The Genus Reevesia, Lindl.

BY

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With Two Figures in the Text.

When comparing specimens of this genus, collected in China by Mr. George Forrest, with authentic examples of *R. pubescens*, Mast., *R. Cavaleriei*, Lévl. et Vant., and *R. sinica*, Wilson, it became evident that there did not, in fact, exist any clear line of demarcation between the plants described under these names. As the genus is a small one it appeared advisable to pass in review at the same time the other described species. For this purpose there had become available the large amount of new material from Yunnan much of which was gathered within a comparatively small area, viz., the Shweli-Salween divide. From the study of these specimens there was gained a wider and more comprehensive view of the extent of the variation occurring in the species from this area. The principal variations observed were in the shape of the leaf-base and in the colour of the flower. With regard to the first of these points, there was seen to be a complete range of forms from the narrowed through the rounded to the distinctly cordate form, and that even in the leaves from one plant there occurred a variation in the shape of leaf-base. This point is illustrated in the drawings in Fig. 2. The second feature was the colour of the flower which includes white, rose, cream and yellow. From this it would appear that those characters, hitherto thought to separate the Himalayan form, *R. pubescens*, Mast. from the Chinese *R. Cavaleriei*, Lévl. et Vant. and *R. sinica*, Wilson, occur together in the form from Yunnan. This seems to indicate that these forms belong to one species, *R. pubescens*, Mast. There is, moreover, a plant of this species recorded from Upper Burma. Thus the distributional area of this species is apparently continuous from the Eastern Himalaya through Upper Burma to Yunnan, Szechwan and Kwei-chow.

A further point of interest, gleaned from the study of authentic material of all the species of the genus, is that the pubescence is always composed of stellate hairs and that the form of those on the leaf differs, more or less, in each species of the genus. This character is, therefore, of considerable diagnostic importance, particularly so in the case of *R. Wallichii*, R.Br.

I desire to thank the Director of the Royal Botanic Gardens, Kew, for the loan of herbarium sheets, and Professor Wright Smith for much of the material examined.

Key to the Species.

In compiling a key to the species I have had to rely chiefly on vegetative characters such as pubescence of the branchlets and underside of the leaves, and type of stellate hair. In the case of *R. formosana*, Sprague, the amount of material available is at present very limited, and it is therefore quite possible that when further gatherings come to hand for study, this may not prove a distinct species. It is, however, given a place in this key for the present.

A. Wood of the year and leaves normally *entirely glabrous* - - - - - - - - 1. *thyrsoidea* (p. 123).

B. Wood of the year and leaves *more or less pubescent* with stellate hairs:—

1. Pedicels shorter than calyx; leaves small, up to 7 cm., ovate oblong - - - - - 2. *formosana* (p. 123).

2. Pedicels equal to or longer than calyx; leaves large, up to 23 cm., ovate or elliptical:—

a. Pubescence composed of relatively small hairs with short branches (see fig. 1 a) - - 3. *Wallichii* (p. 124).

b. Pubescence composed of large hairs with longer branches (see fig. 1 b, c.) 4. *pubescens* (incl. *siamensis*) (p. 124).

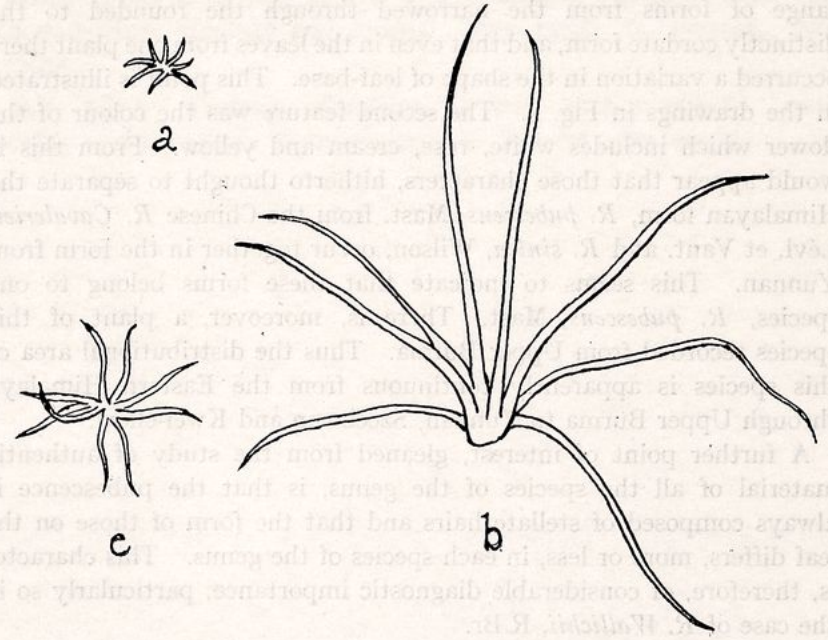

Fig. 1. Stellate hairs from underside of leaf (× 108).
a. *R. Wallichii*, R.Br.
b. *R. pubescens*, Mast., var. *typica*.
c. *R. pubescens*, var. *siamensis* (Craib).

Enumeration of the Species.

1. **R. thyrsoidea,** Lindl. in Brande Journal, II ii (1827), p. 112; Bot. Reg. xv (1829), tab. 1236.

S.E. CHINA. *Hong Kong.* Specimens in flower and fruit. Expedition 1853–6. Wright 44! Happy Valley Woods. In bud May 1858. Wilford 410! "Arbre de moyenne taille, bois, bord des routes fleurs blanches." In flower, 15th April 1895. Bodinier 565!

Macao. In flower. May 1829. Vachell 133!

This species is quite easily distinguished by its leaves and branchlets which are normally entirely glabrous and smooth.

Among the specimens examined was one from the Botanic Garden, Mauritius. This differed from the type in that the midrib of the leaf bore a few stellate hairs. As this specimen comes from a region some considerable distance from the distributional area of the species, it is possible that this very slight variation was due to cultivation.

A similar feature was observed in the specimen from Hong Kong, Wright 44. In this case the material represented an autumn growth which fact may account for the development of such slight pubescence as was seen.

The specimen collected by Cavalerie and recorded by Mgr. Léveillé in his Flore du Kouy-Tchéou as this species is *R. pubescens,* Mast.

2. **R. formosana,** Sprague in Kew Bull. (1914), p. 325.

FORMOSA. South Cape. In flower. Henry 1970!

This species much resembles *R. thyrsoidea,* Lindl. from which it differs principally in that the branchlets are markedly pubescent. On the underside of the younger leaves there is developed a slight pubescence on the midrib. The stellate hairs present are similar to those which were observed in the two specimens of *R. thyrsoidea* (Botanic Garden, Mauritius, and Wright 44) noted under that species. These hairs also are different from the types found in the other species, *R. Wallichii,* and *R. pubescens* (incl. *siamensis*).

E. H. Wilson* states that the present form is probably conspecific with the Chinese *R. thyrsoidea,* and with this view I incline to concur, but further gatherings are required to prove finally whether the characters supposed to separate it from that species are constant. It may ultimately be found to be only a variety with pubescent branchlets and leaves, especially in view of the fact, already mentioned, that slight pubescence of an identical character is occasionally met with in *R. thyrsoidea.*

*Jour. Arnold Arbor. v (1924), p. 234.

3. **R. Wallichii,** R. Br. in Benn. Pl. Jav. Rar. 231, in adnot ; Hook. f. in Fl. Brit. Ind. i (1874), p. 364.

EASTERN HIMALAYA. *Sikkim* and *Bhotan*, vide Masters in Hook. f. Fl. Brit. Ind. i (1874), p. 364.

" Khasia Mountains. Alt. 3–4,000 feet." In flower. J. D. Hooker and T. Thomson sine no ! In flower and in fruit. Griffith 548 ! " Chiera. Alt. 4,200 feet." In flower, 16th October 1886. C. B. Clarke 45922 !

The type of stellate hair on the underside of the leaf constantly serves as a diagnostic character for this species. These hairs are very small being about one-tenth the size of those found in *R. pubescens*, Mast. and are, moreover, provided with much shorter branches (see Fig. 1 a). Further, the leaves are thinner and more sparingly pubescent, while the flowers are on the average distinctly smaller and have a slender staminal column in contrast to the usually thicker, densely pubescent leaves, larger flowers and stout staminal column of *R. pubescens*, Mast.

4. **R. pubescens,** Mast. in Hook. f. Fl. Brit. Ind. i (1874), p. 364.

R. Cavaleriei, Lévl. et Vant. in Fedde Repert. Nov. Spec. iv (1907), p. 330.
R. sinica, E. H. Wilson in Jour. Arnold Arbor. v (1924), p. 233.
R. siamensis, Craib in Kew Bull. (1924), p. 90.
R. thyrsoidea, Lévl. in Flore du Kouy-Tchéou (1914–15), p. 405, non Lindl.
Eriolaena yunnanensis, W. W. Sm. in Notes Roy. Bot. Gard. Edin. viii (March 1915), p. 336.

EASTERN HIMALAYA. No definite locality. In flower. Cave sine no ! Rongsong. Alt. 2,000 feet. In fruit, 1st April 1912. Ribu and Rhomoo sine no !

Sikkim. In flower, 18th May 1862. Anderson 276 !

Bhotan. In flower. Griffith 1786 !

UPPER BURMA. " One tree, 30–40 feet, laden with fragrant ivory-white blossom, in the hot sub-tropical region of these deep-cut wooded glens. Shing Hong Torrent. Alt. 7,500 feet." In flower, 21st June, 1920. Farrer 1655 !

S.W. CHINA. *Yunnan*. " Tree of 20–40 feet. Open situations in mixed forest on the slopes of the Shweli valley on the Teng-Yueh-Talifu road. Alt. 6–7,000 feet." In fruit, September 1905. Forrest 809 !

" Tree of 30–50 feet in forests. Shweli-Teng-Yueh divide. Lat. 25° N. Alt. 7,000 feet." In fruit, May 1912. Forrest 7893 !

" Shrub of 6 feet. Flowers white flushed rose exterior. Open shady situations. Shweli valley. Lat. 25° 20′ N. Alt. 6,000 feet." In flower, July 1913. Forrest 11847 ! Same locality. In flower, August 1917. Forrest 15897 !

" Tree of 30–40 feet. Open thickets. Ghi Than east of Tali Lake. Lat. 25° 48′ N. Alt. 7,000 feet." In fruit, August 1914. Forrest 13507 !

" Shrub of 10–12 feet. Flowers dull crimson. In open thickets. Wei Hsi Valley. Lat. 27° 20′ N. Alt. 6–7,000 feet." In flower, July 1917. Forrest 13954 !

" Shrub of 20–25 feet. Flowers yellow. In thickets Shweli-Salween divide. Lat. 25° 30′ N. Alt. 9,000 feet." In flower, August 1917. Forrest 15796 !

" Shrub of 6–12 feet. Flowers pale rose. In open thickets by streams. Shweli-Salween divide. Lat. 25° 20′ N. Alt. 7,000 feet." In flower, July 1918. Forrest 17640 !

" Shrub of 20–25 feet. In open thickets on dry hillsides. Shweli-Salween divide. Lat. 25° 30′ N. ; Long. 98° 58′ E. Alt. 8,000 feet." In fruit, May 1924. Forrest 24173 ! and 24182 !

" Shrub or tree 20–40 feet. Flowers creamy-white. Shweli-Salween divide. Lat. 25° 30′ N. Long. 98° 58′ E. Alt. 10–11,000 feet." In flower, May 1924. Forrest 24224 !

" Shrub of 10–25 feet. Flowers creamy-yellow, styles purple. In open thickets on dry rocky slopes. Shweli-Salween divide. Lat. 25° 40′ N. ; Long. 98° 45′ E. Alt. 7–8,000 feet." In flower, June 1924. Forrest 24457 !

" Tree of 40–50 feet. Flowers white. In open mixed forest by streams. Shweli-Salween divide. Lat. 25° 40′ N. ; 98° 45′ E. Alt. 7,000 feet." In flower, July 1924. Forrest 24665 !

No definite locality. In fruit. Delavay 3671 !

" Tree 30 feet. Mengtze. Alt. 5,500 feet." In fruit. Henry 11510 !

W. Szechuan. " Monkong Ting, descent of the Pan-lan-shan, side of stream, alt. 2,300 m." In fruit, October 1910. E. H. Wilson 4395 !

Kwei-chow. Route de Pin-fa à Kouy-Yang, bois ; fleurs blanches odorantes, très rare." In flower, 20th May 1905. Cavalerie 2347 !

" Petit arbre. Pin-fa." In fruit, 14 décembre 1903. Cavalerie 1593 !

" Arbris., fl. blanches. Majo, Pin-fa." In flower, May 1909. Esquirol 451 ! [Recorded in Lévl., Fl. du Kouy-Tchéou as *R. thyrsoidea.*]

SIAM. Kao Keo Kang, Dan Sai, c. 1,300 m., edge of clearing in evergreen forest. Kerr 5797 !

It will be observed that within this species there have been included others more recently named, all of which have been described by their authors on the very limited amount of material available to them. Now, however, the long series of specimens collected by Mr. George Forrest in Yunnan is available for study. From these it has been possible to follow in detail the range of variation in specimens

collected within a small area of the total distribution, viz., the Shweli-Salween divide, from which no less than 9 gatherings have been sent home. This has brought out the fact that those characters thought by Mr. E. H. Wilson to separate his *R. sinica* from *R. pubescens*, Mast. are not constant. Of the former he writes* "It is related to *R. pubescens*, Mast. but in that species the leaves are thinner and cordate or rarely truncate at the base, and the flowers, which are said to be pink, have linear spathulate petals and shorter calyx teeth." He quotes Wilson 4395, Henry 11510, and Forrest 15897 and 17640 as belonging to his species.

With the object of testing the worth of these differences, the shape of the leaf base and the colour of the flower were tabulated from only those plants collected on the Shweli-Salween divide, with the result shown in the following table, which includes the Forrest numbers quoted by Wilson.

TABLE I

Forrest No.	Shape of leaf-base.	Colour of flower.
11847	rounded to cordate -	"white flushed rose exterior."
15796	narrowed to rounded	"yellow."
15897	rounded - -	(in fruit).
17640	narrowed - -	"pale rose."
24173	narrowed to rounded	(in fruit).
24182	cordate - - -	(in fruit).
24224	rounded to cordate -	"creamy-white."
24457	narrowed to rounded	"creamy-yellow."
24665	rounded to cordate -	"white."

It will be observed from this that the variation in the shape of the leaf-base is considerable and further that even in a single plant this shape is not necessarily constant. In about half of these instances the leaf-base is cordate. This is one of the supposed characteristics of *R. pubescens*, Mast. Curiously enough none of the four gatherings of that species from Sikkim and Bhotan (the original area from which this species was described) examined by the writer possessed leaves with a cordate base. Apparently, therefore, the shape of the leaf-base is not a constant character.

The thinness of the leaf is a second point noted by Wilson. Undoubtedly in the specimens Anderson 276 and Griffith 1786 the leaves are thinner, differing, however, from each other in this respect; but in the case of the other two Himalayan specimens, Cave sine no. and Ribu and Rhomoo sine no., the leaves are similar to those of the specimens collected by Forrest. The thinness of the leaf in *R. pubescens*, Mast. is thus also a variable character.

* Jour. Arnold Arbor. v (1924), p. 234.

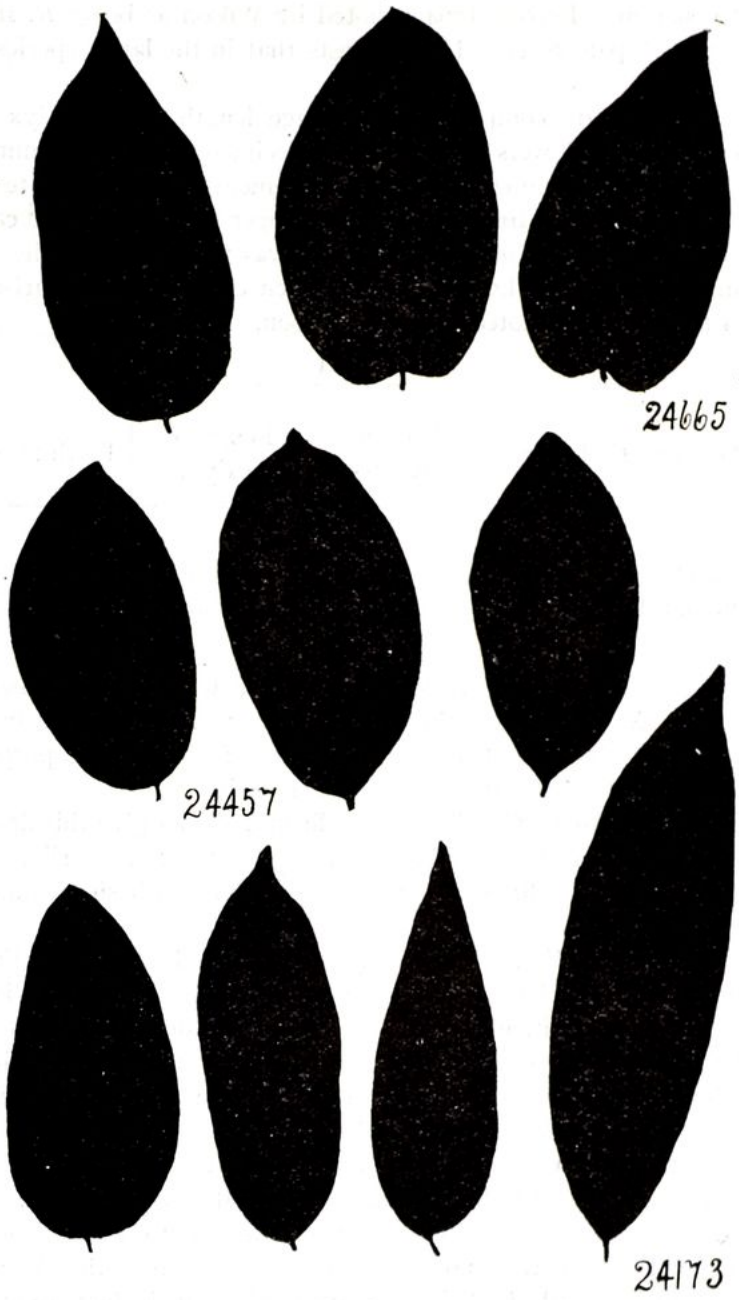

Fig. 2. Leaves from Forrestian specimens showing the variation of the leaf-base, etc. ($\times \frac{2}{3}$).

Top row, Forrest 24665.

Centre row, Forrest 24457.

Bottom row, Forrest 24173.

Referring again to Table I it will be noted that the flower colour is not constant. Forrest 17640 quoted by Wilson as being *R. sinica* is given as "pale rose." This suggests that in the latter species the colour varies.

In Table II are compared the average length of the calyx and calyx teeth in ten flowers from a Sikkim specimen and an equal number from a Yunnan specimen. These measurements do not indicate that the calyx teeth in *R. sinica*, Wilson are longer relatively to the calyx, than are those in *R. pubescens*, Mast. as was thought to be the case. It will be noted that the Yunnan specimen chosen for comparison is one of the numbers quoted by E. H. Wilson.

TABLE II

Area and Collector.	Length of calyx teeth.	Length of calyx.	Teeth : Calyx.
Sikkim: Cave sine no. -	2.2 mm.	8.2 mm.	.37 : 1
Yunnan: Forrest 17640	2.6 mm.	9.1 mm.	.35 : 1

From the above consideration of the characters said by Wilson to distinguish *R. sinica*, from *R. pubescens*, Mast., it would appear that these are variable and therefore not reliable for diagnostic purposes, and consequently these two forms are here united.

Turning now to *R. Cavaleriei*, Léveillé and Vaniot give this description,* "Affinis *R. pubescenti* a quo tamen differt: 1° floribus albis non purpureis; 2° foliis spisse subtus tomentosis, ad basim rotundatis et non pubescentibus cordatis."

Of this species, E. H. Wilson says,† "Messrs. Léveillé and Vaniot briefly describe a plant as *R. Cavaleriei*, but the description is too incomplete for definite identification, indeed, it is doubtful if it belongs to the genus." An examination of the type, however, shows that it is undoubtedly identical with the Yunnan form and thus the name *Cavaleriei* is a second synonym of *R. pubescens*.

There now remains only *R. siamensis* to be discussed. In the description of this Craib writes,‡ "A *R. Wallichii*, R.Br., foliis maioribus, nervis crassioribus, et pedicellis multo magis robustis distinguenda." There is no doubt, however, but that this form has strong affinities with *R. pubescens*, Mast. which it, in fact, resembles in those points quoted above. It differs from it in that the leaves are more coriaceous and more glabrous. The kind of stellate hair borne by the leaves (see fig. 1 c.) is not of the type characteristic of *R. Wallichii*, but somewhat similar to that found in *R. pubescens*,

*Fedde Repert. Nov. Spec. iv (1907), p. 330.
† Jour. Arnold Arbor. v (1924), p. 234.
‡ Kew Bull. (1924), p. 90.

though only one-third to one-half the size of those present in the latter. In shape, however, the leaves are more nearly ovate in outline and so are a little different from the more elliptic leaves usual in that species. The range of variation of leaf shape already noted in the Forrestian specimens indicates that this is by no means a reliable distinguishing character. It may also be pointed out that the specimen of *R. pubescens*, included by Wilson in his *R. sinica*, and collected in the South of Yunnan, at Mengtze by Henry (No. 11510) varies from the usual condition in having leaves which are more coriaceous and less pubescent, in these respects approaching closely the type of *R. siamensis*. As the areas in which these two plants were collected are at no great distance from each other, it is not unreasonable to conclude that *R. siamensis*, Craib, is an extreme geographical form of *R. pubescens*, Mast. and should be included with it as a variety, at least until further material is obtained from which it could be proved whether the form is actually distinct or not.

Finally, my attention has been drawn by Professor Wright Smith to Forrest 809 and 7893, both of which consist of fruiting material only, and had been previously named *Eriolaena yunnanensis*, W. W. Sm.* These are unquestionably also referable to *R. pubescens*, Mast.

The following key may serve to separate the varieties :—

i. Underside of the leaf densely pubescent ; stellate hairs as in fig. 1 b. var. *typica*, var. nov.

ii. Underside of the leaf sparingly pubescent ; stellate hairs as in fig. 1 c. : leaf more coriaceous and more nearly ovate. var. *siamensis* (Craib pro sp.)

* Notes, Roy. Bot. Gard. Edin. viii (March 1915), p. 336.

Excluded Species.

R. Esquirolii, Lévl., in Fedde, Repert. Spec. Nov. xiii (1914), p. 175. Esquirol 2604 ! = *Rhododendron* sp. (Section Stamineum.)