolons bearing dense fascicles of short upright or spreading shoots from the rooting nodes, internodes glabrous or hirsute, often reddish. *Flowering culms* erect or sub-geniculate 3—7 noded, the lower internodes short and usually included, the uppermost long exerted and equalling half or more the length of the culm which reaches a height of about 120 cm.; *leaf sheaths* rather loose, the upper glabrescent, the lower hairy with rather long fine hairs, densely and appressedly silky hairy at the base, compressed, up to 14 cm. long; *ligule* membranous, broadly rounded to truncate, often denticulate, up to 5 mm. long; *blades* linear from a slightly narrowed base tapering to a long very narrow apex, up to about 30 cm. long by 6mm. broad, minutely and softly hairy above and below or quite glabrous or with a few scattered long white hairs, scaberulous on both sides but more so on the under side, midrib raised in a prominent keel below, grooved above, primary nerves about 5 on either side, not prominent. The leaves of the stolon shoots are usually shorter and broader. *Racemes* about 3—12 and about 17 cm. long, strictly umbelled or sub-digitate on an elongated axis up to 3 cm. long terminating in 1, 2 or 3 racemes; *rhachis* triquetrous, narrowly winged, .5 mm. wide, scabrid on

the margins and on the facial angle, glabrous; *pedicels* 2-nate, rarely 3-nate, triquetrous, scabrid, the longer about 2 mm. long, lower about .5 mm., glabrous; *spikelets* imbricating, 3-3.5 mm. long and up to 1 mm. wide, narrow lanceolate acute; *lower glume* reduced to an ovate rounded or truncate nerveless scale; *upper glume* equalling about $\frac{2}{3}$ the length of the spikelet, 3-nerved with dense lines of rather long straight fine blunt hairs between the nerves and on the margins, the marginal extending beyond the tip; *lower valve* the size of the spikelet, 7-nerved, nerves smooth, the inner lateral nerves rather close with dense lines of soft fine blunt hairs between them and on the margins, hairs often ultimately spreading and up to 1 mm. long; *pale* and *lodicules* up to .3 mm. long; *fertile floret* slightly shorter than the lower valve, narrow lanceolate acuminate, thinly chartaceous.

TRANSVAAL: Zoutpansberg; Mara, Kligoblin, *Archer* 18; Downs *Junod* 4086; Elim Mill, *Thomas* 9, 4 and 3; Manner Mead, *Daire N.H.P.* 8376; Messina, *Turner* 25, 17; *Pole Evans N.H.P.* 8496; Pietersburg *McKechnie, N.H.P.* 7913; Pretoria District: Pretoria *Pentz N.H.P.* 8044, 8051, 8560, 8550, 8554, 8521, 8051; Kaalfontein, Wilfontein Farm, *Bevan, N.H.P.* 7602; Hamanskraal *Tregenna* 201, *Pearce, N.H.P.* 7958; Vastfontein, *Liebenberg N.H.P.* 7955; Rustenburg District: Verdun, *Cellier, N.H.P.* 7910; Marico District: Malmanie Oog, Ottoshoop, *Liebenberg, N.H.P.* 7966; Wolmaransstad; Boskuil, *Sutton* 108; Standerton District: Balfour, *Visser, N.H.P.* 8020.

ORANGE FREE STATE: Parys, *Ramsbottom, N.H.P.* 8380.

CAPE PROVINCE: Vryburg District: Vryburg *Pentz, N.H.P.* 8501, 8509, 8510 (type); Ifley, *Mather, N.H.P.* 7947; Bechuanaland: Vukwe, *Pole Evans and Pentz, N.H.P.* 8493; Tati District: Francis Town, *Pentz, N.H.P.* 8521.

var. *minor* (= *Digitaria eriantha* var. *stolonifera*, Stapf.) rather weaker and more straggling than the type, Racemes 4 or 5 rarely more numerous, usually strictly umbelled, spikelets about 2.5 mm. rather plumper and less acuminate than the type, hairs of the valve often mixed with fine but stiff bristles.

TRANSVAAL: Waterberg: Middelfontein Num-num, *Donisthorpe, N.H.P.* 7864; Naboomspruit: Koornpunt, Kalpan, *Langerman, N.H.P.* 8702; Palala, *Espach, N.H.P.* 7622; Pietpotgietersrust, *Pentz, N.H.P.* 7816, 8513; Pyramid Estate, *Galpin* 8874; Hangklip, *Knothe N.H.P.* 7960; Marico District: Malmanie oog, Ottoshoop *Liebenberg, N.H.P.* 7965; Pretoria District: Hamanskraal *Pentz, N.H.P.* 8514; Pretoria, Paardefontein, *Liebenberg N.H.P.* 8024; *Steyn N.H.P.* 8054.

This species varies considerably within its prescribed limits many of the variations being probably due to hybridisation. This is the well-known "Woolly Finger Grass" of South Africa that has been proved to be such an excellent pasture grass. Specimens of this grass and of other stoloniferous species have been distributed under the name of *D. eriantha* var. *stolonifera* Stapf. but only the one fairly constant variety, *D. Pentzii* var. *minor*, really corresponds to the type of Stapf's variety.

D. valida.

Densely tufted perennial with intravaginal innovation shoots and sending out long rather stout and often repeatedly branched runners, that root and shoot from the nodes, internodes and young shoots hairy. *Culms* glabrous, smooth, subterete, geniculate from about the second node and then erect, stout, up to 130 cm. high, 3-4 noded, simple or more usually branched from one or more of the lower nodes, uppermost internode very long; *sheaths* of leaves up to 18 cm. long compressed and keeled, the lower loosely hairy all over, densely silky tomentose at the base, the upper glabrescent except at the always hairy nodes, firm, rather loose; *ligule* delicately membranous, up to 5 mm. long, ovate obtuse, glabrous, minutely denticulate; *blades* linear lanceolate from a slightly narrowed base, long tapering to a narrow acute apex, 18-50 cm. long by 5-9 mm. wide, firm, flat or lightly folded, glabrous, smooth below, with scabrid margins, midrib grooved above and forming a prominent firm keel below, primary nerves 3-4 on either side the midrib. *Racemes* about 9-14, whorled

or sub-whorled on a short (about 3.5 cm. long), common angled axis, up to 13 cm. long; *pedicels* 2-nate the longer rather less than 1.5 mm. long, scabrid, glabrous. *Spikelets* narrow ovate-lanceolate, acute, about 3-5 mm. long .7 mm. wide, *lower glume* a rather firm minute, membranous scale; *upper glume* about two-thirds the length of the spikelet, 3-nerved with lines of fine blunt appressed hairs between the nerves and on the margins; *lower valve* the size of the spikelet, 7-nerved, nerves smooth, rather close, hairs as in the upper glume; *pale* .7-1 mm. long, lodicules minute, truncate; *fertile floret* rather firmly membranous, lanceolate acuminate, slightly shorter than the lower valve.

TRANSVAAL.—Pretoria, *Pentz, N.H.P.* 1970 (*type*) 8506, 8552, *Wager, N.H.P.* 8060; Rustenburg, Doornpoort, *Mogg, N.H.P.* 8571 and 8572; Marico, Skuinsdrift, *Liebenberg* 564; Slurry, *Pole Evans and Pentz, N.H.P.* 8520; Malmanie's Oog, *Pentz, N.H.P.* 8512; Heidelberg, Uitgevalen, *Burt-Davy* 13666; Carolina, Coed-Byclair Farm, *Howel-Jones, N.H.P.* 8322; Lydenberg, *Pentz, N.H.P.* 8515; Potchefstroom, *Liebenberg, N.H.P.* 8630; Vereeniging, Farm Zuurfontein, *Pentz, N.H.P.* 8497.

ORANGE FREE STATE.—Parys, *Ramsbottom, N.H.P.* 8377; Heilbron, *Maccauvlei, Brandmuller* 54.

CAPE PROVINCE.—Mafeking, Pitsani, *Pole Evans and Pentz, N.H.P.* 8548. Bechuana-land: Padden on Molopo River, *Pole Evans and Pentz, N.H.P.* 8558.

Var. *glauca*.

Culms and stolons more slender, leaves shorter, glaucous, internodes of runners glabrous.

TRANSVAAL.—Pretoria: Hamanskraal, *Pentz, N.H.P.* 8499; Pretoria: Groenkloof Valley, *Mogg, N.H.P.* 7969; Klapperkop, *Stent and Mogg, N.H.P.* 7968.

A very useful grazing grass of the "Woolly Finger" type (*D. Pentzii*) but much taller and coarser with broader leaves, stouter runners.

D. Polevansii.

Stoloniferous perennial from a thickened much branched rhizome bearing numerous bulbous extravaginal innovation shoots covered with short silky tomentose cataphyls. The long, stout surface runners or stolons root firmly at the nodes and send up fascicles of bulbous based shoots, internodes purplish grey and up to 20 cm. or longer. *Culms* erect rather bare from a bulboid base, up to about 1.3 m. high, smooth, glabrous, 4-5 noded, branched from the lower or middle nodes, internodes mostly included except the uppermost which is long exserted; *leaf sheaths* long, rather loose, finely ribbed, smooth, glabrous or the lower sometimes finely hirsute or ciliate and early falling away leaving a rather bare culm base; *ligule* membranous, mostly truncate or rounded, denticulate, up to 3 mm. long and usually more or less appressed to the blade; *blades* glaucous, linear lanceolate, slightly narrowed at the rounded base, tapering to a fine point, flat, up to 40 cm. long by 8-11 mm. broad, quite smooth, glabrous or minutely hirsute with a few tubercle based hairs at the base, margins cartilagenous smooth, primary lateral nerves about 5 not very conspicuous on either side the slender prominent midrib. *Racemes* up to 12 and about 9-16 cm. long strictly digitate or with an additional 1-4 terminating the shortly elongated angled axis, *rhachis* triangular with narrow winged, smooth or sparsely scabrid margins, .5-.75 mm. wide, glabrous; *pedicels* 2-nate, scabrid with cupular sub-membranous tips, the longer up to 2 mm. *Spikelets* appressed, sub-imbricating about 3 mm. long excluding the hairs at tip, narrow-oval-acute, greyish green to leaden or brownish when mature; *lower glume* very small but distinct, thinly membranous, obtuse to sub-acute; *upper glume* narrow, 3-nerved, acute, equalling about three-quarters to rather less of the fertile floret, with long silky hairs between the nerves and on the margins and tip; *lower valve* usually purplish, ovate acute, the size of the spikelet, 7-nerved, midnerve prominent, lateral faint, smooth, lines of the silky obtuse usually appressed hairs between the inner lateral nerves and on the margins; *fertile floret* elliptic, rather shorter than the lower valve, pale greyish green to light golden brown, flaps broad meeting or in some cases overlapping.

CAPE PROVINCE.—Bechuanaland, Vryburg, N.W. of Armadillo Creek, *Burt-Davy* 13871; Kuruman, *Pole Evans* 2065, 3322, Molopo River, *Pole Evans* and *Pentz*, *N.H.P.* 8561; Mafeking between Vuilnek and Inkruiip, *Pole Evans* 2418, 2419.

A very distinctive species with bulbous-like bases to the culms. The stout runners reach a length of 450–600 cm.

D. decumbens.

Perennial. Culms fasciated on a short rhizome, innovation shoots intravaginal, stoloniferous. Flowering culms up to 113 cm. rather bare at the base, many noded, usually decumbent, much and often repeatedly branched and often rooting at the lower nodes, glabrous, smooth, terete or slightly compressed; *sheaths* rather long and loose, smooth, glabrescent, those of the young shoots often finely hirsute especially at the nodes; *ligule* thinly membranous, truncate, about 3 mm. long; *blades* linear lanceolate from a slightly narrowed base tapering to an acutely acuminate tip, flaccid, minutely scaberulous, glabrous, up to 14 cm. long (those of barren shoots sometimes to 28 cm.) by 7 mm. broad, light green. *Racemes* up to 13 cm. long, typically widely spreading the lower almost horizontal, 6–10 arranged in a single whorl (usually of 6) at the apex of the culm or with the common axis elongated about 1–1.5 cm. and bearing a second whorl of 2–4 at the tip, occasionally with one or two scattered below the top whorl. *Rhachis* sub-flexuous, slender, flat on the back trigonous on the face with narrow but distinct green winged margins, scabrid, glabrous, from .4–.8 mm. wide; *pedicels* 2-nate, slender trigonous, scabrid, longer up to 1.5 mm. long; *spikelets* rather loosely imbricating, narrow lanceolate-acuminate, 2.7–3 mm. long by .6–.8 mm. wide, scantily and usually appressedly hairy; *lower glume* a minute obtuse membranous persistent scale, *upper glume* narrow oblong equalling half to three-quarters length of the spikelet, 3-nerved, nerves smooth lines of fine closely appressed silky hairs between the nerves and slightly longer (up .5 mm.) and spreading hairs on the margins; *lower valve* the size of the spikelet, 7-nerved, rather close and prominent and smooth, apparently glabrous, but actually with narrow lines of closely appressed silky hairs in the lower half between inner pairs of lateral nerves and on the margins right to the tip of valve, hairs never longer than .5 mm. and not or seldom spreading, *fertile floret* narrow lanceolate acuminate, slightly shorter than the lower valve, greyish yellow to purplish.

TRANSVAAL.—Barberton District: Nelspruit, *Pentz*, *N.H.P.* 8495.

The loosely fasciated culms the weak mostly desumbent and leafy stems, the widely spreading racemes and the apparently glabrous or sparsely and shortly hairy spikelets, distinguish it from *D. Pentzii*.

D. Swazilandensis.

Perennial more or less prostrate creeping grass sending out long slender rooting runners with numerous short glabrous or sparsely hairy internodes. Culms prostrate erect, very slender, glabrous smooth, terete, with many short, more or less included, internodes below the comparatively long (up to 13 cm.) uppermost internode; frequently branched and sending out leafy barren shoots. *Sheaths* somewhat compressed at length slipping from culm, glabrous except at the long hairy nodes or sparsely long and softly hairy, produced in an auricle on one or both sides of the mouth. *Ligule* rounded or truncate, thinly membranous about .7 mm. long; *blades* flat narrow ovate-lanceolate from a rounded and contracted base, tapering to a narrow acute apex, up to 7 cm. long by 4 mm. wide, glabrous or with a few scattered fine hairs towards the base, smooth except at the tip and on the minutely scaberulous margins. *Racemes* 2–3 very rarely 4, slender, about 5–7 cm. long, *rhachis*, about .4 mm. wide, narrowly winged, triquetrous and sharply angled on the face, glabrous and smooth except on the minutely scaberulous margins; *pedicels* 2-nate, terete or somewhat flattened or sub-triquetrous, longest about 1.5 mm. long, minutely scabrid on the margins; *spikelets* somewhat imbricating, 2–2.5 mm. long, about .7 mm. wide, oval-acute, apparently glabrous. *Lower*

glume an obtuse to truncate, persistent, membranous scale ; *upper* oval acute, rather broad and thin, equalling half to two-thirds the length of spikelet, 3-nerved with scanty lines of appressed straight fine hairs between the nerves and on the margin those towards the tip longer and slightly denser ; *lower valve* thinly membranous the size of the spikelet, rather prominently, 7-nerved with scanty lines of appressed hairs between the inner pair of lateral nerves and on the margins, fertile floret oval, acute, purple.

Near to *D. horizontalis* but a perennial with shorter narrower and less scabrid leaves, and fewer racemes.

SWAZILAND.—Stegi *Mrs. Perkins N.H.P.* 7931 ; on the border near Mrs. Andrews' farm, *Pentz N.H.P.* 8557.

A prostrate grass that makes a mass of short dense matted foliage suitable for a lawn, or for short crop for sheep, does well with clover.

D. rigida.

Perennial, caespitose, sending out long branched and rather rigid runners that root and shoot from the nodes. *Culms* geniculate or prostrate erect about 75 cm. long, 4-6 noded, simple or branched, glabrous, smooth, sub-terete, compressable ; *sheaths of the leaves* firm, loose finely and closely striate, smooth, glabrous except at the densely silky nodes, or with a few scattered hairs ; *ligule* prominently exserted, membranous 5-14 mm. long, dentate, adnate to the often rather long auricles of the sheath ; *blades* linear, flat or folded, 5-20 cm. long by about 3-4 mm. wide, from an equally wide base long tapering to an acute apex, very firm, smooth glabrous or softly and sparsely hairy on the upper side, midrib rather stout and prominent below, whitish above, primary lateral nerves about 6 on either side, close and firm. *Racemes* 6-9 in whorls or sub-whorls on a short common axis, about 7-9 cm. long ; *rhachis* narrow, about .5 mm. wide margined or very narrowly winged, scabrid, glabrous ; *pedicels* 2-nate or sometimes 3-nate towards the base, longest about 2 mm., scabrid ; *spikelets* imbricating, about 3 mm. long, ovate lanceolate, acute, *lower glume* a nerveless membranous scale ; *upper glume* equalling from half to two-thirds of the spikelet, 3 nerved with very dense lines of fine, straight, blunt hairs between the nerves and on the margins ; *lower valve* equalling the spikelet, 7-nerved, the inner pairs of lateral nerves rather remote from the central nerve and equally prominent, all smooth and with lines of rather fine, stiff, straight, blunt hairs between the inner lateral nerves and on the margins, the hairs between the nerves rather scantily appressed, those on the margins longer and rather denser. *Fertile floret* elliptic, lanceolate, shortly and acutely acuminate, firmly membranous, finely punctate striate, light green or purplish, margin rather distant ; *anthers* about 1.5 mm. purple.

TRANSVAAL.—Magalakwin, *Pole Evans, N.H.P.* 8530.

The very hard leaves and the long prominent ligule distinguish this species from other stoloniferous species of the same type. Roots of the grass were collected by Dr. Pole Evans in the Northern Transvaal and planted at Prinshof. This description is from a single flowering specimen collected from those roots.

D. glauca.

Perennial, densely tufted, with intravaginal innovation shoots on a short oblique or descending rhizome. *Culms* glabrous, terete, erect or sub-geniculate, rather stout, up to 135 cm. high, much or scantily branched from the lower nodes, 2-5 noded, lower internodes included, upper exserted, uppermost longer than half the culm ; *lower sheaths* compressed, from 5-12 cm. long, loose, finely ribbed, more or less densely hairy at the base, otherwise glabrous or with scattered rather long tubercle based hairs but never densely hairy ; *ligule* delicately membranous, oblong obtuse, 3-5 mm. long, 3-lobed or toothed, sides adnate with the sheath auricles, glabrous ; *blades* rather firm mostly strongly folded, finely ribbed, about 3 mm. wide to 30 cm. long, culm leaves shorter, finely scaberulous on the nerves on

either surface, glabrous, glaucous. *Racemes* about 4-7, sessile, obliquely ascending, about 10-14 cm. long, the lowest usually 2-nate or 3-nate, the succeeding variously arranged on a short angular scaberulous glabrous axis 3-5 cm. long, the terminal raceme solitary and erect, rhachis of racemes, triquetrous, very narrowly winged, .3-.5 mm. wide, scabrid, finely pubescent at the junction with the main axis otherwise glabrous; *pedicels* angled, slender, scabrid, with shallowly concave membranous tips, 2-nate or often on short contracted branchlets at the base of raceme; *spikelets* loosely appressed or spreading, not imbricating, often their own length apart, narrow lanceolate-acuminate, 4-4.3 mm. long by 1 mm. wide, conspicuously but not very long, hairy; *lower glume* an ovate, nerveless, rather firmly membranous scale usually about .5 mm. long; *upper glume* equalling about half to three-quarters the length of the spikelet, narrow ovate-obtuse, 3-nerved with lines of soft fine obtuse hairs between the nerves and on the margins, produced beyond the tip of the glume; *lower valve* the size of the spikelet, 7-nerved, nerves smooth, rather close and equidistant, with lines of straight soft appressed or somewhat spreading hairs between the inner lateral nerves and on the margins, hairs up to 1.5 mm. long; pale and lodicules, hyaline, minute; *fertile floret* narrow oval acuminate equalling or slightly shorter than the lower valve, pallid sometimes faintly flushed with purple, the flaps of valve closely approximating.

TRANSVAAL.—Pretoria: near Government House, *Pentz*, N.H.P. 8519, Pretoria, *Pentz*, N.H.P. 8670, Heidelberg, Henley-on-Klip, *Stent*, N.H.P. H. 21592.

ORANGE FREE STATE.—Kroonstad, *Hall*, N.H.P. 8669; Fauresmith, Botanical Reserve, *C. A. Smith* 4098, 3960; *Breda* 16.

CAPE PROVINCE.—Gordonia, Inkruij, *Pole Evans* and *Pentz*, N.H.P. 8555.

A tufted species very glaucous with foliage seldom above 30 cm. high and numerous tall erect flowering stems, very near to *eriantha* but differing from that species in its longer more rigid leaves, taller stouter culms, longer laxer racemes, more densely and long hairy spikelets, etc.

Var. *Bechuanica*.

Sheaths longer, densely hirsute, culms stouter, racemes more numerous and spikelets imbricating and more crowded.

CAPE PROVINCE.—Mafeking: Langeberg Camp, *Pole Evans* 2421; Olifantshoek, *Pole Evans* and *Pentz*, N.H.P. 8556; Upington, on quartzite kopje, *Pole Evans* 2194.

D. natalensis.

Densely tufted perennial. *Culms* rather stout, up to about 120 cm. high, erect and very straight or more or less geniculate, simple or branched, glabrous, smooth or often scaberulous just below the panicle, 4-6 noded, lower internodes usually included, upper exerted, uppermost very long. *Sheaths* of the lower leaves firm sub-compressed, loose, up to about 25 cm., glabrous except at the usually hirsute base or more or less densely beset with rather rigid sharp pointed hairs especially on the margins, those of cauline leaves usually quite glabrous or more or less finely pubescent at base; *ligule* rather firmly scarious, up to 15 mm. long, rounded or truncate, sometimes scantily but rather long ciliate, often with the margins produced and adnate to the auricles of the sheath mouth; *blades* linear, up to 60 cm. long by 8 mm. wide (fresh material) flat or folded, tapering to an acute apex, smooth, or the upper surface minutely scaberulous, midrib rather broad and stout, lateral nerves prominent and close, blades of the upper culm leaves sometimes much reduced. *Racemes* many, digitate or sub-digitate on a short (up to 5 cm. long) common axis, 12-23 cm. long; rhachis about .5-.8 mm. wide, triquetrous, narrowly winged, straight or flexuous, scabrid on the margins and the facial angle, glabrous except at the minutely pubescent base; *pedicels* 2-nate or 3-nate or sometimes in fascicles of 4-5, scabrid with truncate tips; *spikelets* not or laxly sub-imbricating ovate lanceolate acute, about 3 mm. long; *lower glume* minute but distinct, membranous; *upper glume* narrow, obtuse, 3-nerved,

equalling about half the spikelet, lines of fine silky obtuse hairs between the nerves and on the margins; *lower valve* the size of the spikelet, 7-nerved, minutely scaberulous on the nerves and often on the spaces between, hairs between the inner lateral nerves and on the margin not very long, straight, acute, usually closely appressed or somewhat spreading with age and often mixed with rather rigid acute bristle-like hairs; *fertile valve* greenish grey, as long as or slightly shorter than the lower valve, rather firmly membranous, shortly apiculate, margins rather distant.

NATAL.—Umkomaas, *van Rensburg*, N.H.P. 8630 (type); Maritzburg, *McClean* 184; Zululand-Mtunzini *Mogg*, N.H.P. H.20026, H.20042; Ixopo, Glen Daun, *Bruce*, N.H.P. 8072; Matubatuba, *Harrison*, N.H.P. 8323; without precise locality *Storey* 21; Kentani, in valleys *Pegler* 1092.

Near to *D. Smutsii* Stent but very different in the field with more rigid leaves and longer ligule; the hairs of the spikelet are rather stiff and the nerves of the lower valve minutely scaberulous.

D. littoralis.

Densely tufted perennial on short stout descending rhizome. *Culms* erect or geniculate, rather stout, glabrous, smooth, 3-4-noded usually branched and often sending out fascicles of shoots from the lower nodes, up to 120 cm. high, lower internodes included, upper exerted; leaves very green, crowded and more or less flabellate at the base; *sheaths* loose, rather long, the lower shortly and appressed hairy at the base otherwise glabrous or with few scattered hairs, compressed, finely and closely striate; *ligule* up to 9 mm. but usually much shorter, minutely fimbriate; *blades* flat, linear, from a scarcely narrowed base tapering to long acuminate points, glabrous tip scaberulous, about 30 cm. long by 7 mm. broad, midrib prominent below, primary lateral nerves about 4 on either side, not conspicuous. *Racemes* 7-10, obliquely spreading, 10-16 cm. long, more or less whorled or scattered on a short common axis 2-3 cm. (very rarely more) long, rather dense or sometimes interrupted, *rhachis* of racemes narrow, triquetrous, margined, .5 mm. wide, scabrid, glabrous; *pedicels* 2-nate, longer about 1.3 mm., scabrid, angled, with membranous discoid tips. *Spikelets* sub-imbricating, somewhat crowded, lanceolate, oblong, 3.5-4 mm. long and 1 or slightly over 1 mm. broad, conspicuously hairy, hairs fine obtuse, under 1 mm. long; *lower glume* a well developed firmly membranous nerveless ovate-lanceolate obtuse to sub-acute scale, 1-1.5 mm. long; *upper* equalling about three-quarters the length of the spikelet, 3-nerved with hairs on margins and between the nerves; *lower valve* the size of the spikelet, 7-nerved, nerves often minutely scaberulous, equidistant or the inner lateral pair somewhat remote from the central nerve, hairs between nerves and on the margins appressed, ultimately spreading; *fertile floret* as long as the lower valve, anthers 2.3 mm. long.

CAPE PROVINCE.—Albany Division: Grahamstown, Schonland 3739 (type), Howiesons Poort, *Worracher*, N.H.P. 8671, *Dyer*, N.H.P. 8502; Port Elizabeth, *Gunn*, N.H.P. 7866, *Galpin* 6384; Port St. Johns, Eagle's Nest, *Howlett* 36.

Near to *D. natalensis* which is however a coarser grass with very firm leaves, more numerous racemes and coarser almost bristle-like hairs on the spikelet.

A densely tufted very green species, flowering culms, 126 cm. high and foliage about 50 cm. high. More resistant to frost than other species under cultivation.

Var. *prostrata*.

Densely tufted giving off numerous runners that root (rather lightly?) at the nodes and always terminate in a flowering culm—they are in fact prostrate culms—fascicles of flowering shoots are given forth from most of the nodes. A very blue variety.

CAPE PROVINCE.—Albany: Grahamstown, *Pentz*, *N.H.P.* 8021 and 8504; Port Elizabeth, *Gunn*, *N.H.P.* 8517, 7973, 8494.

Gunn 8494 is a rather smaller form with more slender flowering culms and very long runners which do not always terminate in flowering culms.

D. geniculata.

Perennial on a stout descending rhizome. *Culms* fascicled, prostrate erect up to 90 cm. high, much branched from the base and from the lower nodes, nodes usually many, the basal internodes short and included; *leaf sheaths* glabrous or hairy at the base and along the margins, smooth, rather loose, finely ribbed; *ligule* delicately membranous, glabrous, up to 7 mm. long but often appearing shorter from the tearing away or folding over of the delicate obtuse tip; *blades* linear from a slightly narrowed base tapering to an acuminate setaceous tip about 30 cm. long by 4 mm. wide, quite glabrous or sparsely hairy with scattered long white hairs, scaberulous on the upper surface and margins, midrib, slender, somewhat prominent below, indistinct above, finely ribbed, primary lateral nerves scarcely distinguishable; *racemes* 4–9 digitate or sub-digitate on a short axis, about 9–12 cm. long, obliquely erect or rather widely (but not horizontally) spreading; *rhachis* narrow triquetrous, margined, scaberulous, pedicels triquetrous, 2-nate, scaberulous; *spikelets* narrow, ovate, lanceolate, acute or sub-acute 3–4 mm. long, rather lax, not imbricating; *lower glume* up to 5 mm. long, membranous, nerveless; *upper* 3-nerved equalling half to three-quarters the length of the spikelet with rather dense lines of soft spreading hairs between the nerves and on the margins; *lower valve* the size of the spikelet 7-nerved nerves, smooth, equidistant, with lines of soft hairs between the inner lateral nerves and on the margins, hairs about 5 mm. long, margins hyaline; *fertile floret* equalling or slightly shorter than the lower valve, lanceolate, yellowish to brown; anthers yellow, about 2 mm. long.

CAPE PROVINCE.—Wodehouse: Dordrecht *Pentz*, *N.H.P.* 8049 (type), 8498; Oudtshoorn, De Rust *Pentz*, *N.H.P.* 8518; Willowmore, near Pienaars River, *Pole Evans* and *Pentz* *N.H.P.* 8508.

ORANGE FREE STATE.—Senekal, Cyferfontein, *Joubert*, *N.H.P.* 7952.

D. foliosa.

Perennial on a shortly creeping rootstock with extravaginal innovation shoots covered with lanceolate-ovate membranous, closely ribbed hairy cataphyls. *Culms* slender up to 45 cm. high, shortly exceeding the leaves, 5–6 noded, branched from most of the nodes or only from the upper, internodes (except the uppermost) short included, leafy throughout but more so towards the top. *Sheaths* of the leaves thin, loose, the lower soon withering, glabrous except for occasionally a few tubercle based hairs towards the mouth; *ligule* thinly scarious, irregularly toothed, about 1.5 mm. 3-lobed the central lobe broadly rounded, the side lobes short or narrowly elongated and adnate to the sheath-auricles; *blades* rather dark green, linear lanceolate, flat, acutely long acuminate, 6–13 cm. long by 3–5 mm. wide, rather firm, with narrow cartilaginous margin, smooth, glabrous or with a few scattered tubercle based hairs mostly towards the base, midrib slender, prominent below, grooved above. *Racemes* slender, 2–7, digitate or sub-digitate, on a very shortly elongated axis, 4–6 cm. long; *rhachis* slender, flat on the back, trigonous on the face, narrowly winged, about 5 mm. wide; *pedicels* scaberulous, 2-nate, angled or the shorter terete, sometimes on short appressed branchlets. *Spikelets* lanceolate acute, about 2–5 mm. long; *lower glume* a small membranous scale; *upper glume* ovate acute or sub-acute, equalling about three-quarters the length of the spikelet and about as broad at the base, 3-nerved, the hairs between the nerves and on the margins very fine blunt and under 1 mm. long; *lower valve* the size of the spikelet, thin, 7-nerved, three middle nerves, slender but rather prominent, others somewhat obscure, hairs between the inner lateral pairs short and appressed, the marginal longer but also usually appressed; *fertile floret* narrow ovate acute, slightly shorter than the lower valve, margins approximating; anthers and stigmas purple.

CAPE PROVINCE.—Kuruman, Vuilnek, *Pentz, N.H.P.* 8527.

A distinct species presenting, when growing, a bushy effect with the flat rather firm leaves gathered towards the tops of the culms leaving the bases covered only with the withering sheaths. The comparatively short flowering culms and racemes are also rather distinct.

D. trichopodia.

Upright perennial, innovations intravaginal (?). *Culms* about 45 cm. high, 2-3 noded, simple, rather stout, densely and rather softly hairy in the upper part below the panicle. *Sheaths* of the cauline leaves rather tight exceeding to very little shorter than the internodes, glabrous except at the rather long and densely bearded nodes, smooth; *basal sheaths* brownish rather firm, loose, like the ovate acute cataphylls densely silky hairy at the base and more or less so further up; *ligule* rounded or truncate, membranous, glabrous, rather short or up to 3 mm. long, rather firm; *blades* broad, flat, up to about 19 cm. long by 10 mm. wide, smooth, or scaberulous in the upper surface, glabrous except for a few scattered long hairs on either side the ligule, midrib slender not prominent, primary lateral nerves 5-6 on either side. *Racemes* compound towards the base 5-10, solitary on an elongated common axis forming a more or less contracted panicle, axis up to 12 cm. long, angled and ribbed and covered with long cream, silky rather thick walled acutely acuminate hairs, branches short and appressed; *rhachis* trigonous, flexuous, margined, about .5 mm. wide, densely hirsute along the margins and on the face with the same long shining rather rigid hairs; *pedicels* 2-nate or solitary or more often in fascicles of 3-6, densely long, hairy, the hairs at the discoid tips exceeding to spikelets. *Spikelets* crowded almost hidden by the copious hairs of the rhachis and pedicels, quite glabrous and smooth; light golden brown paling to yellow at the tips, ovate acute, rather plump about 2 mm. long; *lower glume* 0, upper reduced to a thinly membranous emarginate nerveless or faintly 1-3 nerved scale about .5 mm. long; *lower valve* the size of the spikelet, thinly membranous 3-5-nerved, the outer nerves when present some distance from the margins, very faint and evanescent above, the two inner lateral nerves anastomosing with the centre nerve just below the tip, *pale* and *lodicules* wanting; *fertile valve* golden brown rather tough the hyaline flaps sometimes overlapping at the tip or distant to the base; *pale* resembling the valve but more deeply coloured on the back and with the flaps narrow towards the tip and overlapping at the base; *anthers* about 1.5 mm. long, brownish.

CAPE PROVINCE.—Komgha Division, grassy slopes near Kei Mouth, *Flanagan* 987.

The only specimen I have seen of this grass which was collected by Flanagan in 1892, there are no barren shoots and the tips of all the leaves are broken off.

Very near to *D. uniglumis* but with broader leaves, longer and more copious setae on the axis and pedicels and larger spikelets and more compound racemes, etc. Also very near to *D. Grantii* Hubbard from which it differs in the densely bearded sheath-nodes, wider leaves, longer and more densely silky racemes, etc.

D. apiculata.

Perennial, rather loosely fascicled with intravaginal and extravaginal innovation shoots the latter covered at the base by linear lanceolate, strongly striate cataphylls. *Culms* geniculate, slender, simple, 2-3 noded with lowest internode very short, smooth, glabrous or softly pubescent for a short distance below the panicle; *leaf sheaths* narrow, rather loose, striate finely hirsute, those of the slender barren shoots about 3-5 cm. long; *ligule* not exserted, firmly membranous and brownish, up to 1 mm. long, sheath margins not produced; *blades* narrow linear from 1.3 mm. to 3 mm. wide and up to 17 cm. long, not or slightly narrowed at the base, long tapering to a fine point, rather rigid hairy on both surfaces, margins revolute, midrib slender but prominent with 3-5 primary lateral nerves scarcely differentiated from the secondary, all rather prominent and the leaf therefore having a ribbed

effect. *Racemes* 4-7 and up to 8 cm. long solitary common axis very short, slender, angular, ribbed, minutely pubescent and scabrid, rhachis about .5 mm. wide, triquetrous with narrow scabrid margins and occasional fine hairs below the pedicels; internodes 2.5-5 mm. long; *pedicels* binate or ternate or in fascicles of 3-5, very uneven in length the longest commonly up to 3 or 4 mm. long, slender, scabrid with small discoid tips. *Spikelets*, rather loosely spreading, about 2 mm. long, ovate acute, rather plump and quite glabrous; *lower glume* minute broadly clasping, thinly membranous to hyaline, truncate nerveless; *upper glume* ovate obtuse equalling less than half the spikelet, thinly membranous prominently 3-nerved; *lower valve* equalling or almost, the spikelet in length, very thin rather narrow ovate acute, prominently 5-nerved, nerves smooth, equidistant; pale and lodicules minute; *fertile valve* determining the size of the spikelet, elliptic oblong, minutely apiculate, coriaceous, light yellowish brown when young soon deepening to dark brown except at the base and the small apiculus which remain yellow; *pale* of the same texture and colour as the valve; lodicules broadly cuneate about .5 mm. long; *anthers* little over 1 mm. ovary narrow ovate, stigmas long plumose at the tips of the styles, grain not seen.

SWAZILAND.—*Burt-Davy* 2820 (type); Transvaal: Barberton, Devils Kantoor, Kaapsche Hoop, *Pole Evans* 1013.

Nearest to *D. Ibura* but a perennial with slenderer, fewer and not compound racemes narrower leaf blades, etc. The small yellow apiculus of the dark valve was very noticeable.