Some Ferns from the Mountainous Regions of Formosa.

(Continued from p. 34.)

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POLYPODIUM LINN.

Polypodium lineare THUNB. ; MATSUM. et HAYATA, l.c. p. 632.

HAB. Kagi: Tappansha, (No. 1860) ; in monte Morrison, ad 7000 ped. alt., (No. 1864), leg. T. KAWAKAMI et U. MORI, Oct. 1906.

Polypodium Loxogramme METT. ; MATSUM. et HAYATA, l. c. p. 633.

HAB. in monte Morrison, ad 7000 ped. alt., leg. T. KAWAKAMI et U. MORI, Oct. 1906, (No. 1864).

Polypodium cucullatum NEES. ; HOOKER, Sp. Fil. IV. p. 176 ; HOOKER et BAKER, Syn. Fil. p. 324 ; CHRIST, Farnk. d. Erd. p. 80, f. 211 ; DIELS, Nat. Pfl.-fam. p. 309 ; COPEL. Polyp. Philip. p. 120.

HAB. Taitō : Shinsuii, leg. T. KAWAKAMI et U. MORI, April. 1907, (No. 2506).

DISTRIB. Ceylon, Philippines, Malaisia, Fiji, North Caledonia.

Polypodium formosanum BAKER ; MATSUM. et HAYATA, l. c. p. 630.

HAB. in monte Morrison, ad 7000 ped. alt., leg. T. KAWAKAMI et U. MORI, Oct. 1906, (No. 1868).

Polypodium irioides LAM. ; MATSUM. et HAYATA, l. c. p. 632.

HAB. in monte Chōran, leg. G. NAKAHARA, Aug. 1905, (No. 289) ; Toroku : Hōōsan, leg. T. KAWAKAMI et U. MORI, Nov. 1906, (No. 2340) ; Shintiku : Goshizan, leg. T. KAWAKAMI, Dec. 1906, (No. 2405).

Polypodium Kawakamii HAYATA, sp. nov. Rhizomata breve repentia, squamulis majusculis stramineis ovatis supra basin affixis ad medium radículas emittentibus. Stipites 10–15 cm. longi nudi. Frondes lanceolatae utrinque attenuatae circ. 25 cm. longae 2 cm. latae integrae rigido-coriaceae supra nudae subtus squamulis rotundatis sparce dispersae, venis venulisque obscuris, areolis copiosis venulis liberis 1–2. Sori magni prominentes non immersi subrotundati vel oblongi prope costam 1-seriatim dispositi supra medium frondum accupantes.

HAB. Toroku : Nanshikiaku, leg. T. KAWAKAMI et U. MORI, Nov. 1906, (No. 2346) ; Arizan, in montis Morrison, leg. G. NAKAHARA, Nov. 1906.

Somewhat like *P. Cunninghami* HOOKER, but differs from it in having rigid texture, very long stipes, and areolas with free veinlets.

Polypodium morrisonense HAYATA, sp. nov. Rhizomata lignosa paleis cuspidatis albo-marginatis adpressa. Stipites breves 2 cm. longi erecti. Frondes lanceolatae circ. 20 cm. longae 2 cm. latae apice angustae obtusae basi gradatim angustae ad stipitem brevem abeuntes, margine integrae membranaceae supra nudae subtus paleis sparce dispersae, costis utraque prominulis, venis et venulis valde distinctis, venis ad marginem non attingentibus, areolis inter venas 4–5, venulis liberis 1–2, venis valde flexuosis. Sori solitarii inter venas laterales.

HAB. in monte Morrison, ad 9000 ped. alt., leg. T. KAWAKAMI et U. MORI, Oct. 1906, (No. 1819).

Very remarkable for its distinct veins and veinlets, and membranaceous texture.

Polypodium normale DON.; MATSUM. et HAYATA, l. c. p. 634.

HAB. Shintiku: Goshizan, leg. T. KAWAKAMI, Dec. 1905, (No. 2404).

Polypodium superficiale BLUME; MATSUM. et HAYATA, l. c. p. 636.

HAB. Taitō: Iryokukakusha, leg. T. KAWAKAMI et U. MORI, Dec. 1906, (No. 2360).

Polypodium divaricatum HAYATA, sp. nov. Rhizomata repentia, paleis lanceolatis supra basin affixis 4 mm. longis. Stipites erecti 10 cm. longi stramineo-corvini leviter canaliculati lævigato-nudi. Frondes circ. 15 cm. longæ totidem latæ circumscriptione sagittato-cordatæ profunde pinnatifidæ coriaceæ glabræ subtus pallidæ rachis supra planis aut obsolete canaliculatis subtus fortius prominulis rotundatis glaberrimis, venulis utraque prominentibus, lobis utraque latere 6–7 suboppositis 8 cm. longis $1\frac{1}{2}$ cm. latis lanceolatis, acuminatis, sinu basi rotundato, margine serrulatis, costis subtus distinctis, venis lateralibus distinctis parallelis, arcolis 4–3 venulis liberis 2–3, venulis obscuris marginem fere attingentibus, lobis infimis 2 deflexis, intermediis horizontalibus, superioribus erecto-patentibus, terminali erecto. Sori inter venas laterales solitarii, prope costam tenentes, nunquam ad basin pertingentes.

HAB. in monte Morrison, ad 9000 ped. alt., leg T. KAWAKAMI et N. MORI, Oct. 1906, (No. 1871).

Very near to *P. laciniatum*; but differs from that by the serrulate margins of the leaves and coriaceous texture.

Polypodium Lehmanni METT.; BEDD. Fil. Brit. Ind. t. 260;

HOOKEr et BAKER, Syn. Fil. p. 369; CHRIST, Farn. d. Erd. p. 114.

HAB. Tōzan, in montibus Morrison, leg. G. NAKAHARA, Dec. 1906.

Polypodium Phymatodes LINN.; MATSUM. et HAYATA, l. c. p. 635.

HAB. Akō: Bangri, leg. G. NAKAHARA, Jan. 1907.

Polypodium palmatum BLUME? (The identification is rather doubtful).

HAB. in monte Morrison, ad 11000 ped. alt., leg. T. KAWAKAMI et U. MORI, Oct. 1906, (No. 1859).

DISTRIB. Malaisia, the Philippines.

Polypodium pinnatum HAYATA, sp. nov. Rhizomata repentia lignosa, paleis fuscis 3 mm. longis acuminatis basi rotundatis supra basin affixis. Stipites 10–12 cm. longi straminei canaliculati. Frondes erectæ 20–25 cm. longæ 15–20 cm. latæ circumscriptione late ovatæ pinnatæ membranaceæ glabræ pallide virides nitidiusculæ, pinnis remotis suboppositis erecto-patentibus, utraque latere 5–6, sessilibus lanceolatis acuminatis circ. 12 cm. longis $1\frac{1}{2}$ cm.–2 cm. latis basi rotundatis vel oblique cordatis subintegris, costis tenuibus basin glanduliferis subtus promimulis, venis lateralibus rectis suboppositis marginem non attingentibus utraque pagine promimulis, venulis tenerrimis reticulatis, areolis copiosis cum venulis liberis 1–2. Sori totam paginam inferiorem pinnarum occupantes, 2–3 inter venas laterales.

HAB. in monte Morrison, ad 8000 ped. alt., (No. 1873), leg. T. KAWAKAMI et U. MORI; Nantō: Musha, (No. 2393), 1906.

Near *P. angustatum*, differs from that by the rounded base of the segments.

Polypodium subauriculatum BLUME, Fl. Java. Fil. p. 177,

t. 83; HOOKER et BAKER, Syn. Fil. p. 344; CHRIST. Farnk. d. Erd. p. 93; DIELS, in ENGL. et PRANTL. Nat. Pfl.-fam. p. 312; COPEL. Polyp. Philip. p. 124.

Polypodium pallens BLUME, Fl. Jav. Fil. p. 178, t. 84, f. 1.

Polypodium serratifolium DIELS, in ENGL. et PRANTL. Nat. Pfl.-fam. p. 312.

HAB. Nanto: Musha, leg. T. KAWAKAMI et U. MORI, Aug. 1906, (Nos. 2387 et 2394).

DISTRIB. Khasia, Malay peninsula and archipelago.

Polypodium taiwanianum HAYATA, sp. nov. Rhizomata repentia flexuosa lignosa, paleis attropurpureis linearibus lanceolatis 5 mm. longis supra basin affixis. Stipites circ. 15 cm. longi, paleis appressiusculis. Frondes latæ circumscriptione triangulares oblongæ circ. 50 cm. longæ 25 cm. latæ pinnatæ membranaceæ supra glabræ, subtus paleis laciniatis minutis sparce dispersæ, pinnis sessilibus linearibus lanceolatis remotiusculis deorsum suboppositis sursum alternis, patentibus acuminatis subintegris, pinnis inferioribus ad basin cordato-auriculatis vel auriculatis, auriculis oblongis 7 mm. longis, costis utrinque distinctis, areolis 2-seriatim dispositis, costalibus magnis cum venulis liberis, marginalibus venulis liberis non instructis. Sori a pinnarum basi usque ad apicem dispositi, solitarii, ad apicem venularum liberarum dispositi.

HAB. Taitō: Taironkōsha, leg. T. KAWAKAMI et U. MORI, Nov. 1906, (No. 2361).

Near *P. subauriculatum* BLUME; but differs from that in having subintire pinnæ and in the arrangement of areolas.

CHEIROPLEURIA PRESL.

Cheiropleuria bicuspis PRESL. var. ***integrifolia*** EAT.; MATSUM. et HAYATA, l. c. p. 641.

HAB. Shintiku: Goshizan, leg. T. KAWAKAMI et U. MORI, Dec. 1906, (No. 2389).

The end.