

Echeveria setosa ROSE & PURPUS.



Echeveria subalpina ROSE & PURPUS.

THREE NEW SPECIES OF ECHEVERIA FROM SOUTHERN MEXICO.^a

By J. N. ROSE and J. A. PURPUS.

Dr. C. A. Purpus spent much time during 1907 and 1908 on the high mountains of Puebla, especially near San Luis Tultitlanapa, near the border of Oaxaca, Mexico, and on the peak of Orizaba, where he collected numerous interesting succulents. Living plants were sent both to Washington, D. C., and to Darmstadt, Germany. Three species have been recognized independently by the writers in this material, and these are here described jointly by them. All three of the species have flowered at Darmstadt, and one of them, *E. gigantea*, has flowered frequently in Washington, maturing seed which has afforded numerous seedlings. The red-margined leaves form beautiful rosettes, and the species would doubtless prove to be a good bedding plant. *Echeveria subalpina*, also, belonging to the *E. glauca* type, ought to furnish suitable material for flat bedding.

Echeveria setosa Rose & Purpus, sp. nov.

PLATE 10.

Acaulescent giving out offsets from the base; leaves 100 or more, forming dense, almost globular rosettes (10 to 12 cm. in diameter), thickish but flattened, spatulate to oblanceolate, 4 to 5 cm. long with an ovate, acute tip, slightly ridged along the middle both above and below, covered on both sides with setiform hairs; flowering stems setose, 20 to 30 cm. high, bearing small bract-like setose leaves; inflorescence usually simple, consisting of an 8 to 10-flowered secund raceme; lower pedicels 2 to 3 cm. long; sepals green, linear, setose, spreading; petals 10 to 15 mm. long, red at base, yellow at tip, smooth within, short-setose without; stamens white; styles greenish.

Collected by Dr. C. A. Purpus on rock, Cerro de la Yerba, near San Luis Tultitlanapa, Puebla, in 1907, and grown both in Washington, D. C. and at Darmstadt, Germany, flowering at the latter place in 1909.

Type U. S. National Herbarium no. 592487.

EXPLANATION OF PLATE 10. Flowering plant. From a photograph by J. A. Purpus.

Echeveria subalpina Rose & Purpus, sp. nov.

PLATE 11.

Acaulescent; leaves arranged in open rosettes (20 to 25 cm. in diameter), linear-lanceolate, with reddish attenuate tips, 7 to 10 cm. long, 1.5 to 2 cm. broad, very glaucous; flowering stem simple, rarely 2-branched, bearing few bract-like leaves;

^a Three of the illustrations here used have been furnished by J. A. Purpus, Curator of the Botanical Garden at Darmstadt.

inflorescence a secund raceme, 8 to 20-flowered; pedicels very short, hardly elongating in age; sepals ascending; corolla 12 mm. long, cinnabar red without, yellowish within; petals blunt, yellowish-margined; stamens yellow; stigmas bright green.

Collected by Dr. C. A. Purpus in the subalpine regions of Orizaba in 1907.

Type U. S. National Herbarium no. 592489.

EXPLANATION OF PLATE 11.—Flowering plant. From a photograph by J. A. Purpus.

Echeveria gigantea Rose & Purpus, sp. nov.

PLATES 12-14.

Main stem short and stocky, 20 to 30 cm. long, crowned by a rosette of leaves; leaves oblanceolate, sometimes 25 cm. long, 15 cm. broad at widest point, tapering below into a thick fleshy petiole, light green, only slightly glaucous, bordered by a bright red margin; flowering stems erect, sometimes nearly 2 meters long, somewhat pinkish, glaucous, the longer leaves 10 to 11 cm. long; inflorescence paniculate, with elongated ascending branches, often 15 to 30 cm. long; pedicels usually short (2 to 5 mm. long), but the earlier ones often longer; sepals very unequal, spreading and remaining so after the flower fades; corolla 12 to 14 mm. long, pinkish, the lobes slightly spreading at tip.

Collected by C. A. Purpus, in the arroyos of the Cerro de la Yerba, near San Luis Tultitlanapa, Puebla, in 1907 (no. 414), and flowered in Washington in 1909 and again in September to November of the same year.

Type U. S. National Herbarium no. 592488.

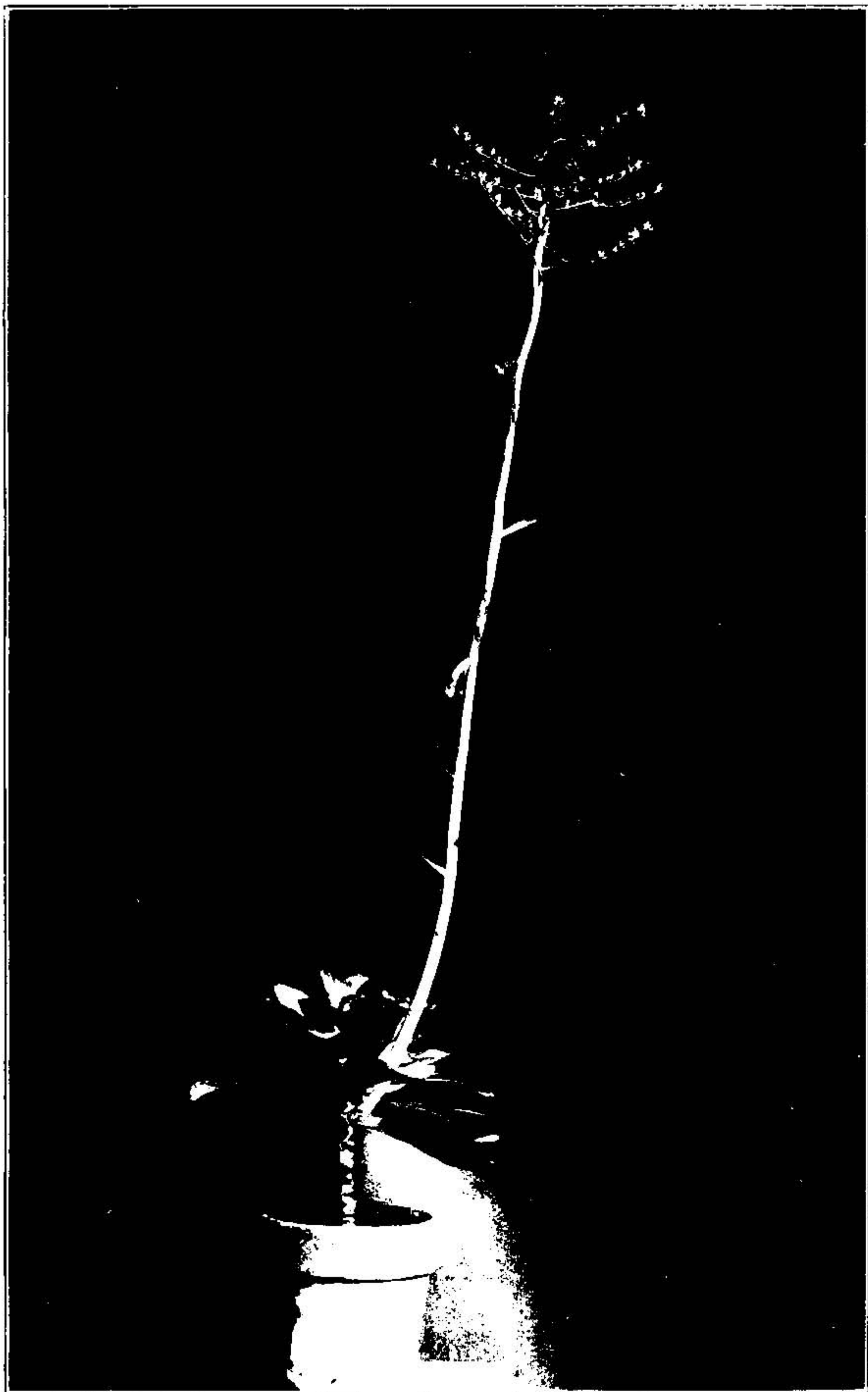
EXPLANATION OF PLATES 12-14.—Plate 12, plant in flower. From a photograph by J. A. Purpus. Plate 13, a rosette viewed from above. From a photograph of a plant in the Department of Agriculture greenhouses at Washington. Plate 14, fruiting plant. Same data as last.



Echeveria gigantea ROSE & PURPUS.



ROSETTE OF ECHEVERIA GIGANTEA ROSE & PURPUS.



ECHIVERIA GIGANTEA ROSE & PURBUS.