100 a 29

582.35 (68) ~~41~~

BUC-

REVISED LIST
OF THE
FERNS OF NATAL,

BY
REV. JOHN BUCHANAN, A.M.

REPRINTED FROM THE "NATAL COLONIST."

NATAL:
P. DAVIS AND SONS, DURBAN AND MARITZBURG.
1875.

PREFACE.

THE REV. Mr. Buchanan, having kindly complied with our request that he should prepare a Revised List of Natal Ferns, we beg to prefix to it, in lieu of preface, the following letter. Although leaving South Africa, Mr. Buchanan's ardor in the pursuit is as great as ever, and he will not relinquish the study, to the elucidation of which he has done so much. We are, therefore, not without hopes that at no very distant date even this Revised List may be extended and improved; meanwhile, we can confidently recommend it as a faithful manual for all who love Ferns, or desire to help in the advancement of this branch of science.

— ED. N.C.

TO THE EDITOR OF THE NATAL COLONIST.

Sir,—Somewhat tardily, but with pleasure, I send you for publication the following Revised List of the Ferns of Natal, as suggested by you in the *Colonist* three months ago. It is as correct, and as complete in details of habitats and localities as I can well render it. Since the late Mr. McKen published his descriptive List, which, in its nomenclature and descriptive parts, was drawn from the first edition of *Synopsis Filicum*, Mr. Baker has brought out a new edition of that valuable work, with some alterations, and many additions. More recently, Lady Barkly has done good service to Pteridology, by her carefully 'Revised List of the Ferns of South Africa,' and especially by her minute record and interesting analysis of Cape localities. Not long ago, His Excellency R. W. Rawson, Esq., Lieutenant-Governor of Barbadoes, kindly submitted to the inspection of Lady Barkly and myself his private collection of South African Ferns, thereby furnishing a ready means of solving numerous difficulties in connexion with the *Synopsis Filicum Africæ Australis* of Pappe and Rawson. All of these sources have been drawn upon in the pre-

paration of this Revision. With one or two exceptions, the order followed and the names given are those of *Syn. Fil.*, 2nd Edit. The Cape localities are simply adopted from Lady Barkly. Some of the points ascertained from the Rawson Herbarium are specially mentioned; others are silently embodied. Since my return from Umpumulo, an examination of Dr. Kuhn's *Filices Africanæ*—(a marvel of critical analysis and laborious diligence,)—has raised several questions, for the settlement of which I might have found means in that magnificent Natural Fernery, but which must now lie over. Some of these are indicated in the list, and brother-collectors are invited to aid in seeking their solution. Several Transvaal species are noted, and amateurs would do well to keep a lookout for them in our own northern districts; but, doubtless there are many more yet undiscovered in that great country, perhaps in our own. In a small collection, lately sent to Durban from the Gold Fields by Mr. T. Ayres, at least six species appear which I have never seen in Natal, and some of them never at all. Unfortunately nearly the whole of the Trans-Mooi and Trans-Umlazi portions of Natal are unknown to me; and, consequently they are practically ignored in this compilation, for I have limited myself to what I know either from personal explorations or otherwise. But what is here given may prove a help to amateurs, and perhaps encourage some brother-invalids, medically exiled like myself from stern official life, to try the remedial powers of frequent rambles, portfolio in hand, over the bracing heights and in the cool shady ravines of our charming uplands. Finally, let it be understood that, as the findings of brother-collectors are embodied here along with my own, the first person plural of this Revised List is employed legitimately, and not as a mere editorial conventionalism.

Aug. 1875.

JOHN BUCHANAN.

THE FERNS OF NATAL.

REVISED LIST, 1875.

GLEICHENIA.

1.—*G. polypodioides*, Sm. On rocks and moist banks; often in large pendulous masses: Kianskloof; Inanda; Noodsberg; Umpumulo; Maritzburg Town-hill; fine in a ditch at Padley's; Magalisberg, and throughout South Africa to Angola.—M.

G. argentea, Klf. (*G. glauca*, Sw.) a Cape plant, is only a variety.

2.—*G. (Mertensia) umbraculifera*, Moore; (*Mert. umbraculifera*, Kze.) On moist open slopes; usually in extensive beds about the upper margins of bush, 2,000-3,000ft. above sea; behind Half-way House; Noodsberg; Umpumulo; Greytown; Towu-hill of Maritzburg; Richmond; abounds on Drakensberg at Cathkin; Kafraria—U.M.

3.—*G. (Mertensia) dichotoma*, Willd.; (*Mert. dichotoma*, Kze., *Mesosorus*, Hassk.) Discovered 1874 at Umpumulo, on a moist open slope, facing the south, in bush, near the top of a hill, two miles W. by S. of the Mission Station, about 2,500ft. elevation; throughout the Tropics.—M.

CYATHEA.

4.—*C. Dregei*, Kze. A tree-fern, common in open places near water, from Westville to the Drakensberg; Kafraria to the Zambezi.—N.

C. Burkei, Hk., in the Transvaal, is a mere variety.

HEMITELIA.

5.—*H. (Amphicosmia) Capensis*, R. Br.; (*Amphic. riparia*, Gardn. *Alsophila Capensis*, J. Sm., *Aspidium*, Sw.) An elegant tree-fern, common in the Cape, found in Natal only by streamlets in bush. In the range of hills extending from the Inanda to Umpumulo, 2,000-3,000ft. above sea. Occurs also on Town-hill of Maritzburg; Mauritius, Comoro Islands, Java, Brazil.—M.

WOODSIA.

6.—*W. (Physematum) Burgessiana*, Gerr. Rocks; at Liddesdale; Nottingham; Lynedoch; Karkloof;

Mount West; and very fine under projecting masses of rock on Drakensberg at Cathkin; E. Prov. Cape, and Transvaal.—U.

HYMENOPHYLLUM.

7.—*H. rarum*, R. Br.: (*H. Natalense* and *tabulare*, V.D.B., *H. flabellatum*, Klf., *H. fumarioides*, Willd.) Habitat unknown to us, but gathered in the Colony by the late Mr. Gucinzius; throughout South Africa, Tasmania, N. Zealand, Auckland Islands.

8.—*H. gracile*, Bory; (*H. inaequale*, Desv.) Habitat unknown to us, but Mr. Baker has detected the plant in the Rawson Herbarium, labelled by Mr. Sanderson of Natal as *Trichomanes Filicula*; perhaps gathered in Transvaal. It is found in the Mascarene Islands.

[*H. lineare*, Sw.; (*H. pendulum*, Bory; *H. elegans*, Spr.; *H. trifidum*, Hk. and Gr.) Recently gathered by Mr. Ayres at Macmac Goldfields; probably to be found also in Upper Natal: Mauritius and Tropical America.]

9.—*H. Tunbridgense*, Sm.; (*Leptocicium* V.D.B.) On damp rocks and old trees: Kranskloof; Maritzburg Town-hill; Noodsberg; Umpumulo, and Kranskloof; throughout S. Africa. Cosmopolitan.—M.U.

9a.—*H. Wilsoni*, Hk.; (*H. peltatum*, Desv; *H. unilaterale*, Bory; *H. Meyeri*, Pr.) Reckoned a variety of the foregoing at Kew, but a distinct species by Kuhn; seems to occur pretty much in the vicinity of *H. Tunbridgense*, in Natal, as it does elsewhere.—M.U.

TRICHOMANES.

10.—*T. pusillum*, Sw., var. *quereifolium* Hk. and Gr. On damp rocks and old trees; Kranskloof; Noodsberg; Umpumulo; Maritzburg Town-hill, and Nottingham; Tropical America. Kuhn gives our plant as *Trich. reptans*, Mett. var. *major*, Mett., believing it to be 'sufficiently different from an average specimen of *Trich. pusillum*, Sw., from the Antilles,' to rank as a distinct species, and assigning it to Central and S. America, as well as Natal.—M.U.

[*T. Filicula*, Bory, has been credited to the Cape Colony and Natal, but, we believe, without good authority. Lady Barkly, like ourselves, has never seen a specimen from either district, and Kuhn excludes it from the African Continent. It is well known in the Mascarene Islands.]

11.—*T. pyxidiferum*, L. On damp rocks and old trees; from Field's Hill to Umpumulo, and thence to the Drakensberg; throughout S. Africa; also in

Fernando Po, Hindostan, Moulmein, Borneo and N. Caledonia; common throughout Tropical America. Kuhn limits *T. pyridiferum*, L., to W. Tropical Africa, Central and S. America, and considers our plant to be a distinct species, which he names *T. melanotrichum*, Schl., assigning it to the River Nun, the Cape, Natal, Bourbon, Mauritius, Comoro Islands and Asia.—U.M.

12.—*T. rigidum*, Sw. Usually found close to tiny rills of water, or on wet caudices of tree-ferns; Kianskloof; Umhlasine, Longsight; the Inanda; Great Noodsberg; highest bush of Umpumulo; Attercliffe; not in Cape Colony, but throughout the Tropics; also in Japan and New Zealand.—M.

DAVALLIA.

[*D. elegans*, Sw., as entered by Mr. McKen, is the same as the following.]

13.—*D. nitidula*, Kze.; (*Trichomanes charophylloides*, Poir.) On trees in coast bush, and at Kearsney; on rocks at Umzinyati Falls, Inanda. Kuhn gives it as *D. denticulata*, Mett. (*D. elegans*, Sw.) var. *intermedia*, Mett., and assigns it to Natal, Angola, W. Tropical Africa, Comoro and Seychelles Islands, and Madagascar. It has been gathered by Sir H. Barkly at St. John's River, Kafraria.—C.

14.—*D. (Microlepia) speluncea*, Baker; (*Polypod. speluncea*, L., *Microlepia speluncea*, Moore, *Microlepia polydoides*, Pr.) In bush-swamp, head of Bay of Natal, and on an open but wet slope at the base of rocks S. of Mission Station at Umpumulo, only; at Itshoa, Zululand; Magalisberg; W. Trop. Africa, Seychelles and Mascarene Islands, Trop. Asia and Polynesia, W. Ind. to Brazil.—C.M.

15.—*D. (Loxoscaphe) theeifera*, H.B.K.: (*D. campyloptera*, Kze., *D. concinna*, Sehr., *Aspl. eoncinnum*, Kuhn, *Lox. concinnum*, Moore.) On trees, 2,500ft. elevation, and upwards: Richmond; Maritzburg Town-hill; Umpumulo; Karkloof; Nottingham; and Cathkin; E. Prov., Cape; Zambezi, Abyssinia, Angola, Fernando Po, Bourbon, Andes of S. America.—U.

CYSTOPTERIS.

16.—*C. fragilis*, Bernh. In wet and shady places, from Greytown to the Drakensberg. We have never seen it under 3,000ft. elevation. E. Prov., Cape; and, generally, in temperate regions of the world, as well as high tropical mountains.—U.

LINDSAYA.

17.—*L. (Schizoloma) ensifolia*, Sw.; (*L. lanceolata*, Labill., *Schiz. ensifolia*, Sw.) Streamlets; near New Guelderland, Kirkly Vale, and Lower Umvoti; Attercliffe: Coedmore; and in bush-swamp, head of Bay of Natal. In Tropics, from Guinea Coast eastward to Polynesia.—C.

ADIANTUM.

18.—*A. reniforme*, L., var. *A. asarifolium*, Willd. Gathered on the Drakensberg, beside a spring. A plant of the Masc. Is.—U.

[*A. caudatum*, L. A plant well known throughout Trop. Africa and Asia, has been gathered in Transvaal by Mr. Todd of Inanda, and is probably to be found in Upper Natal.]

19.—*A. capillus Veneris*, L. (the 'Maiden-hair' of Great Britain.) Moist rocks and banks; common along the coast; frequent up to 2,000ft., afterwards more rare; fine at Karkloof Falls. Cosmopolitan.—N.

20.—*A. Æthiopicum*, L. In the drier parts of bush; common from Maritzburg and Karkloof to the Drakensberg. Barely exists at Umpumulo. In Spain, Abyssinia, W. Trop. and S. Africa, Masc. Islands, Neilgherries, Australia, N. Zealand, and nearly all America. Kuhn calls our plant *A. thalictroides* Willd., (*A. crenatum*, Poir.) considering it to be a distinct species from *A. Æthiopicum*. He finds the former throughout Africa, the Masc. Islands, Asia and America; the latter only in the Cape, Natal, Cameroons and Australia.—U.

LONCHITIS.

21.—*L. pubescens*, Willd. Near water in bush; Kranskloof; Umbilo Falls; Field's Hill; Inanda; Grt. Noodsberg; Umpumulo; Cape, W. Trop. Africa, Masc. and Seych. Islands. Kuhn makes three species, viz., (1) *Pteris glabra*, Mett., (*L. glabra*, Bory,) in Natal, the Cape and Bourbon. (2) *Pteris Natalensis*, Kuhn, (*L. Natalensis*, P. & R.), in Natal, and Johanna Islands. (3) *Pteris pubescens*, Kuhn, (*L. pubescens*, Willd., *L. hirsuta*, Bory,) in Masc. Islands only. Baker considers that these all form but one variable species.—M.

HYPOLEPIS.

22.—*H. anthriscifolia*, Pr.; (*H. aspera*, Pr., *Cheilanthes aspera*, Klf., *Cheil. commutata*, Kze., *Hypolepis sparsisora*, Kuhn.) Open but sheltered places beside

water; Umbilo Falls; Field's Hill; Inanda; Great Noodsberg; Maritzburg Town-hill; and Umpumulo: throughout S. Africa, and at Fernando Po.—**M.**

23.—*H. Bergiana*, Hk.: (*Cheilanthes Bergiana*, Schl., *Ch. elata*, Kze., *Hyp elata*, Pr.) Drier parts of bush. 2,000-3,000ft. elevation: Maritzburg Town-hill; Fort Buckingham; Umpumulo; Esidumbeni; and very fine at Kruisfontein, close to the high road: throughout S. Africa; Zambeziland.—**M.**

CHEILANTHES.

24.—*C. (Adiantopsis) pteroides*, Sw.; (*Adiantum pteroides*, L., *Cassebeera*, Pr, *Adiantopsis*, Fée.) Habitat unknown. Collected in Natal by Gueinzus, *teste* Kuhn. Table Mountain, Cape; Orange Free State; Java.

25.—*C. (Adiant.) Capensis*, Sw.; (*Adiantum Capense*, Thbg., *A. marginatum*, Schr., *Cheil. praterata*, Klf.) In rocky scrub on Eland's Kop, Mooi River, only; 5,000ft. above sea. Common near Capetown, and in many parts of Cape Colony.—**U.**

26.—*C. hirta*, Sw.; (*C. glandulosa*, P. & R., *C. contracta*, Kze., *C. cornuta*, Kze., *ex parte*.) Dry rocky places, and in bush; common over the Colony, and over all South Africa; Bourbon. Kunze makes four varieties, viz., *contracta*, *intermedia* (our coast variety), *laxa*, and *parriloba* (in our upland bush).—**N.**

27.—*C. multifida*, Sw.; (*Adiantum*, Schr., *Allosorus*, Bernh.) About rocks: Field's Hill; Intshanga; Inanda; Noodsberg; Umpumulo; Cathkin; very fine near Insusi Falls; 1,000-1,000ft.: throughout S. Africa, to St. Helena and Zambeziland. Java.—**M.U.**

PELLÆA.

28.—*P. (Cheiloplecton) auriculata*, Fée: (*Cheilanthes auriculata*, Link, *Allosorus*, Pr., *Pteris*, Sw., *Adiantum*, Thbg.) Habitat unknown to us; but gathered in Natal by Krauss, *teste* Kuhn. Table Mountain, and Mitchell's Pass in Cape Col.; Namaqualand (Sir H. Barkly.)

29.—*P. (Cheilop.) geraniifolia*, Fée; (*Pteris*, Raddi fil., *Pt. concolor*, L. & F., *Pt. Pohlana*, Pr., *Pt. pedata*, P. & R., *Cheilanthes Kirkii*, Hk.) Dry parts of bush: Palmiet; Umbilo; Kranskloof; Inanda; Maritzburg Town-hill; Zwartkop; and Umpumulo: E. Prov., Cape; Angola, Zambezi, Mascarene Islands; throughout the Tropics generally.—**C.M.**

30.—*P. (Allosorus) pectiniformis*, Baker; (*Pteris pectiniformis*, Kuhn, *Pellaea dura*, Hk. ex parte.) On bush-clad rocks near Umzinyati Falls, Inanda, and in crevices of an isolated conical rocky hill at Killiecrankie. Found also by Mr. J. M. Wood at the base of rocks on the Umhloti, 1,000-3,000ft. above sea, Angola, Comoro Islands, and Madagascar.—M.

[*P. (Allo.) Boirini*, Hk.; (*Pteris*, Moore.) Magalisberg, and probably in Natal too, but unknown to us. Masc. Is., Ceylon, S. India.]

31.—*P. (Allo.) consobrina*, Hk.; (*Pteris quadri-pinnata*, Forsk., *Cheilanthes quadrip.*, Kuhn, *Allosorus consobrinus*, P. & R., *Cheilanthes Atherstoni*, P. & R., *Ch. triangula*, Kze, in which last Moore himself has merged his *Ch. firma* and *linearis*.) Open banks and rocks: appearing at Umpumulo, Noodsberg, and Maritzburg Town-hill, but luxuriating in Nottingham district; 3,000-4,000ft. above sea; throughout S. Africa; Cameroons, Abyssinia, and Masc. Is.—U.

32.—*P. (Allo.) Bojeri*, Hk.; (*Pteris contracta*, Mett., *Cheil. contracta*, Kze, *Pteris lasiopteris*, Bojer, *Cheil. cornuta*, P. & R. ex parte.) In *Syn. Fil.* this is set down as a var. of *P. consobrina*, but it seems to us to be more allied to *P. hastata*, Link. We are inclined with Kuhn to regard it as a species distinct from both. About rocks; Inanda; Umpumulo; and Krauskloof. Madagascar.—M.

33.—*P. (Platyloma) hastata*, Link; (*Pteris viridis*, Forsk., *Pell. viridis*, McKen, *Pt. hastata*, Sw.—*Allosorus hastatus*, Pr., *Cheilanthes*, Kze.) In bush, and on open rocks and banks, varying much in size and cutting according to site. Common over the Colony; in Cape, and, apparently, all Africa.—N.

[*P. (Platy.) leucomelas*, Baker; (*Pteris*, Mett.) A plant intermediate between Nos. 33 & 34. Gathered by Mr. W. Todd of Inanda, in the Transvaal. It is probably to be found also in North Natal. South Africa (Brentel).]

34.—*P. (Platy.) calomelanos*, Link.; (*Pteris calomelanos*, Sw., *Allosorus*, Pr., *Pteris hastata*, Thbg. non Forsk.) Among exposed rocks, usually facing the sun; common from near the coast to the Drakensberg; apparently over all Africa. Himalayas.—M.U.

35.—*P. (Holcochlana) Burkiana*, Baker; (*Pteris dura*, Willd., *Allosorus*, Pr.) Dripping rocks; Great

Noodsberg, Inanda, and Umpumulo. Transvaal, Angola, Masc. and Comoro Is.—**M.**

PTERIS.

36.—*P. longifolia*, L.; (*Pt. costata*, Bory, *Pt. ensifolia*, Sw.) Close by open running water, sparsely through the Colony. Very fine in the fumes of a hot sulphurous spring, Inhlimbithi, at 2,500ft. elevation. Tropical and warm temperate regions all round the world; but not in Cape Colony.—**N.**

37.—*P. Cretica*, L.; (*Pt. serraria*, Sw.) Moist open banks, and drier parts of bush. Barely appears below Mapumulo Mission Station, at about 1,500ft. elevation, but abounds from Maritzburg Bush to the Drakensberg, 3,000ft. and upwards.—**U.**

38.—*P. quadriaurita*, Retz.; (*Pt. catoptera*, Kze.) About open streamlets in the lower parts of the Colony, and in the moist bush of the uplands. Transvaal; not in Cape. All round the world within the Tropics, and a little beyond them. (The usually accurate Kuhn confounds this plant with *P. biaurita*, L. See below.)—**N.**

39.—*P. flabellata*, Thbg.; (*P. arguta* var. *flabellata*, Kuhn.) Near water in bush: over all the Colony from swamp at head of the Bay to the Drakensberg. From the Cape to Fernando Po and Abyssinia: St. Helena and Ascension.—**N.**

40.—*P. tremula*, R. Br.; (*P. Caffra* in the Rawson Herbarium.) Discovered by Mr. Wood near mouth of Umhloti River, and grown by him in his garden at Longsight, Inanda. Australia, Tasmania, and N. Zealand.—**C.**

41.—*P. (Pasia) aquilina*, L.; (common 'braeken.') In the open, over all the Colony. Cosmopolitan.—**N.**

[*P. (Campteria) biaurita*, L. (*Pt. nemoralis*, Willd.?) A plant having all the appearance of the Tropical *P. biaurita*, grows freely from Inanda to Tugela, ranging about 20 to 30 miles from the ocean and 2,000ft. elevation, but it has the free venation of *P. quadriaurita*, to which Mr. Baker joins it as a variety. Perhaps this is the plant which Kuhn quotes from P. & R. as *P. catoptera*, Kze., but which the Rawson Herbarium proves to be *P. quadriaurita*. The true *P. biaurita*, L., is found in the same Herbarium labelled *Campteria biaurita*; locality unknown.]

42.—*P. (Campteria) Buchanani*, Baker, MS. Discovered in a depression among the rocks at head of Intshanga cutting, where it grows to 7ft. in height; also in Karkloof, and afterwards abundantly in the bush at Entumeni in Zululand; 3,000-4,000ft. elevation. It resembles *P. flabellata*, but is distinguished by its campterioid venation, tripartite division, and wide-ereeping rhizome. It is probably the same as a plant from Kafraria in the Rawson Herbarium, bearing some five or six names (*P. serrulata*, Pappe, &c.) ; and Lady Barkly names it as found at the Knysna in Cape Colony.—**M.U.**

43.—*P. (Litobrochia) ineisa*, Thbg.; (*P. vespertilionis*, Labill., *P. glaucescens*, Bory.) In wet parts of bush: Kranskloof and Inanda (rare); Noodsberg; Umpumulo (common); about 2,000-2,500ft. elevation. Throughout S. Africa, and the Tropics all round the world.—**M.**

LOMARIA.

44.—*L. discolor*, Willd. var. *Natalensis*, Baker. Beside open streamlets: Nottingham; Karkloof heights; and on the Drakensberg at Cathkin, abundant. Not known in Cape. Austr., Tasm. and N. Zealand.—**U.**

45.—*L. attenuata*, Willd.; (*L. gigantea*, Klf., *L. heterophylla*, Desv., *L. decipiens*, P. & R., *Onoclea attenuata* & *polypodioides* Sw., *Blechnum polypodioides*, Kuhn.) Common, near running water, in the shade or open, over the Colony. All South Africa, W. Trop. Afr., Masc. Is., Trop. America and Polynesia.—**N.**

46.—*L. punctulata*, Kze.; (*Blechnum punct.* Sw., *L. auriculata*, Desv., *L. australis*, Lowe, and probably *L. inflera* P. & R., which Kuhn retains as a distinct species, but which Mr. Rawson 'does not know.') About rocks, from the Palmiet to the Drakensberg. Common throughout So. Africa. Java. Sometimes Blechnoid, and frequently much auricled.—**N.**

46 a.—*Scolopendrium Krebsii*, Kze. A remarkable variety of *L. punctulata*, and itself very variable in venation, and in shape and position of sori, is found abundantly about wet rocks from Patillo's, through Inanda and Noodsberg to Umpumulo, 1,500-2,500ft. above sea. Cape.—**M.**

47.—*L. procera*, Spreng.; (*Osmunda Capensis*, L., *Lom. Capensis*, Willd., *Blechnum Capense*, Sehl., *Lom. cordata*, Desv.) Streamlets, open or shaded: Ater-cliffe; Field's-hill; Krantz-kop; Inanda to Umpumulo; Greytown, to Richmond, 2,000-3,000ft. above sea. Throughout So. Africa. Trop. Amer., Malay, and Polyn. Is., Austr., Tasm., N. Zealand.—M.

48.—*L. Boryana*, Willd.; (*L. tabularis*, Mett., *Pteris*, Thbg., *Blechnum tabulare*, Kuhn, *Lom. Majellanica*, Desv., *L. Dalguirnsie*, P. & R., *L. cycadoides*, P. & R., the last being only an aurieled form, often to be met with amongst ordinary forms, where the growth is luxuriant) About springs in open land: 2,000-3,000ft. above sea, from Botha's-hill through Inanda to Umpumulo, from Greytown to Richmond, and all between these lines. Throughout So. Africa. Angola, Mase Is., W. Ind. to Straits of Magellan.—M.

BLECHNUM.

49.—*B. Atherstoni*, P. & R., regarded at Kew as only a Blechnoid variety of *Lom. punctulata*, Kze., but retained by Kuhn as a distinct species; and we are inclined to agree with him. There is a Blechnoid form of *L. punctulata*, resembling the normal plant in size and texture, and *Scol. Krebsii* is not much different in these respects, whereas this plant is large and coarse, of quite coriaceous texture, and indistinct venation, with a very tough stipes. It has often a creeping rhizome. The sori are usually quite Blechnoid in the upper part of the frond; in the middle and lower parts, where the sori gradually draw away from the rachis to the tips of the pinnæ, the inner portion of the fructification is broken up into small dots, somewhat as in a *Doodia*. But in all cases the sori lie close to the midrib; never, as in *Scol. Krebsii*, midway towards or near to the margin. Its habitat is never, like the latter and *L. punctulata*, in wet places, but usually the comparatively dry upper margins of bush. Inanda; Grt. Noodsberg (very fine); Umpumulo; Karkloof; near Grahams-town, Cape.—M.U.

50.—*Blechnum australe*, L.; (*B. rigidum*, Sw., *B. hastatum* & *tricuspe*, Klf., *Lomaria pumila*, P. & R.) Rocks and shady banks; Greytown; Nottingham; Cathkin; very fine beside Iskoti, Little Noodsberg; 3,000-5,000ft. above sea. Throughout S. Africa. Mase Is. (to which Kuhn adds Asia & So. Amer.)—U.M.

ASPLENIUM.

51.—*A. Kraussii*. Moore; (*A. dentatum*, P. & R.) On shaded rocky banks, often in scrub; at Riet Vlei; Mooi River; and Nottingham. Found in unusual luxuriance at Nottingham, sprawling in large moss, at the roots of old trees. Graff-Reinet, Cape.—U.

52.—*A. Sandersoni*. Hk. Moist rocks in bush, and old mossgrown trees; Field's-hill; Longsight, Inanda (abundant in ravine in front of the house;) and rarely at Umpumulo, Grt. Noodsberg and Killiecrankie, 2,000ft. elevation. Amatola Mountains, Kafraria. Zambeziland, Johanna & Masc. Is.—M.

53.—*A. Trichomanes*, L. ('Maidenhair Spleenwort.') Small bushy ravines, at Mooi River only, 4,000ft. above sea. Throughout So. Africa, but by no means common. Temperate regions of the old world, from Britain and the Azores eastward to Japan and the Himalayas; So. Austr., Tasm., N. Zealand, Sandwich Is.; N. Amer. and southward along the Andes to Peru.—U.

54.—*A. monanthemum*, L. Beside shady rivulets; in all the uplands from Maritzburg Town-hill and Karkloof to the Drakensberg, 3,000-5,000ft. Throughout So. Africa. Abyssinia; Fernando Po; Cape Verde, Canary, Madeira and Azore Is.; Sandwich Is.; Mexico along the Andes to Chili.—U.

55.—*A. ebenum*, Ait. In small rocky scrub, rare; Riet Vlei, Mooi River, Nottingham, and Seven-Mile-Bush on the Umkomas, 4,000ft. above sea. Throughout So. Africa. Canada to the West Indies and Ecuador.—U.

[In *Syn. Fil.* the next four names in our List; with their synonyms, are all included in one, viz., *A. lunulatum*, Sw. Kuhn distributes the same into seven species. Confessedly it is a group of plants as difficult to classify as it is wide in its distribution through the world. Perhaps, if called upon to wade through and arrange such heaps of specimens of these plants, from all parts of the world, as those which crowded the table of the late Sir W. Hooker, most Pteridologists would cease to wonder at his final resolution to sweep them all away together into one comprehensive species. But, looking at our Natal representatives of the group *alone*, we find them arranging themselves easily and naturally under four types. These four are all found abundantly in the Colony, and at Umpumulo all mixed

together in great luxuriance, yet everywhere with distinctive features so marked, so numerous, and, withal, so constant, that we feel constrained to recognise their claim to rank as species. So far, we agree with Kuhn.]

56.—*A. lunulatum*, Sw.; (*A. falcatum*, Thbg. *A. regulare*, Sw., *A. Dolabella*, Kze.) Usually near streamlets in bush; from the coast to Umpumulo and Maritzburg Town-hill. Cape, St. Helena, Bourbon; Asia and America—At Engeleni, on the coast, we have seen a form of this with singularly flexible rachis, and proliferous apex, covering a considerable bank with as densely matted a turf as that of any strawberry bed. We have never seen Nos. 57, 58 and 59 proliferous.—N.

57.—*A. brachyotus*, Kze. More constantly beside water in bush than No. 56 but occupying the same section of the Colony, viz., from the coast to 3,000ft. above sea. Cape. Asia.—N.

58.—*A. erectum*, Bory, var. *harpcodes*, Kze. All through bush in the upper parts of the Colony, from 2,000 to 5,000ft. above sea. Cape. W. Trop. Africa.—U.M.

59.—*A. gracile*, P. & R.; (*A. lobatum*, P. & R.)—Natal is not credited by P. & R. with this form, but we have seen specimens of both forms, in the Rawson Herbarium, which are to us indistinguishable. Occupies the same district and much the same habitat as No. 58. Cape *A. pulchrum*, Thouars, retained by Kuhn as a species, is probably the same.—U.M.

59a.—*A. Zeyheri*, P. & R. A form which we have seen only twice in Natal, viz., once at Lyuedoeh, and once at Umpumulo; seems to be a variety of *A. gracile*, perhaps a connecting link with No 56. It seems to be the *Aspl. polymorphum* of Eekl. & Zeyh. Cape.—U.M.

60.—*A. Prionitis*, Kze.; (*A. obliquum*, Willd.) Common in coast bush, sometimes on trees. We have seen it as far inland as Inanda, 1,500ft. above the sea. E. Prov. Cape. Mauritius and Bourbon (Kuhn)—C.

61.—*A. anisophyllum*, Kze. Wet or very damp parts of bush; Inanda to Umpumulo, and thence by Fort Buckingham and Karkloof to Richmond, 2,000-4,000ft. Varies in shape and cutting. Kafraria. Cameroons, Zambezi, Bourbon, Central and South America.—M.U.

62.—*A. Serra*, L. & F, var *Natalense*, Baker. Under the drip of water in bush; at southern terminus of Grt Noodsberg, only Cameroons and Fern. Po Tropical America.—M.

63.—*A. gemmiferum*, Schr.; (*A. lucidum*, Schl.) Damp and shady places: Inanda; Umpumulo; Maritzburg Town-hill; Richmond; Seven-Mile-Bush. From the Knysna to Natal. (Lady Barkly) Angola, Zambezi, Masc Is.—M.U.

63a.—*A. flexuosum*, Schr.; (*A. laciniatum*, Mett., *A. discolor*, P. & R., *A. lucidum*, Schl.) is only a divided form of the foregoing. In Seven Mile-Bush and the adjoining 'Happy Valley,' Upper Umkomas, 4,000ft above sea. Cape, at Knysna, Philipstown, and Albany (Kuhn.)—M.U.

64.—*A. protensum*, Schr. By shady streamlets, from Grt. Noodsberg and Umpumulo to the Drakensberg, 2,000-5,000ft. From the Knysna to Natal. Fern. Po., Abyssinia, Mt. Kilimanjaro, and Mauritius.—U.

65.—*A. Gueinzianum*, Mett. According to Kuhn, gathered in Natal by Gueinzius; but plant and habitat are unknown to us.

66.—*A. Adiantum-nigrum*, L; (*A. acutum*, Bory, *A. productum*, Lowe, *A. serrulatum*, Cav. 'Black Spleenwort.') Rocky places under slight shade: Mapumulo; Greytown; Riet Vlei; Mooi River; Maritzburg Town hill. Common throughout So. Africa. From the Cape to Norway, and from the Azores to Siberia, Himalayas, Java, Sandwich Is., Masc. Is., St Helena.—M.U.

67.—*A. euneatum*, Lam.; *A. affine*, Schr.) In bush; nearly everywhere from the Palmiet to Nottingham. E. Prov., Cape. Mozambique, Johanna and Seych. Is. Trop. Amer. and Polynesia to Java and Hongkong.—N.

68.—*A. splendens*, Kze. This is distinguished in 2nd Ed. of *Syn. Fil.* from *A. euneatum*, Lam., with which it was formerly joined. We do not know it, although Natal is credited with it; and we confess that we are puzzled to find the same work, which crowds our Nos. 56, 57, 58 and 59 into one species, making out two species here. Kuhn gives Kat River and Kafraria, as well as Natal, as localities of this plant.

69.—*A. furcatum*, Thbg; (*A. præmorsum*, Sw., *A. canariense*, Willd.) Open rocks, and in bush, often on trees; from Maritzburg Town-hill and Umpumulo

to the Drakensberg, 2,500-5,000ft. Throughout So. Africa, and the Tropical World, reaching northward to Madeira, the Himalayas and Japan.—U.

69 a.—Var. *tripinnatum*, Baker, is only a luxuriant form found in rich moist parts of bush at Nottingham, but not on trees. A singular elongated form is found in a limited locality about Lynedoch. (The tripinnate form was once thought to be *A. laserpitiifolium*, Lam.)—U.

70.—*A. varians*, Hk. & Gr.; (*A. fimbriatum*, Kze.) Moist shady rocks, and old trees; appearing at Umpumulo and Maritzburg Town-hill, but abounding about Nottingham and Cathkin, 2,500-5,000ft. E. Prov. Cape. Neilgherries and Himalayas.—U.M.

[*A. bulbiferum*, Forst., credited to Natal in *Syn. Fil.* is probably a mistake. At all events it is unknown to us, and not in *Fil. Afr.*]

[*A. cicutarium*, Sw., a plant said to have been gathered by Mr. Sanderson in the Magalisberg, found also in Abyssinia and on the Guinea Coast, and abounding in Trop. Amer., is probably the same as that formerly indicated under the name *A. rhizophyllum* in MeKen's List. Possibly it may yet be found in Natal; but it is unknown to us.]

71.—*A. (Darcia) brachypteron*, Kze.; (*A. Dregeanum*, Kze., is the same plant.) Moist rocks, and old trees; Inanda; Maritzburg Town-hill, and abundant at Umpumulo, 2,000-3,000ft. above sea. Kafraria, E. Trop. Afr., and Madagasear.—M.

[*A. (Darcia) flaccidum*, Forst.: (*A. odontites*, R. Br.) Said in *Syn. Fil.* to have been gathered by Mr. Sanderson in Natal; but it seems to be a mistake. Mr. S. knows nothing of it, and Kuhn positively denies it to be a So. African plant (*Fil. Afr.* p. 203.)]

72.—*A. (Darcia) rutafolium*, Kze.; (*Cænopteris*, Berg., *Darcia*, J. Sm., as also *A. stans*, Kzo., *Cæn. furcata*, Berg., *Aspl. furcatum*, J. Sm., *Darcia fureata*, Willd.) On trees, shaded rocks and throughout bush in most parts of the Colony. Throughout So. Africa, Zambesiland, Masc. Is., Himalayas, Ceylon, Japan and Fiji.—C.M.

73.—*A. (Darcia) Thunbergii*, Kze.; (*Cænopteris auriculata*, Thbg., *Darcia*, Sehl.) Near streamlets in bush; abundant at Umpumulo, and Maritzburg Town-hill; barely appears at Inanda; 2,000-3,000ft. above sea. In Natal only.—M.

74.—*A. (Athyrium) Filix-femina*, Bernh.; ('Lady Fern.') In margins of bush (not beside water,) on

the heights above Karkloof and Riet Vlei. Gathered also by Sir H. Barkly in Basutoland. Not known in Cape. Cosmopolitan.—U.

75.—*A. (Athyr.) Schimperii*. A. Br.; (formerly mistaken for *A. Filix-femina*, but at once distinguished from it by its creeping rhizome.) About exposed but damp rocks in Nottingham and Karkloof districts; and in bush at Cathkin, fine; 4,000-5,000ft. above sea. Appears at Umpumulo, 2,500ft. Abyssinia.—U.

76.—*A. (Athyr.) aspidioides*. Schl.; (*Allantodia*, Kze., *Aspid. scandicium*, Willd., *Athyrium laxum*, P. & R., as shown in Rawson Herbarium) Very wet places in shade; Kranskop; Noodsberg; Umpumulo; Karkloof to Richmond. Throughout So. Africa. Fernando Po, Masc. Is., Neilgherries, Sandwich Is., and Ecuador.—M.U

[*Actiniopteris radiata*, Link.; (*Blechnum radiatum*, Pr.) Gathered by Mr. Todd in the Transvaal; is probably to be found also in the northern portion of Natal. Lady Barkly gives Griqualand West as a habitat. Zambezi, Abyssinia, Egypt, Angola, Masc. Is., Arabia, Ceylon, India, Ava.]

DIDYMOCHLÆNA.

77.—*D. lunulata*, Desv.; (*D. dimidiata*, Kze.) Wet shady places; Inanda; Maritzburg Town-hill; Umpumulo; 2,000-3,000ft. above sea. W. Trop. Afr., Masc. Is., Malay Penins. and Is., Fiji, and Trop. America. Kuhn regards our plant as a var. (*dimidiata*) of *D. lunulata*, and confines it to Natal.—M.

ASPIDIUM.

78.—*A. (Polystichum) aculeatum*, Sw.; (*Polystichum angulare*, Pr., but not *P. pungens*, P. & R. as quoted here by Kuhn. It is the British 'Prickly Shield Fern.') Abundant in bush; from Maritzburg Town-hill and Karkloof to the Drakensberg, 3,000-7,000ft. above sea. One solitary plant has been seen on the Little Noodsberg. E. Prov. Cape. Cosmopolitan.—U.

79.—*A. (Polyst.) luctuosum*, Kze.; (*Polystichum luctuosum*, P. & R.,) regarded at Kew as only a var. of No. 78.) Bush, not usually beside water; Maritzburg Town-hill, and Nottingham. 3,000-4,000ft. E. Prov. Cape, and Kafraria.—U.

80.—*A. (Polyst.) pungens*, Kaulf.; (*Polyst. pungens*, P. and R., distinguished at once from No. 78 by its running rhizome.) In bush, but not beside water;

common from Inanda to the Drakensberg, 2,000-5,000 ft. above sea. Throughout So. Africa.—M.U.

81.—*A. (Polyst.) Capense*, Willd.: (*A. coriaceum*, Sw., *Polyst. coriaceum*, P. & R.) Moist rocks, chiefly in the open; about 3,000ft. above sea. Intshauga Cutting; Grt. Noodsberg; Itafamasi; Maritzburg Town-hill. Barely appears at Umpumulo. Throughout So. Africa. Masc. Is., Austr. and N. Zealand; Polynesia; from Cuba to Patagonia.—M.

82.—*A. (Polyst.) aristatum*, Sw.; (the entry of *A. frondosum*, Lowe. in McKen's List was a mistake.) Margins of streamlets in bush: Maritzburg Town-hill; sources of the Umlas; Nottingham; Karkloof. Not in Cape. From Japan and Himalayas to Ceylon, Norfolk Is., Fiji, Samoa, N. So. Wales. Zambezi (Kuhn).—U.

83.—*A. (Cyrtomium) falcatum*, Sw.; (*Aspid. anomophyllum*, Kuhn) In drier parts of bush, 3,000-5,000ft. above sea. Maritzburg Town-hill; Umpumulo (rare); Riet Vlei; Nottingham; Cathkin. E. Prov. Cape, Transvaal, Madagascar. Himalayas, China, Japan, and Sandwich Is.—U.

NEPHRODIUM.

84.—*N. (Lastrea) albo-punctatum*, Desv.; (*Arthropteris*, J. Sm., *Aspidium leucostictum*, Kze.) Open rocks; about two miles W. of the Inanda, and immediately below Insusi Waterfall, only; 2,000ft. above sea. W. Trop. Afr., Masc. Is., Fiji.—M.

85.—*N. (Last.) Bergianum*, Baker; (*Lastrea patens*, P. & R.) Beside almost every streamlet from the coast to Maritzburg Town-hill, and even beyond, both in the open and in shade; very large, with inner pinnules remarkably developed in Seven-Mile-Bush, Upper Umkomas. Throughout S. Africa.—N.

Aspid. Guenzianum, Mett.; (*A. Natalense*, Fée) 'differs by the presence of a gland at the base of the pinnæ beneath;' but this gland seems to us to be an almost invariable feature of the plant. At all events, we cannot distinguish between the two.

86.—*N. (Last.) Thelypteris*, Desv.; (*Polypodium*, L. the 'Marsh-fern' of Gr. Br.) In marshes; very common on the coast, but extending to the far uplands. Throughout So. Africa. Angola, Europe. N. America, N. Zealand, Japan, Amurland, Cashmere. Kuhn gives our plant as *Aspid. Thelypteris*, Sw., var. *squamuligerum* Schl., and confines it to the Cape, Natal and N. Zealand.—N.

87.—*N. (Last.) athamanticum*, Hk.; (*Aspid. atham.* Kze, *Lastrea atham.* P. & R. *L. Plantii*, Moore.) In the open, often in ant-bear holes; in most parts of the Colony. It is the *Inkomokomo* of the Kafirs, and a vermifuge like its congener the 'Male Fern' of Grt. Brit. Rare in Cape. Angola, Magalisberg.—N.

88.—*N. (Last.) inæquale*, Hk.; (*Aspidium*, Schl.) In moist (not wet) places nearly everywhere over the Colony, the larger specimens having a very different appearance from the smaller. Throughout So. Afr. Trop. Afr., and Mase. Is.—M.U.

Kuhn gives *Aspidium pentagonum*, (*Lastrea pentagona*, P. & R.) as a different species; but small specimens in the Rawson Herbarium Baker takes to be '*N. Filix-mas*, Rich., or perhaps *N. inæquale*, Hk.' They seem to us to be only the smaller form of the latter.

89.—*N. (Last.) Buchanani*, Baker; (*Lastrea crinita*. Boivin. This name, if the plant be the same, is descriptive; for, while growing, the fronds are covered with long hairs, strikingly transparent in the sunlight, but quickly disappearing in the process of drying.) Close beside running water in shade, about 4,000 ft. above sea; first discovered at Nottingham, afterwards found on Zwartkop; Karkloof Heights; and in Griqualand West on the heights at Hancock's Drift, Umzimkulu. Bourbon.—U.

90.—*N. (Last.) catopterum*, Hk.; (*Aspid. lanuginosum*, Kuhn., *A. odoratum*, Mett.) Near streamlets, in bush: Inanda; Noodsberg; Umpumulo (common); Maritzburg Town-hill; Richmond. Found by Lady Barkly at George and the Knysna, Cape. Guinea Coast, and Mase. Is.—M.U.

91.—*N. unitum*, R. Br. var. *propinquum*, R. Br.; (*Aspid. unitum*, var. *glabra*, Mett., *N. Ecklonianum*, P. & R., *A. Ecklonii*, Kze.) In marshes and wet places, in the open; common from the coast to Umpumulo and Maritzburg. Throughout So. Afr. Cosmopolitan. Kuhn gives P. and R.'s *Nephrodium Plantianum*, as a distinct species from this, but specimens in the Raws. Herb. prove them to be the same.—C.M.

92.—*N. molle*, Desv. (*Aspid. molle*, Sw., *Polyp. parasiticum*, L.) Moist and shady places; on the coast, and common from Inanda to Umpumulo. Transvaal. Cosmopolitan. What we take to be only a luxuriant form of this plant, found in the bush-

swamp at head of Bay of Natal, was once thought by Mr. Baker to be *N. elatum*, Bojer (a Mauritius plant); but specimens of the same sent at a later date were adjudged by him to our No. 92. In this view we concur.—C.M.

Kuhn gives a var. *violascens* Mett. as occurring frequently in Africa, but the purplish rachis (which probably occasioned the name) seems to depend entirely upon the degree of the plant's exposure to light.

NEPHROLEPIS.

93.—*N. acuta*, Pr.; (*N. biserrata*, Schott, *Aspid. biserratum*, and *acutum*, Sw. *Aspid. splendens*, Willd.) Abundant in openings in the bush swamp at head of Bay, and a few plants on rocks by Palmiet & Nonoti, only. Tropics, nearly over the world.—C.

OLEANDRA.

94.—*O. articulata* Pr.; (*Aspid. artic.* Sw., *O. distenta*, and *densifrons*, Kze.; *O. Thouarsiana*, Pr.) On rocks; varying much in appearance according as exposed or shaded, in rich soil or poor: Kranskloof; Intshanga; Marienburg Town hill; and from Inanda through Noodsberg to Umpumulo; 2,000-3,000ft. Transvaal, W. Trop. Afr., Masc. Is.—M.

POLYPODIUM.

95.—*P. (Phegopteris) obtusilobum*, Desv.; (*Aspid. Desvauxii*, Mett., *Polyp. Bergianum*, P. & R., as shown by the Rawson Herbarium, but which Kuhn has mistaken for their *Aspid. Bergianum*.) About shady streamlets; common from Umpumulo to Seven-Mile-Bush on the Upper Umkomas. Mas. Is., Fernando Po and Cameroons. [Mr. Baker was once disposed to put this plant with *Nephrodium conterminum*, Desv. (a common American plant), on account of a very minute involucre which may be detected on the plant occasionally; but, in the late Ed. of *Syn. Fil.* our No. 95 is retained as a Natal species; and, evidently, with reason; for the involucre, even when visible (which is seldom), is strictly rudimentary, and the sori, as a whole, show all the irregularity, in shape and size, of other species of *Phegopteris*. *N. microbasis*, Baker, 'an African representative of *conterminum*,' it seems, has a 'densely bristly' involucre.]—U.M.

96.—*P. (Goniopteris) proliferum*, Pr.: (*Ampelopteris*, Kze.) Moist open ground from coast to 1,000ft.

above sea; near Umgeni Brickfields, and half-way thence to Durban; banks of Umhloti near Todd's Mine, and of the Impisi near to Tugela. Zambezi-land, Mauritius, Angola, N. India to S. China, Philippines, New Caledonia, N. Australia.—C.

97.—*P. (Goniopt.) unitum*, Hk.; (*Phegopteris*, Mett., *Gymnogramme*, Kze., *Goniopteris sylvatica*, P. & R.) Streamlets in bush; Inanda; Great Noodsberg; Maritzburg Town-hill; Fort Buckingham; common at Umpumulo; 2,000-3,000ft. above sea. Cameroons.—M.

98.—*P. vulgare*, L.; ('Common Polypody') Moist shady places; rare in Natal; bush at Lynedoch, rocks near Boston, and at Norton's, Riet Vlei, only. 4,000ft. above sea. Throughout South Africa and Europe; Turkey, Japan, Barbary States, Madeira, Azores, Canada, and thence to California and Mexico.—U.

99.—*P. (Goniophlebium) ensiforme*, Thbg.; (*Marginaria*, P. & R., *Phlebodium*, J. Sm.) Habitat unknown to us; gathered by Gueinzins on the Tugela, and by Plant. Forests of Swellendam and Knysna, Cape.—C. probably.

100.—*P. (Gonioph.) incanum*, Sw.; (*Polyp Ecklonis*, P. & R.) On trees; Cowie's-hill to Umpumulo, rare; Maritzburg upwards, common. Knysna, and E. Prov. Cape, Zambezi-land, Ohio to Chili.—M.

101.—*P. (Niphobolus) Africanum*, Mett. On trees; Tooley's Drift, Tugela; Upper Umhlali; head waters of Omoa; Dacomb's Kop, Oakford; ravines at Spring Vale, Umkomas. Kafraria. Zambezi-land, Angola, and Guinea Coast.—C.

102.—*P. (Phymatodes) Schraderi*, Mett.; (*P. elongatum*, Sehr., *Phymatodes elongata*, P. & R.) On trees and moist rocks; over the Colony. Knysna and E. Prov., Cape.—N.

103.—*P. (Phym.) lineare*, Thbg.; (*Polyp. Gueinzii*, Mett.) Habitat not known to us. Said to have been collected in Natal by Gueinzins. Kafraria, Masc. Is., Angola, Fernando Po; N. India and Japan, to Ceylon and the Malay Islands.

104.—*P. (Phym.) lanceolatum*, L.; (*P. lepidotum*, Willd.; *Pleopeltis lepidota*, Pr.; *Pleop. ensifolia*, Hk.) On trees, and moist shady rocks; barely appearing at Inanda, but abundant from Maritzburg to the Drakensberg; 2,000-5,000ft. A singular pin-

nate form has been gathered in Seven-Mile-Bush, Upper Umkomas, and on the heights near York. Throughout So. and Trop. Africa; Masc. Is., Neilgherries, Sandwich Is., and Cen. and So. America.—U.M.

105.—*P. (Phym.) lycopodioides*, L. : (*Pleopeltis lyc.*, P. & R., *Anapeltis*, J. Sm.; *P. Muckonii*, Baker.) Trees and rocks; common about coast to Inanda and Kruisfontein, Tongat; but not on the higher uplands. W. Trop. Afr., Masc. Is., Java, Sandwich Is., Cuba and Mexico to Peru and So. Brazil.—C.

106.—*P. (Phym.) normale*, Don.; (*P. Pappci*, Mett.) On rocks, and in moist parts of bush; rare: has been seen on Maritzburg Town-hill; a few plants at Deepdene, Richmond; more plentiful in Seven-Mile-Bush, Upper Umkomas. Kafraria—U.

107.—*P. (Phym.) irioides*, Lam.; (*P. punctatum*, Sw., *Acrostichum punct.*, L.) On trees, and shaded rocks; common along the coast, and to about 500ft. above sea. Mouth of St. John's River, Kafraria (Sir H. Barkly), but not in Cape. Over all Trop. Afr.; Masc. Is.; N India and Chuzan to Fiji; Isle of Pines and N. So. Wales.—C.

108.—*P. Phymatodes*, L.; (*Phym. vulgaris*, P. & R., *Drynaria vulgaris*, J. Sm.) Only in coast bush, often on trees. Apparently throughout the Tropics.—C.

NOTHOCHLÆNA.

109.—*N. inæqualis*, Kze.; (*Cheilanthes*, Mett.) Fissures of precipitous rocks, with northern exposure; on a ridge to the north of Balutshi's Kraal, Inanda; and in a similar situation at Umpumulo, 2,000-2,500ft. above sea. Transvaal, and Angola.—M.

110.—*N. Eckloniana*, Kze.; (*Cheilanthes*, Mett.) Open rocky places, from Noodsberg and Richmond to Cathkin, 3,000-5,000ft. above sea. Throughout So. Africa.—U.

111.—*N. Buchanani*, Baker. At base of damp rocks with southern exposure; Inanda; Grt. Noodsberg; Iskoti in Little Noodsberg; and Umpumulo, 2,000-3,000ft. above sea. Natal only.—M.

GYMNOGRAMME.

112.—*G. (Leptogramme) Totta*, Sehl.; (*Grammitis Totta*, Pr., *Gymn. Lowci*, Hk. & Gr., *Phegopteris Totta*, Mett.) Close by streamlets in bush: Fort Buckingham; Karkloof; Maritzburg Town-hill; Nottingham, 3,000-4,000ft. Throughout So. Africa. W. Trop.

Afr and Abyssinia; Madeira, Azores, India, Ceylon, Java, Hongkong, Japan, Corea.—U.

113.—*G. cordata*, Schl.; (*Acrostichum*, Thbg., *Asplenium*, Sw., *Ceterach cordata* and *capensis*, P. & R.) On rocks, and in bush: near Spring Vale on the Umkomas; Umlas Upper Drift; above Bishopstowe; between Botha's-hill and Umgeni; Unpumnulo in deep northern ravines; and abundant about Catlkin; 2,000-5,000ft. Throughout So. Africa; Magalisberg, Angola. St. Helena, Bourbon.—M.U.

114.—*G. (Ceropteris) argentea*, Mett.; (*G. conspersa*, Kze, *G. rosea*, Desv., *G. farinosa*, Bojer, 'Silver Fern.') About rocks in bush; rare at Umpumulo; common on Noodsbergs; very fine and abundant on Isanguan. 3,000ft above sea. Transvaal, and Masc. Is.—M.

114a.—*G. aurea*, Desv.; ('Golden Fern.') A variety of the foregoing, with yellow powder, but more rare in Natal. Occurs beside Iskoti on Little Noodsberg, and was gathered by McKen in the hill-bush on the north side of Umhloti, Inanda. Free State and Transvaal.—M.

115.—*G. (Sellignea) lanceolata*, Hk.; (*Grammitis*, Sw.; *Polypodium Loxogramme*, Mett.; *Grammitis coriacea*, Klf.) On trees and damp rocks; appears at Noodsberg and Umpumulo; from Greytown to the Drakensberg, common; 2,500-5,000ft. Guinea Coast, Abyssinia, Masc. Is., Ceylon, India, China, Japan, Fiji, Samoa.—U.M.

VITTARIA.

116.—*V. (Teniopsis) lineata*, Sw.; (*V. isoëtifolia*, Bory, *V. tenera* and *sarmentosa*, Féc, *Pteropsis angustifolia*, P. & R.) On damp rocks and old trees; sparsely, from the coast to the Drakensberg. Throughout So. Africa. Zambezi, Guinea Coast, Masc. Is. India, Malacca, Japan, West Indies to Brazil.—N.

ACROSTICHUM.

117.—*A. (Elaphoglossum) conforme*, Sw.; (*A. angustatum*, Schr., *A. oblongum*, Desv., *Olfersia angustata* and *conformis*, P. & R.) Kranskloof; through Inanda and Noodsberg to Umpumulo, and from this line to the Drakensberg, common; 1,500-4,000ft. above sea. Throughout So. Africa. Guinea Coast, St. Helena, Masc. Is. Ceylon, India, Java, Queensland, Polynesia, Mexico to Brazil.—M.U.

Our plant has been repeatedly named *A. viscosum*, Sw., at Kew; but, surely, by mistake. It does not

agree with the description of the latter, or specimens from Mauritius, but it does very well agree with both description and specimens of *A. conforme*, which is an acknowledged So. Afr. plant; and it is so set down by Kuhn in *Fil. Afr.* We therefore substitute this name for *A. viscosum* of McKen's List.

118.—*A. (Elaph.) latifolium*, Sw.; (not named by Kuhn.) On rocks, usually in deep shade. Confined to a limited line of country, stretching from Kranskloof through Inner Inanda and Noodsberg to Umpumulo. 1500-2500ft above sea. Mexico and Cuba to Brazil and Peru.—M.

119.—*A. (Elaph.) hybridum*, Bory; (*Olfersia*, Pr.) On moist shady rocks: near Peel's, Umlas; Maritzburg Town hill (a few plants); abundant on the Kranskloof heights; 3,000-5,000ft. elevation. Masc. Is., W. Trop. Afr., Mexico to Brazil.—U.

120.—*A. (Elaph.) Aubertii*, Desv. On damp rocks, and fallen trees; near Peel's, Umlas; and in Kranskloof Bush. Zambesiland, Bourbon, Fernando Po, Venezuela, Guatemala.—U.

121.—*A. (Elaph.) spathulatum*, Bory; (*A. piloselloides*, Pr.) On moist rocks open to the south: from Seven-Mile-Bush, through Nottingham to Karkloof range; 4,000-5,000ft. above sea. Masc. Is., Ceylon; Cuba and Mexico, to Brazil and Peru.—U.

122.—*A. (Stenochlæna) tenuifolium*, Baker; (*Polybotrya tenuifolia*, Kuhn, *Stenochlæna Meyeriana*, P. & R., *Acr. Meyerianum*, Hk.) Tree-climber; common in wet bush at the coast, reaching to Inanda and Umsundusi. 2,000ft. above sea. East. Trop. Afr. and Masc. Is.—C.

123.—*A. (Chrysodium) aureum*, L.; (*Chrysod vulgare*, Fée, *Acrostichum inæquale*, Willd.) At the edge of high water, all round the Bay of Natal, and near Umhlali. Algoa Bay, Masc. Is. and Trop. Coasts generally.—C.

OSMUNDA.

124.—*O. regalis*, L. ('Royal Fern.') Wet open places: common on the coast; and frequent thence to the Drakensberg. Cosmopolitan.—N.

TODEA.

125.—*T. barbara*, Moore; (*Acrostichum*, L. *Osmunda*, Thbg, *Todea Africana*, Willd.) By streams and rills; common from the Palmiet to Inanda, Noodsberg and Umpumulo, 2,500ft. Throughout So. Afr., common. N. Zealand, Tasmania to Queensland.—M.C.

SCHIZAEA.

126.—*S. tenella*, Klf. Beside water at Inyangwine, Untwalumi (gathered by McKen.) Throughout So. Africa.—C.

127.—*S. pectinata*, Sm.; (*Acrostichum* L.) Not known to us, but gathered in Natal by Gueinzins, *teste* Kuhn. Cape; St. Helena.

ANEMIA.

128.—*A. Drejeana*, Kze. Drier parts of bush; Palmiet; Inanda at Umhloti; Noodsberg; southern ravines at Umpumulo; and abundant on Maritzburg Town-hill. Kafraria.—N.

MOHRIA.

129.—*M. Caffrorum*, Desv. (*Polypodium*, L., *Osmunda thurifraga*, Bory, *Mohria thurifraga*, Sw.) Damp open slopes, often about the margin of bush; over all the Colony. Throughout So. Africa; Masc. Is.—N.

MARATTIA.

130.—*M. fraxinea*, Sw.; (*M. salicifolia*, Schr., *M. Drejeana* and *Natalensis*, Pr. Our plant is retained by Kuhn as a distinct species from *M. fraxinea*, Sm.) Ravines; from Umbilo Falls and Field's-hill, through Inanda, to Umpumulo, and thence to Maritzburg Town-hill. George, Tzitsikamma Forest, Cape. Trop. Afr., Masc. Is., India, Philippines, Malaccas, Polynesia, N. Zealand, Queensland, Norfolk Island.—M.

OPHIOGLOSSUM.

131.—*O. capense*, Schl.; (*O. nudicaule*, var. *capense* Mett.) Sandy banks, about Durban. Karroo Deserts, at Olifant's River, Cape. We prefer, with Kuhn, regarding this as a distinct species from *O. vulgatum* L., with which it is joined in *Syn. Fil.* It is an elongated, slender, orange-tinted plant, compared with No. 132, and not so variable.—C.

132.—*O. reticulatum*, L. In the open fields. Often on slopes about the upper margins of bush. Over most of the Colony. Throughout So. Afr. Cosmopolitan.—N.

EQUISETUM.

E. ramosissimum, Desf. Umpumulo; Uys's Doorns Spruit Drift. Cosmopolitan.

LYCOPODIUM.

L. Carolinianum, L.; (*L. repens*, Sw.) Open wet places: Flat at head of Bay of Natal; Inanda heights; Umpumulo. Cape, W. Trop. Afr., Masc. Is., America.

L. cernuum, L. Wet open stony places, and sides of ditches; common about the coast, Durban Flat to Field's-hill, Inanda and Umpumulo. Cape. Tropical world.

L. clavatum, L. var. *inflexa*, Spring. (*Lyc. inflexum*, Sw.) Open wet clayey slopes; Inanda; Umpumulo; Maritzburg Town-hill. Cape, and Masc. Is.

L. guidioides; L. (*L. pinifolium* Klf., *L. fusciculosum*, Lam.) On rocks and trees, in pendulous masses; but nowhere common. Inanda; Umpumulo; Maritzburg hills; Richmond; Karkloof. Cape. Masc. Is.

A *Lycopodium* with longer leaves, and not glaucous like the last is found on old trees in Karkloof Bush. Is it a variety? or new?

L. Saururus, Lam. On rocks in Nottingham Bush, and Lynedoch. Cape. Cameroons, Mauritius, Centr. and So. America.

L. verticillatum, L. On trees in Maritzburg and Umpumulo Bush. Bourbon. Polynesia and America.

PSILOTUM.

P. triquetrum, Sw. On old trees, on the coast; rare: bush-swamp at head of the Bay. Tropics.

SELAGINELLA.

S. denticulata, Link. (*Lycopodium deut. L.*) In damp parts of bush, in most parts of the Colony. Algeria, Madeira, Canaries, Europe, Asia.

S. Kraussiana, Al. Br. On wet rocks in bush, in most parts of the Colony. Cape, W. Trop. Afr., Madeira, Kilimandjaro. Europe.

S. pumila, Spring. (*Lyc. pygmaeum*, Klf.) 'Cape and Natal,' Kuhn. Not known to us.

S. rupestris, Spring. (*Lyc. rupestre*, L.) On rocky ground near Umzinyati Falls, Inanda. Africa generally. Asia, America.

MARSILIA.

M. Capeensis, Al. Br.; (*Marsilia quadrifolia*, var., Kze.) Near Foxhill, Maritzburg; in a natural pond on Little Noodsberg; pools on Durban flat; ravine at Coedmore. Cape.

NOTE.--To indicate the districts to which the species severally belong, we have appended the letters C. M. U. and N. to denote, respectively, Coast,

Midland, Upland, and Natal generally. The chief abbreviations of Authors' names are the following, viz. :—

Ait. Aiton.	L. & F....Lang-dorff & Fisher.
Bernh...Bernhardi.	Lab.Labillardière.
Br.Brown.	LamLamarek.
Cav.....Cavanilles.	Mett.....Mettenius.
Desv. ...Desvaux.	Pr.....Presl.
Forsk....Forskahl.	Schl.....Schlechtendahl.
Forst....Forster.	Schr.....Schrader.
Gerr. ...Gerrard.	Sm.Smith.
Gr.Greville.	Spreng ...Sprengel.
Hk.Hooker.	Sw.....Swartz.
Klf.Kaulfuss.	Thbg.....Thunberg.
Kze.....Kunze.	Willd.....Willdenow.

Although we have confined our notes, in the foregoing List, to that portion of Natal which is bounded by the ocean, and the three rivers—Tugela, Mooi, and Umkomas, yet the remaining parts are probably represented pretty fully. Our district itself naturally falls into three distinct sections, viz. :—

C., the Coast Section, extending from the sea to an elevation of about 1,000ft. To this Section exclusively belong our Nos. 13, 17, 40, 60, 93, 96, 99, 101, 105, 107, 108, 122, 123, 126, 131.

M., the Midland Section, whose central line may be taken as stretching from Patillo's, by Botha's, through the Inanda hills, over Great Noodsberg to Umpumulo, say from 2,000 to 2,500ft above the sea. The upper limit is tolerably well drawn by the high road from Richmond to the City, and thence to Greytown. This Section claims exclusively Nos. 1, 3, 5, 12, 21, 22, 23, 30, 32, 35, 43, 47, 48, 52, 62, 71, 73, 77, 81, 84, 94, 97, 109, 111, 114, 118, 130.

U., the Upland Section, whose base-line may be taken as running from Seven-Mile-Bush on Upper Umkomas, through Boston, Lower Nottingham district, and Karkloof, to the heights above Greytown, its upper limit being the Mooi River. These limits include the 'backbone' of Natal, from Drakensberg to Mount West. Its elevation may be given roughly as 4,000 to 7,000ft. above the sea. To this Section belong exclusively Nos. 6, 15, 16, 18, 20, 25, 31, 37, 44, 51, 53, 54, 55, 64, 69, 74, 75, 78, 79, 82, 83, 89, 98,

106, 110, 112, 119, 120, 121. Between C. and M., and again between M. and U., there is a border-land on which the sectional species overlap and intermingle, so that it is impossible to draw an exact limit anywhere, but within the limits specified the characteristic species of these districts are sufficiently marked.

Taking, next, these districts in pairs, we get two additional Lists. Thus over both C. and M. stretch Nos. 14, 29, 72, 91, 92, 125. Over M. and U. together extend Nos. 9, 10, 34, 42, 61, 63, 66, 80, 88, 90, 113, 117; and to these we would add Nos. 27, 49, 76, as also Nos. 2, 11, 50, 58, 59, 70, 95, 100, 104, 115; the former of these two sub-classes having its proper home in M., but stretching more or less into U., and the latter having its proper home in U., but overlapping more or less the upper portion of M.

Finally, the following Nos. seem to be equally at home in *all* the three Sections, viz.:—4, 19, 26, 33, 36, 38, 39, 41, 45, 46, 56, 57, 67, 85, 86, 87, 102, 116, 124, 128, 129, 132.

Adding these various sectional numbers, we find that of our 132 ascertained species, C. contains 43, M. 80, and U. 75.

In this analysis we have made no account of merely sporadic plants, *e.g.*, one of No. 78 on the southern limit of Little Noodsberg, one of No. 20 at Umpumulo, one of No. 83 at Fort Buckingham, and even a few stray plants of No. 69 (which swarms in U.) on the Great Noodsberg. But, with our present data, we have allocated the several species as exactly as possible; and although, confessedly, this allocation is only an approximation to accuracy, it may, nevertheless, serve a good purpose by stimulating other observers to follow out so interesting a line of enquiry. After all, however, draw border-lines where we may, in Botanical as in more momentous questions, doubtful characters *will* congregate there.

We insert the following note as indicating a probable solution of some of our difficulties. It is from one to whose long and indefatigable industry the Botany of South Eastern Africa has been much indebted:—

MY DEAR MR. BUCHANAN,—I observe that, in your Revised List, my name is repeatedly mentioned in connection with Ferns said to have been collected by

me, but in regard to which I can give no information. I may be permitted to explain that, as far back as the end of 1851 and early in 1852, I spent some months in the interior, including the then comparatively little known region of the Magalisberg, and collected a few plants, which I sent home to the late Sir William Hooker, without so much as keeping duplicates or memorandum of what I sent. Among these may have been a few Ferns, and possibly those attributed to me by the authorities quoted by you. I regret to be unable to throw any further light upon the matter; and, indeed, think it quite possible that my name may have been connected with them by mistake. Believe me, my dear Mr. Buchanan, yours, &c.,

JOHN SANDERSON.

Since the former portion of this pamphlet was sent to the press, Mr. Sanderson has received a packet of specimens, gathered by Mr. Ayres at Mae mae Gold Fields, and which we have examined with much interest. Out of 68 species, there are at least seven which we have never seen in Natal, but which may probably be found in the far up-lands of the Colony.

Besides *Hymenophyllum rarum*, and *H. lineare*, we observe the following, viz.:—

1.—Fragments of a large quadri-pinnatifid *Pellaea*, near to *P. consobrina*, but with larger pinnules, and a very broad wrinkled involuere, which, instead of shrivelling up as the sori become mature, spreads itself out like a frill, white and full, all round the margins of the lobes.

2.—Ditto of a large *Asplenium*, apparently near to *A. polypodioides*, if not a variety of it.

3.—Ditto of an *Aspidium*, resembling *A. fulcatum*, but with pinnae twice as long, not merely toothed, but cut into short lobes, some of which are again seven or eight-toothed. The sori are all placed near to the mid-rib.

4.—Ditto of a light-green *Nephrodium*, deeply tri-pinnatifid, with bluntly rounded lobes, every part shortly hairy, but especially the large, persistent, sometimes elongated involucres. An entire frond from a very young plant seems to indicate a tri-partite character.

5.—Ditto of a *Sagenia*, apparently very near to, if not a variety of, *Nephrodium cicutarium*.

J. B.