

# TWO NEW ECHEVERIAS FROM BOLIVIA

In 1968 Mr. W. Rausch (Austria) and Mr. D. J. van Vliet (Netherlands) made a journey of exploration through South America doing research into the succulent flora, in particular their speciality, the cactaceous genera *Notocactus*, *Lobivia*, *Parodia*, *Rebutia* and their relatives. Mr. van Vliet promised me he would look for *Echeverias* and if possible collect seeds. In April 1968 I received his first letter from Bolivia including seeds and an enthusiastic account of the *Echeverias* collected by Rausch and himself in the mountains at 3,000m. and more above sea level. Besides seeds he sent me many living plants collected in several localities. After a careful examination of more than a hundred such plants I was able to recognise both old and new species. Some I identified as *E. whitei* Rose, a species described on plants collected in 1922 by Dr. Orland E. White, a member of the Mulford Biological Exploration headed by Dr. H. H. Rusby, in the vicinity of Quime, Bolivia. It has fine red flowers. *E. whitei* Rose was considered by Eric Walther as synonymous with *E. chilensis* (Kuntze) Walth., but from his remarks on the flower colour in *Cactus & Succ. J. Amer.* and in a note published by von Poellnitz in *Fedde Repert.* more information is desirable on the plants collected in the wild by van Vliet and Rausch and now in my collection. There is great variability in this material, in form, colour and size of both flowers and leaves. Later on I hope to return to this subject.

Now follows the story of those plants recognised as new species. In May 1968 Rausch and van Vliet searched the mountains north-east of Yamparaez on the watershed area between Sucre and Yamparaez in Central Bolivia, about 2,800 m. above sea level. There van Vliet collected a light yellow to white-flowering *Echeveria*, and some days later a second locality was found on the mountain Chica Chica just behind the town Sucre, near 19° S. and 65.18° W. This *Echeveria* is characterised by its whitish flowers, channelled leaves and spreading sepals. In October 1968 and July 1969 some plants flowered in my collection, most with pure white blooms, except one plant with pale pinkish spots, already noted by its collectors in the wild. I cannot say now if this pinkish variation is a true variety, a form or a natural hybrid with another *Echeveria* species – possibly *E. rauschii*. Further observations are wanted and the plants remain under study. I name this species, the first true *Echeveria* with nearly white flowers, *Echeveria vanvlietii* in honour of Mr. Jan Dirk van Vliet, a well-known Dutch fancier of cacti, authority on the genus *Notocactus* and discoverer of this new species.

## *Echeveria vanvlietii* van Keppel sp. nov.

*Caulis erectus, basi ramosus, ± 5 cm. longus (interdum longior), 1-2 cm. crassus, interdum decumbens. Rosula foliorum 8-12 cm. diam., foliis 20-25 dense aggregatis. Folia laevia, 4-8 cm. longa, 1-2 cm. lata, 3-5 mm. crassa, carnosa, oblongo-oblancoolata usque ovato-subtriangularia (folia juvenilia), acuta, apice ipso pungente tenui dilute vel saturate rubro; margo integer, interdum irregulariter undulatus; lamina pallide viridis vel cupreo-purpurascens, margine dilutior, raro rubescens, supra plana vel concava, subtus convexa et subcarinata, aetate ± curvata, basi ± 1 cm. lata. Caulis florifer lateralis, 20-40 cm. longus, ab initio erectus, basi 5 mm. diam., viridescens-albidus, interdum fere rosaceus; folia cauligera horizontaliter abeuntia, deinde ascendente, 15-20 infra inflorescentiam inserta, maxima 2.5 cm. longa et 1 cm. lata; infima ovata, superiora oblonga, summa (inter flores disposita) sagittata, viridia; maxima obtusa, minora acuta. Pedicelli 0.5-1 cm. longi, 2 mm. crassi, virides, initio pendula, denique ascendentes, bracteis tenuibus*

by  
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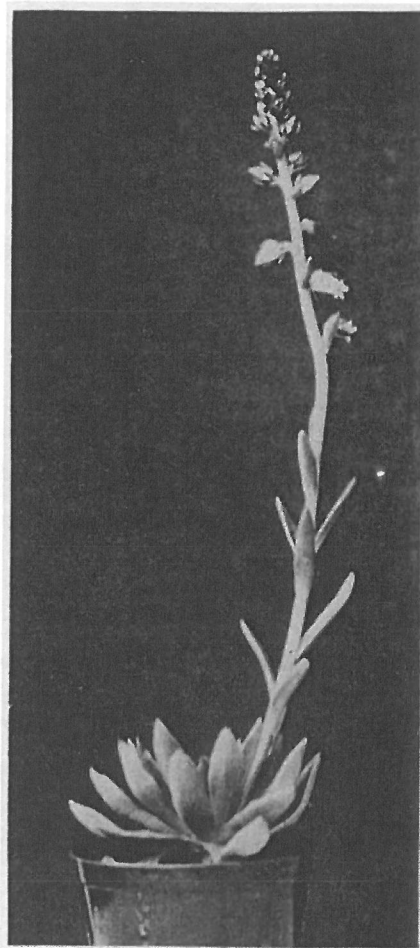


Fig. 1 *ECHEVERIA VANVLIETII* v. Kepp.

*subulatis cito desiccantibus. Racemus simplex, 10-20 cm. longus, flori-  
bus 15-40 dense aggregatis. Corona alba (cremea vel rosacea), urceo-  
lata, lobis valde reflexis; ± 12 mm. longis, basi 4 mm. latis, dorso acute  
luteo-carinatis. Sepala viridia, 3-10 mm. longa, inaequalia, ovato-trian-  
gularia, sub anthesi horizontalia, denique ascendente. Carpella viridia;  
antherae albae; semina saturate brunnea. Flores mens. 7-10.*

TYPE: *Echeveria* sp. Bolivia No. 5 van Vliet (van Keppel No. 6849) sent to the Herbarium of the Royal Botanic Gardens, Kew.

DESCRIPTION: HABIT caulescent; stems short, 5 cm. long or more, 1-2 cm. thick, erect, sometimes decumbent, with a dense rosette on the top 8-12 cm. diam.; LEAVES fleshy, 20-25, spreading, oblong-oblancoolate, 4-8 cm. long, 1-2 cm. broad, older leaves flat, younger leaves deltoid, on the upper part deeply channelled, mucronate, apiculate, backside convex, somewhat keeled, colour pale grey-green flushed bronze purplish; edges paler, seldom reddish; FLORAL STEMS 20-40 cm. long, erect from the beginning, greenish-white, 5 mm. broad at base; inflorescence part a single, equilateral raceme 10-20 cm. long with 15-20 horizontally spreading leaves below, the largest 2.5 cm. long, 1 cm. broad, the lowest ovate, next oblancoolate and the floral bracts awl-shaped, green, with a broad or slender recurved white spur, the largest obtuse, the smaller mucronate; FLOWERS 15-40, nodding, later erect, on green pedicels 5-10 mm. long, 2 mm. thick with 2 filmy, linear bracteoles, buds yellowish on the top and keel of the petals, sepals widespreading at anthesis, later ascending, 5-10 mm. long, unequally ovate-deltoid, corolla creamy white, petals c. 12 mm. long, 4 mm. wide at base, pentagonal, tips curving outwards, keeled dorsally, carpels green; SEEDS dark brown. Flowers in July to October. DISTRIBUTION: Type locality north-east of Yamparaez, c. 12 km.

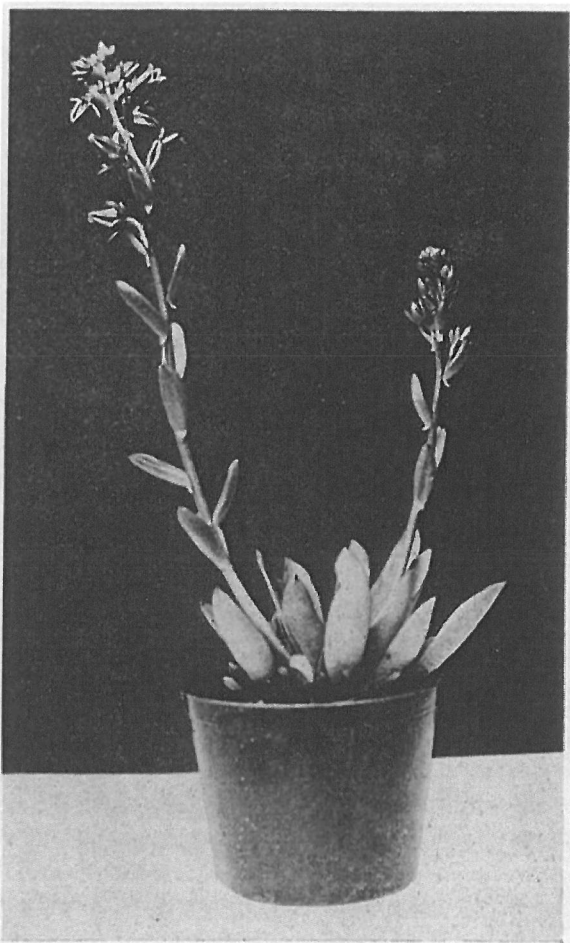


Fig. 2 *Echeveria rauschii* v. Kepp.

south-east of Sucre at 2,800 m. elevation on steep slopes (19/5/1968) and on the mountain Chica Chica, south of Sucre at 2,500 m. elevation (21/5/1968), coll. no. 6850 v.K.

*E. vanvlietii* belongs to the Series Racemosae Baker p.p. of which the long-known *E. racemosa* is the type. This Series includes other South American species such as *E. peruviana* Meyen, *E. chilonensis* (Kuntze) Walth., *E. eurychlamys* (Diels) Berger and *E. excelsa* (Diels) Berger and their synonyms.

It differs from the other species of this series by its green, not glaucous leaves and whitish flowers.

***Echeveria rauschii* van Keppel sp. nov.**

A second species which I consider to be undescribed was collected by Rausch and van Vliet 15 km. north-west from Sucre in the direction of Los Aleros. In habit this species resembles somewhat *E. vanvlietii*, but the rosettes are smaller, the leaves more fresh green (in the resting period sometimes grey-green) but not flushed purple. The edges are marked with a fine, dark red margin. But most of all it differs in its inflorescence, a lax raceme with long pedicels bearing horizontal to ascending but not nodding flowers. The flower colour is very typical: splendid orange, originating (as seen by a magnifier) by the combination of red spots on a yellow foundation. Although this species was found in the same area as other *Echeveria* species and must be assigned to the Series Racemosae, the inflorescence has a quite different habit from that of *E. racemosa*, *vanvlietii* and other Bolivian species belonging to the *chilonensis-whitei* complex. This species receives its name to honour Mr. Walther Rausch, the well-known

Austrian *Lobivia* and *Rebutia* specialist who has already been three times cactus hunting through South America.

*Caulis erectus, basi valde ramosus, ± 5 cm. longus, 1-2 cm. crassus, interdum gracilior, longior et decumbens. Rosula foliorum 5-12 cm. diam., foliis 10-20 dense aggregatis. Folia rosulata laevia, 4-7 cm. longa, 0.8-1.5 cm. lata, 0.3 cm. crassa, carnosa, oblongo-oblancoolata usque ovoideo-subtriangularia (folia juvenilia), acuta, apice ipso pungente gracili rubro; margo integer, interdum undulatus, manifeste rubro-coloratus; lamina pallide usque saturate viridis, haud glauca, basi ± 1 cm. lata, supra plana vel concava, haud raro curvata, subtus convexa et paullo carinata. Caulis florifer erectus vel oblique ascendens, 10-25 cm. longus, basi 2-4 mm. crassus, rubescens; folia caulina vel bracteae inferne horizontalis, superne oblique ascendentes, 5-10 infra inflorescentiam insertae, maximae 3-4 cm. longae, superiores sensim usque ad 1 cm. diminutae, oblongae. Pedicelli usque ad 2 cm. longi, erecti vel obliqui, rubescentes, bracteis 2 tenuibus cito desiccantibus. Racemus simplex, ± 10 cm. longus, 7-20-florifer. Corolla urceolata, extus aurantiaca, intus luteo-aurantiaca margineque lutescens, ± 10 mm. longa, basi 6, infra oram 2-3 mm. diam., acute 5-angulata, lobis parum curvatis. Sepala viridia, superne rubro-maculata, apice ipso rubra, 3-10 mm. longa, oblonga, basidi latata, subaequalia, expansa vel paullo ascendente. Carpella viridia, libera; antherae cremae. Semina brunnea. Flores mens. 7-10.*

TYPE: *Echeveria* sp. Bolivia No. 8 van Vliet (van Keppel No. 6852) sent to the Herbarium of the Royal Botanic Gardens, Kew.

Description: HABIT caulescent; stems short, c. 5 cm. long, 1-2 cm. thick, erect, or very thin, longer and decumbent; branching at base; rosette with 10-15 closely arranged leaves, 5-12 cm. diam.; LEAVES fleshy, oblong-oblancoolate to ovate-deltoid, acute, with a red mucro, upper part flat to concave, backside convex, faintly keeled, colour fresh green, not glaucous, with strong dark red edges, 4-7 cm. long, 8-15 mm. broad; FLORAL STEMS reddish, erect, 10-25 cm. long, 2-4 mm. broad at base; inflorescence part a single, equilateral raceme c. 10 cm. long with 5-10 spreading to ascending leaves below, the largest 3-4 cm. long, oblong, concave; bracts linear-oblong, small, scarcely spurred; FLOWERS 7-20, on reddish, erect pedicels up to 2 cm. long with 2 filmy bracteoles which soon wither; sepals horizontally spreading to ascending, green, linear-oblong, unequal, 3-10 mm. long; corolla orange to orange-red, orange-yellow within with yellow edges; petals c. 10 mm. long, 6 mm. broad at the base, sharply pentagonal, 2-3 mm. wide at the apex, tips recurved, sharply keeled dorsally; carpels green. Flowers in September to October. DISTRIBUTION: Known only from the type locality 15 km. north-west from Sucre at 2,800 m. elevation; collected May 29th, 1968.

*E. vanvlietii* and *E. rauschii*, like the other Bolivian *Echeverias*, grow in cracks and hollows filled with humus and/or limestone on very steep, often unreachable, slopes. The habitats are mostly in full sun for some hours each day. The soil pH is between 5 and 6 - thus weakly acid. The *Echeverias* were growing with ferns, mosses, grasses, bromeliads (*Tillandsia* sp.) and cacti (*Lobivia*, *Rebutia* and *Parodia* spp.). Dew at night moistens the ground. Temperatures by night and day are very different; by day very hot, by night cold with frosts. Snow, hailstorms and frost damage the plants, and specimens killed by frost were found. It is noteworthy that these South American species seem to occur above 2,000 m. Neither in Argentina, in the vicinity of Cordoba, nor in Uruguay where the mountains are only (!) 2,000 m. high did Rausch and van Vliet discover any *Echeverias*. I suppose this is connected with the conditions of life for this genus in its natural habitat. Most South American *Echeverias* are found at high elevations: Ball records *E. chilensis* as high as 4,300 m. in the Peruvian Andes!

I wish to acknowledge the help given me in preparing the latin diagnosis and description by Dr. H. Sleumer and Dr. H. J. van Hattum of the Leyden University Hortus Botanicus and Herbarium.

CORRIGENDA to previous article p. 5:—

Lines 23-24: *Echeveria carnicolor* (Bak.) Moran should read *Echeveria carnicolor* (Bak.) Morren.

Bottom right-hand caption: For *carnicolour* read *carnicolor*.