

NEW SPECIES OF OPUNTIA FROM ARIZONA.

By J. N. ROSE.

During a part of April and May of 1908 I was located at Tucson, Arizona, the guest of the director of the Desert Laboratory of the Carnegie Institution. While there I frequently visited Tumamoc Hill, upon which the laboratory is built. Upon this hill was found a profusion of the prickly pears or flat-jointed Opuntias. A careful examination of these plants led me to believe that there were among them at least four well-defined species. Further study in the Catalina Mountains, Tucson Mountains, Tortolitas Mountains about Tucson, and the Whetstone Mountains about Benson, convinced me that these were not mere mutations but well-established species extending over large areas of southeastern Arizona. After reaching the conclusion that there were four species on Tumamoc Hill, I went over the material with Dr. D. T. MacDougal, Prof. J. J. Thornber, and Mr. J. C. Blumer, all of whom agreed with me in my conclusion. Since returning to Washington I find that Prof. J. W. Toumey has collected three of the species, considering them distinct. One of these he has called *O. lindheimeri*, but this was at a time when *O. lindheimeri* was supposed to be a very polymorphic species and to extend from eastern Texas to the Pacific Ocean. *O. lindheimeri* is now known to be a pretty uniform species with a much more limited range. *O. engelmanni*, which has also passed as *O. lindheimeri*, has been rediscovered at the type locality and found to be, not only very different from *O. lindheimeri*, but very unlike any of our Arizona species. Another of the three Professor Toumey called *O. phaeacantha*, but an examination of the type sheet of that species, now in the Missouri Botanical Garden herbarium, shows that this reference also is a misidentification, and I have named the plant *O. blakeana*.

It was my original expectation to publish all four of these species as new, but long after this paper had been prepared and just as it was going to press I discovered that one of the species had been described by Dr. David Griffiths as *O. discata*.^a

^a Rep. Mo. Bot. Gard, 19: 266. 1908.

Opuntia arizonica Griffiths, Rep. Mo. Bot. Gard. 20: 93, 1909.^a

Plants stout, more or less spreading, but in time becoming 1 to 1.5 meters high, forming broad clumps; old joints very large and thick; last year's joints orbicular, often rounded at base, 15 to 25 cm. in diameter, pale glaucous green; spines 2 to 5, generally 4 or 5, usually 4 to 6 cm. long, more or less spreading in all directions, stout and somewhat flattened, bright red at base, above whitish or tinged with rose; areoles often 4 to 6 cm. apart; lower areoles naked or with a single spine; bristles caducous except along the margins of the joints, here numerous and long; flowers large, nearly 40 cm. broad, at first lemon-yellow, hardly at all tinged with red at base, in age becoming salmon-colored; ovary somewhat elongated, slightly glaucous, 3.5 to 4 cm. long.

Collected by J. N. Rose near Desert Laboratory, Tucson, Arizona, April, 1908 (no. 11751).

Common on foothills and low mountains in the general region of Tucson.

This species was frequently collected by Professor Toumey under the name of both *O. engelmanni* and *O. lindheimeri*.

Opuntia toumeyii Rose, sp. nov.

Plants low, widely spreading or prostrate; last year's joints obovate, 15 to 20 cm. long, dull green, slightly glaucous; spines 1 to 4, generally 1 or 2, one usually very long and porrect, 4 to 6 cm. long, terete, light brown, the shorter spines often white and appressed; lower areoles naked; young joints pale green, slightly glaucous, the young areoles crowning small tubercles; leaves 6 to 8 mm. long, somewhat bronzed, acute; young areoles with a single rose-colored spine; bristles usually brownish; petals 3 cm. long, deep yellow, reddish, or bronzed at base; ovary oblong, 5 cm. long, glaucous, with oblong tubercles crowned by the areoles, these with brown bristles, but no spines.

Type collected by J. N. Rose near Desert Laboratory, Tucson, Arizona, April, 1908 (no. 11750).

Type U. S. National Herbarium no. 45445.

Opuntia blakeana Rose, sp. nov.

PLATE LV.

Plants low and widely spreading, the old branches trailing on the ground, rarely rising more than 40 to 60 cm. above the ground; joints obovate, small, 1 to 1.5 cm. long, thick, pale, more or less purplish about the areole; spines usually only 2 or 3 at each areole (the lower areoles often without any), short brownish; flowers yellow, more or less reddish in the center.

Type collected by J. N. Rose near Desert Laboratory, Tucson, Arizona, April, 1908 (no. 11753).

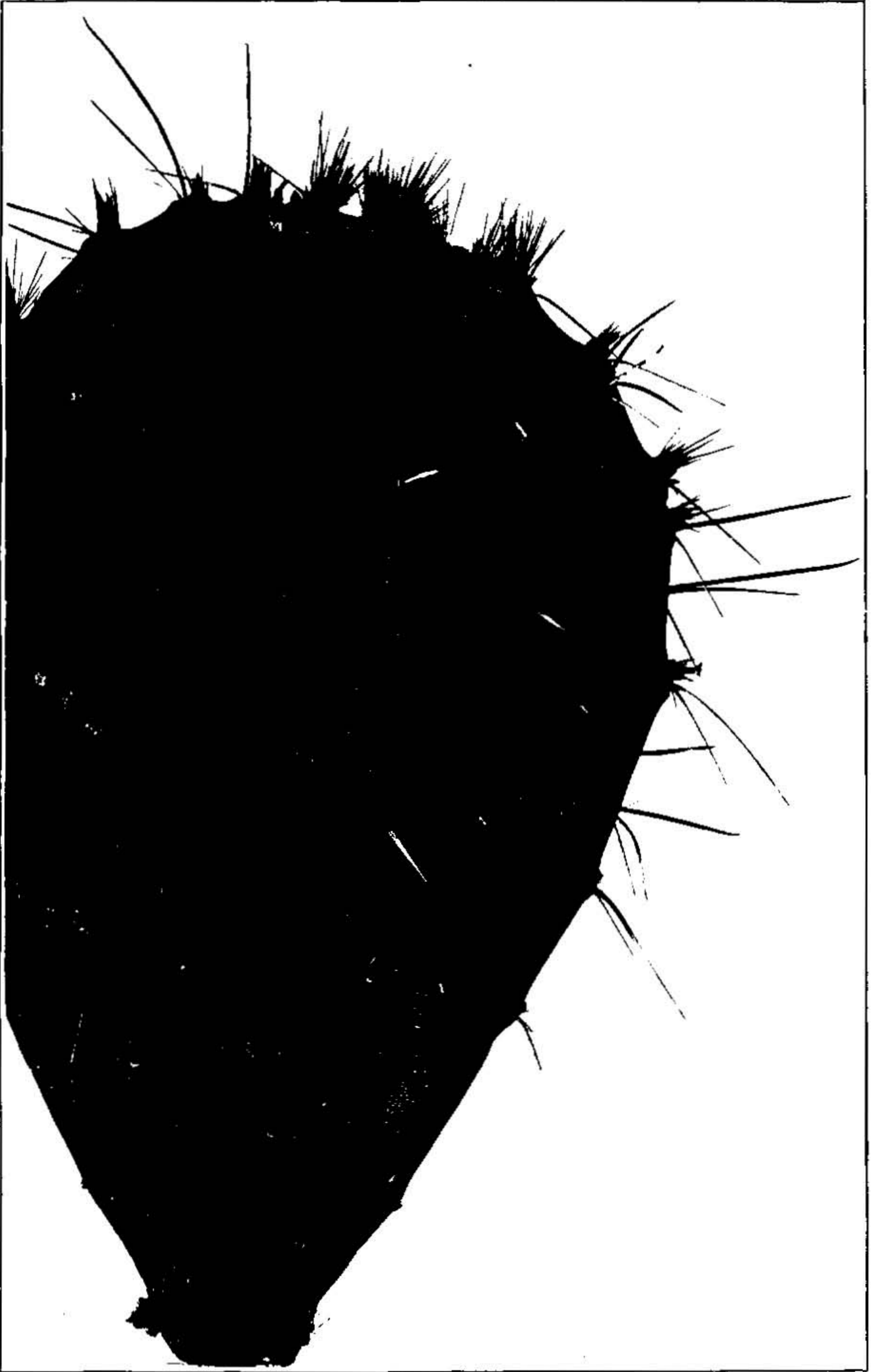
Distribution southern Arizona.

Type U. S. National Herbarium no. 454451.

This species is named for Dr. W. P. Blake, of Tucson, Arizona.

EXPLANATION OF PLATE LV. A pad. Natural size.

^a Still later, while the page proof of this paper was in hand, Dr. Griffiths's publication of *O. arizonica* was received, which proved to be an anticipation of another of my species. I accordingly here substitute Dr. Griffiths's name, allowing, however, my description to stand as already in type.



A JOINT OF *OPUNTIA BLAKEANA* ROSE.