

TAIWANIA

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A REVISION OF THE GENUS REHMANNIA

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With five plates

The classification of *Rehmannia* presents considerable difficulties both as to the position of the genus and in the differentiation and delimitation of the various species. The genus has usually been placed in the Scrophulariaceae, in the tribe Digitaleae, but it appears also to be very close to the Gesneraceae, especially to the *Cyrtandroideae* (See A. P. de Candolle, *Cyrtandraceae*. In DC. Prodr. 9: 258-286. 1845). The relationship between the Scrophulariaceae and the Gesneraceae is close and at times the two families are not clearly separable. The generally applied distinction is based on the number of cells in the ovary, 1 cell with parietal placentation in the Gesneraceae and 2 cells with placentae on the septum in the Scrophulariaceae. This is the criterion accepted by most authors. Thus a species originally referred doubtfully to *Rehmannia* by Hemsley, *R. ? Oldhami* Hemsl., on account of its 1-celled ovary, is made into a separate genus, *Titanotrichum*, by Solereder and placed in the Gesneraceae. The other species, which have 2-celled ovaries, are divided by Solereder into two genera, *Rehmannia* and *Trianophora*, and retained in the Scrophulariaceae.

The assignment of these obviously related genera to these two separate families, based solely on the number of cells in the ovary, seems to be arbitrary. Although the basic difference as emphasized by Bentham and Hooker and others between the two families is the number of cells in the ovary, we find the 2-celled condition occasionally also appears in the Gesneraceae, for example, in *Cyrtandronioea megaphylla* Hemsl. (in Hook., Ic. Pl. t. 1555. 1887) where a perfectly 2-celled ovary is described

and depicted. In *Rehmannia*, Hooker (in Bot. Mag. t. 7191. 1891) noted that in *R. rupestris* and *R. angulata*, "the placentae appear to meet in the axis of the young ovary and be there united, but to separate afterwards". In the latter species, as illustrated by Oliver in Hook., Ic. Pl. t. 1589. 1887, the placentae are separated or united at different levels of the ovary. It seems that these species are in a process of transition from the 2-celled to the 1-celled condition and therefore are intermediate, in this respect, between the Gesneraceae and the Scrophulariaceae. The general appearance of *Rehmannia* is very Gesneraceous, and it may be more appropriately referred to that family than to the Scrophulariaceae. Further studies in anatomical and cytological characters may ascertain the exact relationship of the genus and also bring light to the real distinction between the two families.

The classification of the species within the genus is also confused. Mis-identifications are frequent both in herbaria and in literature. Different interpretations regarding the specific limits result in the acquiring of much synonymy for most of the species. As a result of the present study, it seems that when closely studied, many of the forms of former authors show clearcut distinctions in both their characters and ranges, and are thus best accorded specific standing. When more extensive collections are made, it may be found that the number of species in the genus is even greater than is recognized here. The majority of the species appear to be very local in their distribution.

For a detailed account of the history of the genus, see H. Solereder: Über die Gattung *Rehmannia*, in Bericht, Bot. Ges. 27: 390-404. 1909. The section *Trianophora* Hooker, made into a separate genus by Solereder, l. c., is here included in the genus. Although it is distinct in some respects, its relationship with other species is very close and the two are best associated together.

***Rehmannia* Liboschütz**

Rehmannia Libosch. ex Fischer & Meyer, Ind. Sem. Hort. Petrop. 1: 36. 1835.

Type species: *R. chinensis* Libosch.

A genus of about 8 species in China and Japan.

KEY TO THE SPECIES

- A. Plants glabrate to pubescent, the indumentum brownish to whitish, often glandular, more or less hirsute and pilose; calyx-teeth 5, the lobes ovate-acute to lanceolate. (Sectio **Eurehmannia**, sectio nov.)
- B. Leaves pinnately lobed, the lobes 2-6 on each side, obtuse to acute, entire to dentate.
- C. Lobes of leaves obtuse, dentate; calyx-teeth ovate, acute, usually sparingly serrate.
- D. Plant over 1 m. tall; corolla purplish; bracts subsessile, anther-cells strongly divergent. 1. *R. Piasezkii*
- DD. Plant about 15-40 cm. tall; corolla yellowish; bracts short-petiolate; anther-cells slightly divergent. 1. *R. Henryi*
- CC. Lobes of leaves acute, entire to dentate; calyx-teeth lanceolate, longacuminate, entire.
- D. Plant lower, about 1/3-1 m. tall; bracts with broad rather abruptly cuneate bases, wider than any other part of the blade; corolla red with a scarlet band at the margin of the upper lip and with orange dots inside the lower lips; anther-cells strongly divergent. 3. *R. angulata*
- DD. Plant taller, about 1 m. high; bracts with long cuneate bases not broader than the blade near the apex; corolla rosy purple on the lips, yellow but dotted red in the throat; anther-cells slightly divergent. 4. *R. elata*
- BB. Leaves crenately to rarely acutely serrate, not lobed, the serrations numerous.
- C. Plant low, 20-25 cm. tall; flowers more or less aggregate toward the tip of the stems, more densely glandular-pubescent; corolla about 3.5 cm. long, rarely to 5.5 cm. long. 5. *R. glutinosa*
- CC. Plant tall, 50 cm. or more high; flowers scattered all along the length of the stem, less glandular-pubescent; corolla 5.5-6.5 cm. long. 6. *R. Chingii*
- AA. Plants densely pubescent, the indumentum white, long-villose; calyx multifid, the 5 teeth each trifid, the lobes narrow and linear. (Section **Trianophora** Hooker)
- B. Leaves large, to 20 cm. long and 13.5 cm. wide, the apex obtuse to acute, the margins distinctly and deeply serrate, the serrations crenate to acute. 7. *R. rupestris*

BB. Leaves relatively smaller, to 10 cm. long and 6 cm. wide, the apex rounded, the margins entire to subentire. 8. *R. integra*

1. *Rehmannia Piasezkii* Maxim. in Bull. Acad. Sci. Petersb. 26: 502 1880, in Mel. Biol. 10: 684. 1880; Forbes & Hemsl. in Journ. Linn. Soc. Bot. 26: 194. 1890, p. p.; Limpricht in Rep. Sp. Nov. Beih. 12: 482. 1922 (?). Maximowicz's type, from southern Shensi: "*China occidentalis*: prov. Schensi, parte australi, fine martii fl. (Piasezki)" has not been seen.

Rehmannia glutinosa Libosch. var. *Piasezkii* Diels in Bot. Jahrb. 29: 569. 1900. Based on the above.

Southern Shensi. Flowers purple. No specimen seen.

The exact nature of this species has not been correctly ascertained by subsequent authors after Maximowicz. It has been recorded as being found in Chekiang, Hupeh, Hopei, etc., but these records are either incorrect or doubtful. Forbes and Hemsley (l. c.), besides listing "*Piasezki ex Maximowicz*" from southern Shensi, also credited *Henry 255, 1157, 1376, 3839* of Hupeh and *Cooper s. n.* of Chekiang to this species. They said, however, that they "have seen no authenticated specimen of this species". *Henry 255* is here identified as *R. angulata*. *Henry 1157, 1376, 3839* are among the types cited for *R. Henryi* N. E. Brown. Chekiang plants of the genus are here identified as representing a distinct species. Limpricht (l. c.) identified his *2419* from Peking as this species; I have not seen his specimen, but judging from the locality, it was probably *R. glutinosa*. Diels, in making the combination, had not have access to Maximowicz's type either.

According to Maximowicz, this species is characterized by pinnately lobed leaves, the lobes being obtuse and dentate, by the lanceolate, obtusely acuminate and sparingly serrate calyx-lobes, and the divergent anther-cells. Diels considered this as only a variety of *R. glutinosa*. The exact kinship of this species to the related *R. angulata*, *R. elata*, *R. Henryi*, etc. can not be determined without an examination of the type specimen.

2. *Rehmannia Henryi* N. E. Brown in Kew Bull. 1909: 262. 1909, in Bot. Mag. 136: t. 8302. 1910. Brown cited four collections: "China, Nanto and mountains to the southward, *Henry, 3839*; Ichang, *Henry 1157, 1376*; without precise locality, *Wilson*". Among these, a

duplicate of *Henry 3839*, in the herbarium of the New York Botanical Garden, has been seen. PLATE I.

"*Rehmannia Piasezkii*" *sensu* Hemsl. in Journ. Linn. Soc. Bot. 26: 194. 1890. *p. p.*, *non* Maxim.

Roadside at altitudes of 30-600 meters, in western Hupeh. Flowers straw-colored, spotted with red. Flowering in April.

HUPEH: Nanto, *A. Henry 3839* (NYBG); no precise locality, *E. H. Wilson 25* (USNH); Ichang, *E. H. Wilson 251* (NYBG).

This species is near *R. Piasezkii* Maxim. The latter is a tall plant, over 1 m. in height and has subsessile bracts or flowering leaves and purplish corolla. *R. Henryi* is a plant 15-40 cm. tall, with long-stalked bracts and dirty yellow corolla spotted with minute red specks. *R. Piasezkii* is described as having dentate calyx-teeth. *R. Henryi* is described as having entire to sparingly dentate calyx-teeth. In the specimens observed, they are nearly all entire.

3. ***Rehmannia angulata*** (Oliver) Hemsl. ex Forbes & Hemsl. in Journ. Linn. Soc. Bot. 26: 193. 1890; Diels in Bot. Jahrb. 29: 569. 1900. Based on the following. PLATE II.

Rehmannia glutinosa Libosch. var. *angulata* Oliver in Hook., Ic. Pl. 16: t. No. 1589 1887. The type was from Hupeh: "Hab. Ichang, Dr. Henry (No. 1131)".

"*Rehmannia glutinosa*" *sensu* Hance in Journ. Bot. 18: 300. 1880; *non* Libosch.

"*Rehmannia Piasezkii*" *sensu* Hemsl. in Forbes & Hemsl. in Journ. Linn. Soc. Bot. 26: 194. 1890, *p. p.*, *non* Maxim. *Henry 255* is of this species, and not of *R. Piasezkii*.

Western Hupeh and Kweichow.

HUPEH: No precise localities, *A. Henry 255* (USNH), *3600* (NYBG, USNH).

This species is characterized by the pinnately lobed leaves, the lobes being deltoid, acute, and dentate. The radical leaves are long petiolate and the cauline ones only shortly so. The calyx lobes are lanceolate and long acuminate, the posterior one being the longest. The corolla-tube is dilated above and its anterior lobe prorected. The anther-cells and strongly divergent.

4. ***Rehmannia elata*** N.E. Brown in Bot. Mag. sub. t. 8302. 1910. Based on the following.

"*Rehmannia angulata*" sensu Hemsl. in Bot. Mag. t. 8177. 1908; non Oliver. Based on a collection of Wilson from Hupeh.

Hupeh. Flowers bright soft rosy purple on the lips, yellow dotted with red in the throat. Known from the original collection only.

This species was established in a very unconventional way. In 1910, in Bot. Mag. t. 8302. 1910, N. E. Brown described and depicted the species, *R. henryi*, proposed as new by himself a year earlier (in Kew Bull. 1910: 262). In the notes, probably prepared by Prain the editor, which follow the Latin description, we read that "at [Bot. Mag.] t. 8177, under the synonym *R. unguolata*, a figure has been given of a species very nearly allied to *R. angulata*, which, however, is now found to deserve separate recognition. For the plant in question, Mr. Brown suggests the name *R. elata*." Following this, a comparison of *R. elata* with *R. angulata* is given.

The plate 8177 was named "*Rehmannia angulata* Hemsl." by Hemsley. It was thus not Hemsley's original species, a combination based on *R. glutinosa* Libosch. var. *angulata* Oliver. This plate 8177 is provided with a Latin and an English description and is based on a plant "introduced by Messrs. James Veitch & Sons, through Mr. E. H. Wilson". The type of the species *R. elata* N. E. Brown is therefore a Wilson collection at Kew, from Hupeh, but, in case no herbarium specimen is extant, it will be plate 8177 itself.

This species is a close relative of *R. angulata*. According to the original description, "It is characterized by being twice as large as *B. angulata*; by having leaves with 2-6 acute entire lobes on each side in place of having either very many marginal teeth, or, if there be a few lobes or large teeth, by these being again toothed; by having bracts or flowering leaves with long cuneate bases not broader than the lamina nearer the apex, as against very broadly and rather abruptly cuneate bases which are wider than any other part of the lamina. The corolla in *R. elata* is slightly larger and is bright soft rosy purple on the lips, yellow dotted with red in the throat; in *R. angulata* the rather smaller corolla is red with a band of scarlet at the margin of the upper lip and has orange dots inside the lower lip".

5. *Rehmannia glutinosa* (Gaertner) Libosch. ex Fisch. & Mey., Ind. Sem. Hort. Pefrop. L: 36. 1835, in Dc. Prodr. 9: 275. 1845; Maxim. in

Bull. Soc. Nat. Mosc. 54: 33. 1879, in Bull. Acad. Sci. Pétersb. 26: 502. 1880, in Mém. Biol. 10: 864. 1880; S. Moore in Journ. Bot. II. 7: 138. 1878; Forbes & Hemsl. in Journ. Linn. Soc. Bot. 26: 193. 1890; Palipin in Act. Hort. Petrop. 14: 133. 1895; Pai in Contr. Inst. Bot. Nat. Acad. Peiping 2: 203. 1934; Hand.—Maz., Symb. Sin. 7: 843. 1936. Based on the following.

Digitalis glutinosa Gaertn. in Nov. Comm. Acad. Petrop. 14: 544. t. 20. 1770.

Rehmannia chinensis Libosch. ex Fisch. & Mey., Ind. Sem. Hort. Petrop. 1: 36. 1835; Hooker in Curtis's Bot. Mag. 65: t. 3653. 1838.

Rehmannia glutinosa Libosch. var. *typica* Diels in Bot. Jahrb. 29: 569. 1900.

Rehmannia glutinosa Libosch. var. *Hemsleyana* Diels l. c.

Rehmannia glutinosa Libosch. var. *typica* f. *purpurea* Matsuda in Bot. Mag. Tokyo 32: 141. 1918.

Rocky slopes at altitudes of 100-2000 meters in Manchuria, Hopei, Chahar, Shantung, and Anhwei. Flowers purple. Flowering from August to June.

MANCHURIA: Chingchow, Ping Shan, *K. Kobayashi* 8683 (GH).

HOPEI: Peking and vicinity, *A. David* 2370 (USNH), *W. Hancock* 46 (ANSP, UC), *R. Armacost* 69 (NYBG), *S. W. Williams* s. n. (ANSP), *H. Sheehan* 9 (NYBG), *N. H. Cowdry* s. n. (USNH), *B. E. Read* 769 (NYBG), *J. C. Liu* 271 (UC), *T. Wang* 20025 (NYBG), *T. P. Wang* 45 (NYBG); San tung ying, *F. N. Meyer* 948 (NYBG); Tientsin, *E. Licent* 11607 (NYBG).

CHAHAR: Mountains along & Suan-hu-fu-da-hae River, *I. Kozlov* 96 (USNH); Tu-shar village, *I. Kozlov* 162 (USNH).

SHANTUNG: Tai Shan, *C. Y. Chiao* 21272 (NYBG, USNH); Tsi-nan, Lung Tung, *C. Y. Chiao* 3094 (GH, USNH); Fei District, Meng Shan, *C. Y. Chiao* & *L. Yen* 100 (GH).

ANHWEI: Nanhsuchow, *J. B. Griffing* 2957 (UC)

CHINA: No data, *K. K. Tsoong* 3157 (UC), 3525 (UC), 3629 (UC).

The species *Rehmannia glutinosa* Libosch. has often been interpreted as a variable one including many varieties or forms. Diels (in Bot. Jahrb. 29: 569. 1900) divided the species into 3 varieties: *typica*, the original form from Peking, *Hemsleyana* a new variety from southeastern Szechuan, and *Piasezkii* (Maxim.), originally described as a species from southern Shensi. His var. *Hemsleyana*, briefly described and based on "BvR 2179", appears to be very similar to *R. angulata* (Oliver) Hemsley. Matsuda

(in Bot. Mag. Tokyo 32: (141)-(142). 1918), following more or less Diels, recognized the following:

(a) var. *typica* Diels (*R. glutinosa Maximowiczii* Makino in Bot. Mag. Tokyo 15: 74. 1901).

(1) f. *lutea* (Maxim.) Matsuda 1. c. (141). (*R. lutea* Maxim. in Bull. Acad. Sci. Petersb. 19: 53. 1874, in Mel. Biol. 9: 371. 1874; *R. glutinosa* var. *Maximowiczii* Makino a. *lutea* (Maxim.) Makino in Bot. Mag. Tokyo 15: 74. 1901). "cultivated in Japan".

(2) f. *purpurea* (Makino) Matsuda 1. c. (141). (*R. glutinosa* var. *Maximowiczii* Makino b. *purpurea* Makino 1. c.) "Northern China; cultivated in Japan".

(b) var. *Makinoi* Mastuda 1. c. (142). "Cultivated in Japan".

(c) var. *Hemsleyana* Diels.

(d) var. *Piasezkii* (Maxim.) Diels.

Matsuda did not cite any specimen and for the last two varieties, he had access to none. The var. *typica* f. *purpurea* is the original form of the species in northern China.

In this treatment, the various forms attributed to this species by these authors are separated as distinct species. According to this definition of the species, *R. glutinosa* appears to be a more or less uniform species, especially common in Hopei but extending also to Chahar, Manchuria, Shantung and Anhwei. It is cultivated and much valued as a medicinal plant.

Chao and Shih described a var. *R. glutinosa* var. *huaichingensis* Chao & Shih in Shih, Kuan & Mi, Notulae ad Plantas Chinae 22. 1945 from Huai-ching, Honan. I have seen no specimens from Honan and therefore can not comment on this variety.

6. *Rehmannia chingii* sp. nov.

PLATE III.

Herba perennis 50-60 cm. alta, simplex vel basi ramosa, glabra vel sparse albo-pilosa; foliis radicalibus circiter 9 cm. longis 4.5 cm. latis, elliptico-oblongis vel rotundatis, basi in petiolum 6 cm. longum attenuatis, irregulariter crenato-dentatis, foliis caulinis multis similibus, gradatim minoribus, longe petiolatis; floribus axillaribus distantibus, pedicellatis, pedicellis adscendentibus. 0.5-1.5 cm. longis, bracteis nullis; calycibus adscendentibus campanulatis, circiter 1.5-2 cm. longis 5-dentatis, dentibus

inaequalibus, dente postico longiore, dentibus anguste deltoideis vel oblongis obtusis integris; corollae tubo purpureo circiter 5.5 cm. longo, dorsaliter compresso, apice 1.5 cm. lato, extra pubescente, intus inferne glabro superne pubescente, limbo obliquo bilabiato, 3.5 cm. diametro, atropurpureo, utrinque pubescente; labio superiore circiter 1 cm. longo bilobo, lobis subquadratis apice obtusissime rotundatis; labio inferiore fere ad basim trilobo, lobis circiter 1.5 cm. longis 1 cm. latis oblongis apice rotundatis; lobis imbricatis medio lateralibus longiore; staminibus inclusis, glabris, antheris 2 mm. longis, loculis deflexo-divergentibus; ovario ovoideo, glabro; stylo incluso, glabro; stigmatate late rotundato.

TYPE, along stream banks, at altitudes of 175-200 meters, Tihtaishan, Chekiang province, collected in flower, May 1924, by R. C. Ching, No. 1375; holotype in the herbarium of the University of California; isotypes in the same herbarium and also in the United States National Herbarium.

At altitudes of 175-200 meters, in Chekiang province. Flowers purple. Flowering in May.

CHEKIANG: No precise localities, *S. P. Barchet s. n.* (USNH), 520 (USNH); Tihtaishan, *R. C. Ching 1375* UC, USNH.

This species is related to *R. glutinosa* but is readily distinguished by its tall stature, less hairy habit, and the straight leafy stem bearing flowers in the axils throughout the whole length, instead of having flowers more or less densely aggregated at the top.

7. *Rehmannia rupestris* Hemsl. ex Forbes & Hemsl. in Journ. Linn. Soc. Bot. 26: 195. 1890, in Bot. Mag. t. 7191. 1891; Diels in Bot. Jahrb. 29: 569. 1900: Hemsley's types were from: "Hupeh: Fang, Nanto and mountains to the northward (*A. Henry*. 2604, 4458, 6615!). Herb. Kew." Among these three collections, duplicates of 4458 and 6615 in the herbarium of the New York Botanical Garden and in the United States National Herbarium respectively, have been seen.

PLATE IV.

Trianaophora rupestris Solereder in Bericht, Deutsch. Bot. Ges. 27: 399. 1909. Solereder's genus *Trianaophora* was based on the section *Trianaophora* of Hooker (in Bot. Mag. 117: t. 7191. 1891). Hooker's original spelling does not have the "e".

In western Hupeh. Flowers yellowish or purplish. Flowering in August and September (?).

HUPEH: Western Hupeh, *A. Henry* 4458 (NYBG), 6615 (USNH); Chienshih District, *H. C. Chow* 1592 (NYBG).

Rehmannia rupestris differs from other species of the genus in the bifid calyx-teeth and in the densely villose habit. It was made into a separate section, *Trianophora*, by Hooker and elevated to a genus by Solereder. In this treatment, Hooker's section is restored and an additional species, *R. integra* is added. Hemsley said of the color of the corolla: "Mr. Henry in his notes states that the flowers are rose-coloured, when it may be assumed that they vary in colour, as they are decidedly pale cowslip back of the corolla tube, and the throat is dotted with red on each side within." In *Chow* 1592, the label reads "flower purple and red".

8. *Rehmannia integra* sp. nov.

PLATE V.

Herba perennis 30-40 cm. alta, tota albo-lanuginosa vel glabrata, caulibus ramosis ramisque crassiusculis pendulis; foliis radicalibus circiter 5-9 cm. longis 3-5.5 cm. latis, oblongo-ovatis, longe petiolatis, apice rotundatis, margine integris vel subintegris, basi truncatis vel rotundatis, utrinque albo-lanuginosis, nervis subtus crassis, petiolis 5-8 cm. longis alatis dense albo-lanuginosis; foliis caulinis multis similibus valde minoribus longe petiolatis, acutis vel obtusis, ad 2.5 cm. longis 1.5 cm. latis; floribus in axillis solitariis pedicellatis, pedicellis 5-10 mm. longis plerumque reflexis; bracteolis 2 linearibus; calycibus cylindrico-campanulatis, circiter 7 mm. longis ad 7 mm. latis, 10-costatis, lobis 5, erectis, 3-fidis, lobulis linearibus acuminatis irregularibus, ad 7 mm. longis; corolla purpurea (?), circiter 5 cm. longa, laxe glanduloso pilosa, corollae tubo elongato lente curvo, 4-4.5 cm. longo, calyce 3-plo longiore, limbo obliquo, bilabiato, ad 2.8 cm. diametro, labio superiore longiore, bilobo, labio inferiore trilobo, lobis subaequalibus rotundatis, utrinque pubescentibus; staminibus inclusis glabris, antheris 2 mm. longis, loculis deflexo-divergentibus; ovario ovoideo glabro, stylo incluso, glabro, stigmatate late rotundata.

TYPE, Tchen-keou-tin, in eastern Szechuan, collected by R. P. Farges, s. n.; holotype in the herbarium of the University of California; isotypes in the herbarium of the New York Botanical Garden and the United States National Herbarium. Flowers purple (?). Only collection seen.

A species closely related to *R. rupestris* Hemsl. differing in the relatively smaller leaves which are rounded at tip and entire instead of acute and serrate. Also the calyx is shorter and more nearly campanulate.

EXCLUDED SPECIES

1. *Rehmannia chaneli* H. Lév. in Rep. Sp. Nov. 9: 323. 1911=*Chirita chaneli* H. Lev.
2. *Rehmannia kewensis* W. Watson in Gard. Chron. Ser. III. 51: 218. 1912.—Hort.
3. *Rehmannia* ? *Oldhami* Hemsl. in Journ. Linn. Soc. Bot. 26: 194. 1890. =*Titanotrichum Oldhami* (Hemsl.) Solereder.

Of this species, Hemsley originally said that "The distinctly one-celled ovary of this plant points to the Gesneraceae, and perhaps *Rehmannia* would be better placed in that order". Solereder made this into a separate genus to be included in the Gesneraceae. The species is Formosan and the following herbarium specimens have been seen: FORMOSA: Takow, A. Henry 311 (MBG), 1052 (MBG, USNH); Taihoku, Sozan, S. Sasaki 21509 (USNH); no precise localities, G. Nakahara s. n. (USNH), T. Tanaka 338 (USNH).

EXPLANATIONS OF PLATES

All plates are photographs of herbarium specimens and are reproduced about one-half actual size.

PLATE I

Rehmannia Henryi N. E. Brown; iso-syntype.

PLATE II

Rehmannia angulata (Oliver) Hemsley.

PLATE III

Rehmannia Chingii Li; holotype.

PLATE IV

Rehmannia rupestris Hemsley; iso-syntype.

PLATE V

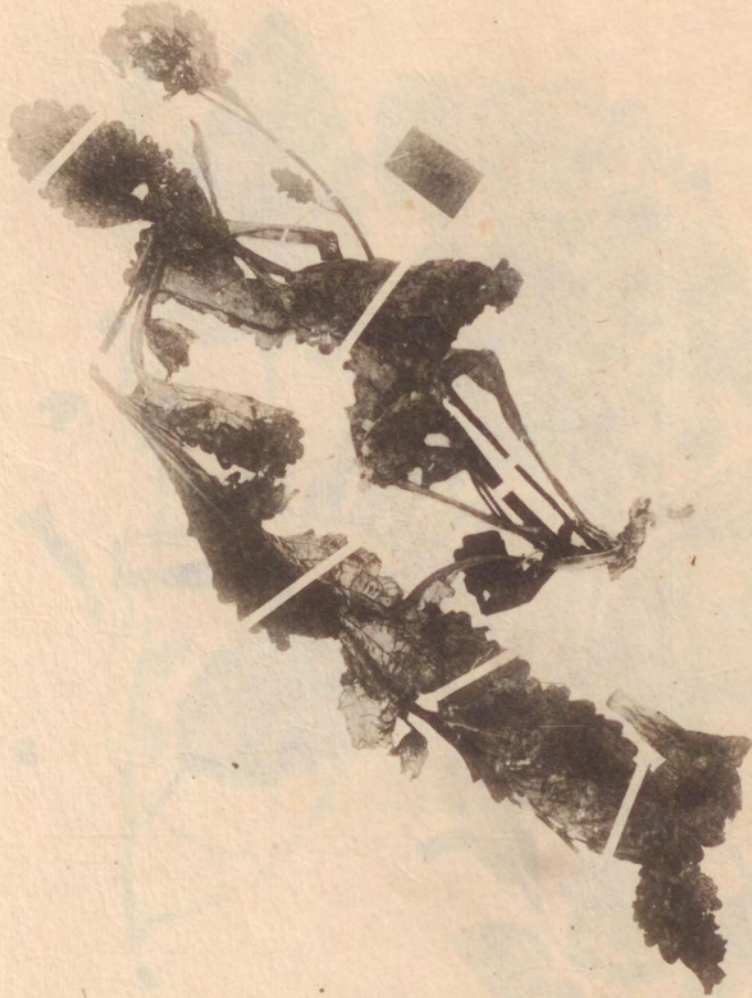
Rehmannia integra Li; holotype.



Rehmannia Henryi N. E. BROWN



Rehmannia angulata (OLIVER) HEMSLEY



Rehmannia Chingii Lf



Rehmannia rupestris HEMSLEY



Rehmannia integrifolia Lf