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On Some Potentillas from the Far East

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MALAY PENINSULA. Mt. Murang: up a tributary of the Klong Pak Pla, in the N.W. corner of Lake Ta Lei Sap; about  $7^{\circ} 45'$  N. and  $100^{\circ} 10'$  E., in shady damp spots; "flower pink, process yellow"; *D. T. Gwynne Vaughan*, 264, in *Herb. Kew. et Herb. Univ. Cantab.*

The only species known to me having peltately attached petioles and a stiff, suberect, spiniform spur of the lip.

*I. Vaughanii*, *Hk. f.*, sp. nov.; *I. macrosepalae*, *Hk. f.*, affinis, foliis ovatis, sepalis obliquis apicibus lateralibus et calcare breve incurvo apice clavato bipartito differt.

*Herba* ramosa, glaberrima, 4–5 dm. alta, foliosa, floribus majusculis, caule gracile inferne nudo. *Folia* 8–12 cm. longa, alterna, longe petiolata, membranacea, ovata vel elliptica, acuminata, integerrima vel obscure crenata, basi rotundata vel late cuneata, utrinque 8–10- nervia, petiolo gracile 4–10 cm. longo; glandulae infrapetiolares 0. *Inflorescentia* simpliciter pedicellata; pedicelli solitarii, flores subaequant, basi ebracteati. *Flores* ad 3 cm. diametro, alis vexilloque purpureis, labello flavido. *Sepala* 2, tenuissima membranacea, 1.2–1.5 cm. longa, oblique oblonga, uno latere cuspidata, limbum totum labelli tegentia. *Vexillum* parvum, 1–1.2 cm. longum, oblongum, costa dorso carinata. *Alarum* lobi basales rotundati, breviter stipitati, 1–1.2 cm. lati, distales in limbum amplum rotundatum apice bifidum connati; auriculae dorsales basi connatae. *Labelli* limbus cymbiformis, in calcar breve incurvum apice clavatum et bilobum attenuatum, ore horizontale 1.2–1.8 cm. longo acuminato. *Filamenta* filiformia; antherae in capitulum connatae, obtusae. *Ovarium* gracile, acuminatum.

MALAY PENINSULA. Jelor: Biserat, Patani river, on damp rocks; Lat.  $6^{\circ} 32'$  N., Long.  $101^{\circ} 12'$  E.; "lower two perianth segments greenish-yellow—tubular process cream-yellow—other segments deep violet to purple"; *D. T. Gwynne Vaughan*, 535, in *Herb. Kew. et Herb. Univ. Cantab.*

*I. Vaughanii* differs from all other species of *Impatiens* known to me in the large delicately membranous sepals that embrace the whole lip so closely as to be recognised and removed with difficulty. Each sepal is of an irregular oblong form with the nerves from the base arching to the lateral apex.

#### EXPLANATION OF PLATE.

*Impatiens peltata*. Figs. 1, sepal; 2, standard petal; 3, wing petals; 4, spur petal; 5, two stamens; 6, pistil. All enlarged.

## XXXII.—ON SOME POTENTILLAS FROM THE FAR EAST.

H. TAKEDA.

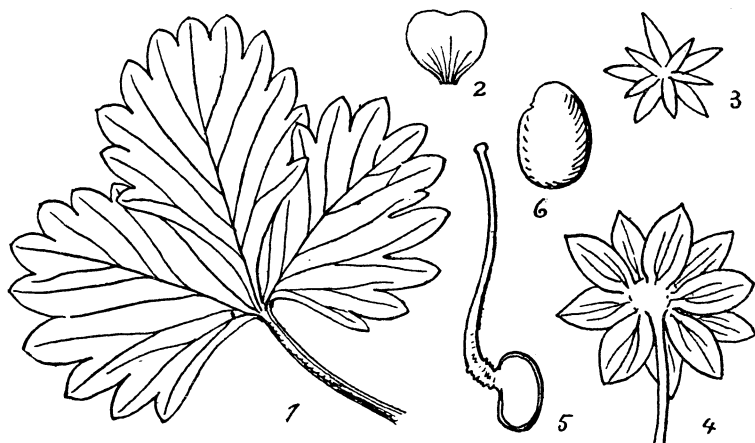
In this short paper I propose to clear up some misconceptions and confusion regarding a few Eastern Asiatic *Potentillas*. Since the publication of Th. Wolf's elaborate monograph the determination of *Potentillas* has been very much facilitated, and I hope few

mistakes will hereafter occur in any botanical publication. There seem still to remain some plants misreported from the Far East, which induces me to offer here some remarks from the phytogeographical as well as from the systematic point of view.

Under the name of *P. fragiformis* several different species have been reported. Also various views have been put forward with regard to the limit and relationship of *P. fragiformis*. Maximowicz and Hooker suggest that *P. grandiflora*, *P. gelida*, and *P. fragiformis* are the same species. As Th. Wolf states in his monograph (p. 510), *P. fragiformis* is often confused in herbaria with *P. grandiflora*, *P. gelida*, and *P. villosa*. Professor Miyabe in compiling the flora of the Kurile Islands at the Gray Herbarium studied these easily confused species and in his paper pointed out the different characters of the plants. He lays weight on the nature of the achene and regards those four plants as distinctive species, considering *P. grandiflora* and *P. gelida* as forming one group, while *P. fragiformis* and *P. villosa* form another. Th. Wolf discusses these plants and has thoroughly cleared up the previous misconception, so that there seems to be no need to add any further remark.

I wish to discuss here, however, the four other species known as *P. fragiformis*. The confusion is not unimportant from the phytogeographical point of view and will cause no little inconvenience if left untouched.

One of four plants reported as *P. fragiformis* is the true species. Descriptions of this can be found in Lehman's monograph as well as in Th. Wolf's recent work, and also a fairly good habit-figure in Lehman.



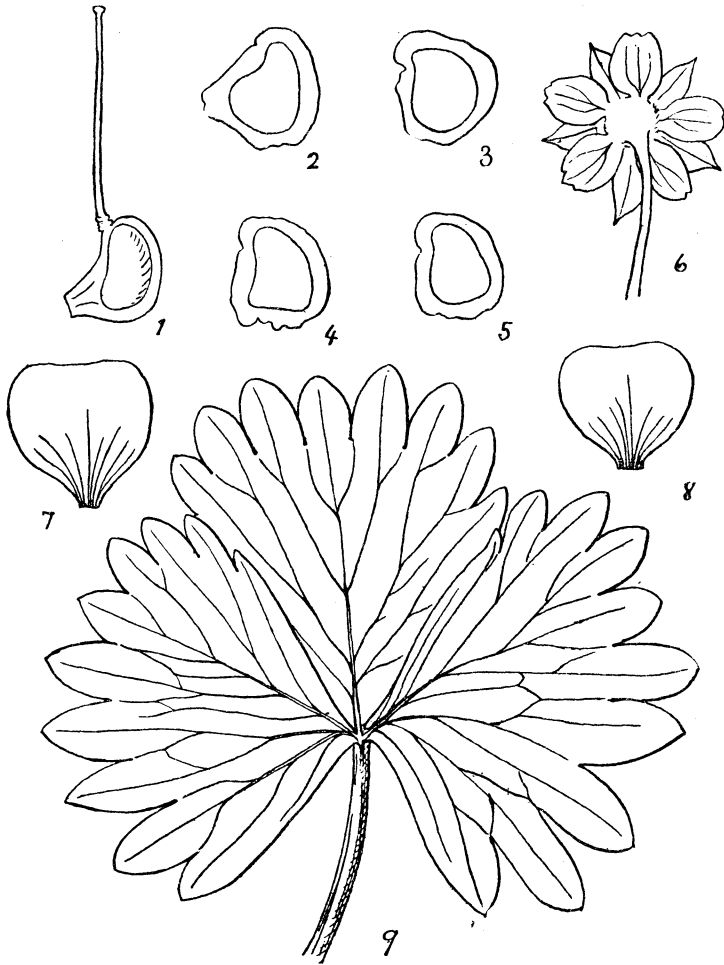
*Potentilla fragiformis*, Willd.

1. Radical leaf.—2. Petal.—3. Calyx at time of flowering.—4. The same in fruit.—5. Carpel ( $\frac{1}{2}$ ).—6. Achene ( $\frac{1}{2}$ ).

In the Far East this plant occurs in Amurland and the Ochotzk region, but not in any part of Japan.

The second one is a species closely allied to the preceding, but distinct and as it has been left unnamed, I propose to call it

*P. megalantha* because of its large flowers. The first specimen of *P. megalantha* was collected by Fr. Schmidt in the Island of Saghalien, who reported it as *P. fragiformis* in "Reisen im Amurlande und auf der Insel Sachalin." Afterwards the same species obtained at various places in Northern Japan was recorded by Prof. Miyabe in his Flora of the Kurile Islands under the same name. V. Komarov examined the specimens from Saghalien and from Kompumoi, Yezo, collected by Prof. Miyabe and preserved at the Kew Herbarium, and he considered them to be *P. fragiformis*. M. Palibine was kind enough to inform me that the Saghalien specimen was recently examined by Th. Wolf who also determined it as *P. fragiformis*. A study of these together with a good many specimens from Japan has brought me to the conclusion that the plant in question is distinct from the true *P. fragiformis* in the following points.



*Potentilla megalantha*, Takeda.

1. Carpel, immature ( $\frac{1}{2}$ ).—2-5. Achenes ( $\frac{1}{2}$ ).—6. Calyx after flowering.—7-8. Petals.—9. Radical leaf.

The achene of *P. megalantha* was described by Prof. Miyabe (Fl. Kuril., p. 231) as "more or less distinctly keeled." Close examination under a low power lens shows that it is not only keeled but really winged as may be seen in figs. 1-5, while that of *P. fragiformis* has only a slightly keeled ridge. Some botanists consider the marking of the achene is more important than the winged or keeled character. It may perhaps be so in the case of certain species, but not always. I have come across several instances of variation of the external nature of the achene in many species of *Potentilla*. In one and the same plant we can sometimes get both a smooth and a rugulose achene. The next marked distinction is to be found in the calyx. The calyx of *P. fragiformis* is only about 1.5 cm. across at the time of flowering, and after anthesis it increases its size enormously, becoming nearly twice as large as it was. This fact is also to be seen in Lehman's figure and also in descriptions by Maximowicz and Th. Wolf. A similar phenomenon also occurs in the allied species, e.g., *P. Matsumurae*. The calyx of *P. megalantha* does, however, develop extremely slightly, so that the difference is hardly noticeable. Even in the flowering stage the size of the calyx of our plant is as large as that of *P. fragiformis* in fruit. The flower of *P. megalantha* is much larger than that of *P. fragiformis*, measuring about 4 cm. across. The petal is usually very shallowly notched. The hairy covering on the leaves of our plant is somewhat similar to that of the dwarf var. *lucida* of *P. fragiformis*, but the shape of the leaflets is rather peculiar. In the majority of cases I have noticed that the apex of the leaflet, or in other words, the central tooth which is traversed by the median vein, is markedly shorter than the adjacent teeth, so that the outline of the leaflet is obcordate and emarginate. The stipule of *P. fragiformis* is generally entire, while that of *P. megalantha* has a strong tendency to be lacerated or incised.

The third plant misreported as *P. fragiformis* is a rather distantly allied species:—*P. Freyniana*, Bornm. The plant was first recorded by A. Gray (Botany of Japan, p. 387), as *P. fragiformis* var. *japonica*. In 1873 Maximowicz described the plant as a variety of *P. fragarioides* and called it var. *ternata*, for it has ternate radical leaves. In 1902 Makino and Freyn independently raised this plant to the rank of a species and called it *P. ternata* adopting Maximowicz's varietal name. As there is already a plant bearing the name *P. ternata*, Bornmüller changed the name to *P. Freyniana*. The plant is distributed fairly widely in Eastern Asia and is quite common in Japan. This plant is again reported as *P. fragiformis* by Hemsley in Index Florae Sinensis. The specimens collected by Ross in Black Bear Valley, Shinking, in 1887, and also those collected by Mr. Henry in Ichang and Patung (nos. 349 and 1441), are quite obviously *P. Freyniana*. In the Kew Herbarium there exist other unpublished specimens of *P. Freyniana* from China collected by H. E. M. James in 1886 between Mukden and Tung-che-Hsien.

Until 1906 *P. Freyniana* was not known from China, when Matsuda reported it in the Tôkyô Botanical Magazine (vol. xx, p. 128), using one of its synonyms *P. fragarioides* var. *ternata*.

The specimen no. 1278, collected by Henry in Ichang and determined by Oliver as *P. fragiformis* and also referred to in Index Florae Sinensis by Hemsley, is neither *P. fragiformis* nor *P. Freyniana*, but in fact *P. fragarioides*. Henry's specimen collected in Yunnan (no. 10,905A), which is named *P. fragiformis* but not referred to in the Index, also represents *P. fragarioides*.

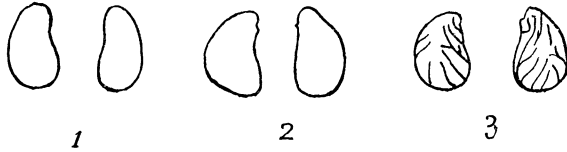
The separation of *P. Matsumurae* from *P. fragiformis* seems to be quite reasonable. The plant has long been known as *P. gelida* amongst Japanese botanists. Th. Wolf cites Franchet and Savatier's *P. fragiformis* var. *gelida* as one of the synonyms of *P. Matsumurae*. I rather fancy that the French authors meant *P. Freyniana* by this name. Before the publication of his monograph Th. Wolf himself called the plant by the name of *P. fragiformis*.

Th. Wolf published in his monograph a new variety of *P. Freyniana* called var. *grandiflora* (l.c. p. 640). The same plant was described by Makino in the Tôkyô Botanical Magazine (vol. xxiv, p. 142), with good reason as a new species:—*P. Yokusaiana*. According to the Japanese author this plant has subpinnate radical leaves besides the ternate one. He separates this plant from *P. Freyniana*, pointing out as characteristic the absence of the thick rhizome and the peculiar form and serration of the leaflet. This last character often serves for classifying plants empirically, and usually is very difficult to define.

The pinnate character of the radical leaf seems to me to be liable to variation in certain species. There is a specimen collected by Henry in Hupeh, which is not to be distinguished from *P. fragarioides*, although it possesses, like *P. Freyniana*, the ternate radical leaf; but by this feature alone we cannot recognise it as *P. Freyniana*.

*P. Dickinsii*, Franch. et Sav., was reduced by Makino to *P. ancistrifolia*, Bunge, of North China. Koidzumi calls it var. *Dickinsii* of *P. ancistrifolia*. In his monograph Th. Wolf tries to distinguish these plants as two distinct species, especially by the colour and marking of the achene, the hairs on the receptacle and by the number and texture of the leaflets. As I have been unable to examine any specimen of *P. ancistrifolia* from China, I will try, for the present, to judge their opinions by Wolf's and Komarov's descriptions, while I have examined a number of specimens of *P. Dickinsii*, including Dickins' collection. The texture of the leaf of *P. Dickinsii* may be called subcoriaceous and especially of the specimens growing in sunny dry places. Both surfaces and especially the nerves, which are prominent on the under surface, are covered with silky hairs as Franchet and Savatier point out. The cauline and even some of the radical leaves are often ternate, still I have seen in Dickins' specimens the inferior cauline ones are bi-jugous pinnate. The leaflet and especially the terminal one is generally petiolulate, but occasionally sessile ones are met with. In this species (and often in other species also), the number of leaflets is not constant. In *P. Dickinsii* the radical leaf varies from tri-jugous pinnate to simple with one rounded blade (forma

*simplicifolia*, Takeda, in Tôkyô Botanical Magazine, xxiv, p. 63). The colour of the achene is not always nigro-fuscous, but very often light-fuscous.



*Potentilla ancistrifolia*, Bunge var. *Dickinsii*, Kordz. Achenes.—1. Dickins. 2. Faurie, no. 13,395. 3. Faurie, no. 13,240; all (<sup>1</sup>/<sub>2</sub>).

The surface is usually smooth and shining, but I observed that the specimens collected by Faurie (no. 13,240), at Towada, which have all the characters of *P. Dickinsii*, the achene is obliquely elevatetriated as the figure shows, which character is described as characteristic of *P. ancistrifolia*. The hair on the carpophore is generally long, but its length is rather variable. For the reasons above stated I really think *P. Dickinsii* should be united to *P. ancistrifolia*, as its variety; and it is equally obvious that this variety should not be considered entirely the same as the typical form.

#### DESCRIPTIONS OF THE NEW SPECIES AND FORM.

*Potentilla megalantha*, Takeda; *P. fragiformi*, Willd., affinis, a qua foliorum forma texturae, floribus majoribus, calyce post anthesin paululum exrescente, petalis leviter retusis nec profunde emarginatis, annulis staminiferis pilosulis nec glabris, staminibus numerosioribus, acheniis alatis nec leviter carinatis satis distinguenda est.

*Caudex* crassus, pluriceps, caules plures pauci-vel plurifloros emittens. *Caules* crassi, validi, subcaespitosi, diffuse adscendentes, saepius ultrapedales (in speciminibus in rupibus siccis crescentibus caules pauciores debilioresque), dense pilosi, eglandulosi, 2-3-foliati, superne parce ramosi. *Folia* radicalia crassa, carnosula, plerumque longissime petiolata, majuscula, ternata, ambitu cordato-rotundata, apice emarginata, diametro ad 8 cm., supra dense pubescentia, juvenilia subsericea, infra densissime sericeo-villosa, micantia, margine dense villosociliata, caulina radicalibus similia sed minora, brevius petiolata, floralia reducta, subsimplicia et sessilia vel brevissime petiolata; stipulae foliorum radicalium membranaceae, extus villosiusculae, intus glabrae, latae, longe adnatae, auriculis ovato-oblongis tridentatis acutis acuminatisve; foliola sessilia, ambitu flabellatim late obovata, terminalia obcordata, interdum breviter petiolulata, lateralia basi obliqua, margine profunde dentata, dentibus oblongo-ellipticis obtusis, mediis quam lateralibus plerumque brevioribus. *Flores* magni, aurei, initio breviter, post anthesin longe pedunculati, diametro ad 4 cm. interdum paulo ultra. *Calyx* villosus, post anthesin vix exrescens, 2-2.5 cm. diametro. *Sepala* externa vel rotundato-quadrata vel rotundato-ovata vel ovata, obtusa, anticum tridentatum vel subintegrum, breviora quam interna ovata ovato-lanceolatave acutaque. *Petala* late-obcordata,

retusa vel subtruncata leviterque sinuata, quam sepala interna duplo longiora (ad 1·8 cm. longa lataque); annulus staminifer plus minus pilosus, disco villosus a receptaculo separato. *Receptaculum* hemisphaericum, in fructu subglobosum, polycarpum, dense pilosum. *Carpella* oblongo-ovoidea, levia. *Stylus* subterminalis, basi brevi tractu leviter incrassatus, inde usque ad stigma dilatatum tenerrimus, carpello juvenili ad 6-plo (maturo duplo) longior. *Achenium* subauriforme, alatum, leve.—*P. fragiformis*, Fr. Schm., Reis. Amurl. Sachal. p. 127; Miyabe, Fl. Kuril. p. 231: Matsudaira, in Tôkyô Bot. Mag. ix, p. 468, non Willd.—*P. grandiflora*, Maxim. in Bull. Acad. Imp. Sc. St. Petersb. xix, p. 167, pro parte.

NORTHERN JAPAN. Yezo: without locality, *Maries*; Kom-pumoi, *K. Miyabe*, l. vii. 1884; rocks on the sea coast near Nemuro, *Faurie*, 3745, 5070; Eramachi, Oshima, *Miyabe* and *Tokubuchi*, 21. vii. 1890; Tumoshiri, *H. Takeda*, vii. 1909; Samani, prov. Hidaka, *Nirei*, 25. vi. 1893. Kurile: isl. Eturup, near Rubetsu, *Miyabe*, viii. 1884, *Mayr*, viii. 1890; isl. Urup, Tomarigawa, *K. Jimbô*, 15. vi. 1891; Megane, *T. Kitahara*, viii. 1895; Otoima-moi-pet, *K. Uchida*, 16. vi. 1891; isl. Ketoi, *Kodama*, vi. 1893; isl. Shimoshiri, *Kodama*, vi. 1893; isl. Shimushu, *T. Ishikawa*, vi. 1894, *K. Yendô*, viii. 1903. Saghalien: without locality, *Fr. Schmidt*; Cheppopo, *T. Miyake*, 8. vii. 1908.

*Potentilla fragarioides*, *L.* var. *stolonifera*, *Maxim.* forma *trifoliolata*, *Takeda*; foliis radicalibus ternatis; a *P. Freyniana*, petiolis pilis patentibus villosis, foliolis supra pilosis subtus praesertim ad nervos adpresse villosis ciliatis, stipulis caulinis paucidentatis, floribus majoribus, sepalis exterioribus interiora ante anthesin superantibus distinguitur.

CHINA. Hupeh, *Henry*, 7895.

### XXXIII.—BLUE COUCH: A NEW LAWN GRASS.

(*Digitaria didactyla*, Willd.)

O. STAPF.

In the Agricultural Gazette of New South Wales of September 2, 1910, Mr. Maiden called attention to a grass, known at Sydney as "Blue Couch," the name referring to the blue-green hue the foliage assumes in summer. It seemed to have appeared first about 30 years ago, but without being much noticed until recently when it was also found in the Sydney Botanic Garden, the Federal Government House Grounds and in a private garden near Sydney. In every case it made its appearance in lawns, and although at first considered as an objectionable component it has now found some favour with experts as the following abstracts from the article referred to above will show.

Mr. T. G. Weston, head gardener, Federal Government House, states:

"It is a first-class grass for lawns, providing it be kept close mown and well watered during dry weather.