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Kellerman of 1888): ARKANSAS (no collector given, but cult. in Mo. Bot. Gard. from White River, near Fayetteville).

## 38. Opuntia mesacantha greenii, var. nov.

Opuntia greenii Engelm. MSS.

With fibrous roots, orbicular-obovate deep-green joints, numerous short reddish-brown bristles, upper pulvini armed with 1 to 3 spines (upper one straight, stout, terete, 2.5 to 3.5 cm. long, lower ones mostly smaller, paler and deflexed), which are brownish-red at base or entirely so, ovate spineless fruit 3 cm. long with rather shallow umbilicus, and irregular seeds with broad rather acute margins and 6 mm. broad.— Type, Greene of 1870 in Herb. Mo. Bot. Gard.

From Colorado to Arizona.

Specimens examined: Colorado (E. L. Greene of 1870, Golden City; C. S. Sheldon, Ft. Collins): ARIZONA (Toumey of 1892, Grand Cañon and Williams; Wilcox of 1894, Ft. Huachuca).

## 39. Opuntia mesacantha oplocarpa, var. nov.

Opuntia oplocarpa Engelm. MSS.

Joints orbicular, deep-green, 7.5 to 8.5 cm. in diameter: pulvini with a penicillate tuft of long brown bristles at upper end, all armed except the lower ones: spines mostly 2, rather stout and straight, the upper one reddish-brown (especially toward the base), stouter, erect or porrect. the lower one paler (or even white), deflexed and usually weaker: fruit clavate, with broad and shallow umbilicus, rather dry, spineless (or nearly so), brownish-red, 5 cm. long: seeds wavy-twisted.—Type, Greene of 1870 in Herb. Mo. Bot. Gard.

Colorado to southwestern Texas.

Specimens examined: Colorado (E.L. Greene of 1870. Golden City): Texas (G.R. Vasey of 1881, El Paso).

This certainly belongs to the maze of forms under mesacantha, and possibly may be referred to some of those described above. The seeds and orbicular joints suggest cymochila, but the prominent tufts of long brown bristles, the fewer spines, and the decidedly larger distinctly clavate unarmed fruit seem to justify separation for the present. The Vasey material has larger joints (about 12 cm. broad), and its spines are not always in pairs. Often there are three spines, two equally prominent brown upper ones and a lower and weaker deflexed white one, and even two or three very weak ones in addition appressed at lower edge of pulvinus. These characters are suggestive of cymochila, but the larger joints and prominent reddish-brown bristles are quite distinctive. The two varieties greenii and oplocarpa are very near each other, and aside from the seed characters are to be distinguished by the shape of the joints, by the fact that the former has its 1 to 3 spines only on the upper pulvini, and the latter, with its spines mostly in pairs, has all the pulvini armed except the lowest ones. In both, the upper reddish porrect or ascending spine or spines and the lower pale deflexed one are quite characteristic.

### 40. Opuntia mesacantha vaseyi, var. nov.

Approaches oplocarpa, but joints narrow and rather elongate-obovate (16 by 10 cm.), very large pulvini, the 2 or 3 spines (occasionally another short, slender one added) all reddish-brown (occasional trace of yellow-

ish) and unequal (15 to 30 mm.), those on the face of the joint usually in pairs and deflexed, those on the margin apt to be in threes and erect-spreading, fruit dark-red and spineless (about 5 cm. long), and seeds (4.5 to 5 mm. broad) with conspicuous thick somewhat irregular margin.—Type in Nat. Herb.

Western Arizona.

Specimens examined: ARIZONA (G. R. Vasey of 1881, Yuma; H. H. Rusby of 1883, Ft. Verde).

## 41. Opuntia fusco-atra Engelm. Syn. Cact. 297 (1856).

Diffuse, with orbicular-obovate tuberculate joints 6 to 7.5 cm. long: pulvini 12 to 18 mm. apart, with numerous short reddish-brown bristles, only the lower unarmed: spines mostly solitary, stout, suberect, brown-ish-black, 2.5 to 3 cm. long, often one shorter deflexed one added: flowers yellow, 7.5 cm. broad: fruit and seed unknown. (*Ill.* Pacif. R. Rep. iv, t. 11, f. 4)—Type, Lindheimer 33 of 1842 in Herb. Mo. Bot. Gard.

"Sterile places in prairies west of Houston, Texas." Specimens examined: Texas (Lindheimer 33 of 1842).

The stout brown (or above almost black) spines, and thick bunches of unusually stout brown bristles on small joints, give a characteristic appearance to the species.

# 42. Opuntia opuntia (L.).

Cactus opuntia L. Sp. Pl. i, 468 (1753).

Opuntia vulgaris Mill. Dict. ed. 8, no. 1 (1768).

Cactus humifusus Raf. Ann. Nat. i, 15 (1820).

Diffuse and prostrate, with a fibrous root: joints obovate or suborbicular, thick, bright or pale green, 5 to 10 cm. long by 5 to 6 cm. broad, bearing ovate cuspidate mostly appressed leaves 4 to 5 mm. long: pulvini subremote, with few short greenish-yellow bristles, mostly unarmed: spines very rare, when present, solitary, stout, variegated, subcrect, less than 2.5 cm. long: flowers pale-yellow, 5 cm. broad: fruit obovate-clavate: seeds regular, thick, with thick margins, 5 mm. broad.—Type unknown.

From the southeast coast of Massachusetts to Georgia and Florida; apparently only in the low countries east and southeast of the Alleghanies.

Specimens examined: Massachusetts (Sprague, at Leyden): New York (Hex. & Maier of 1852): New Jersey (Torrey & Gray of 1846; Hex. & Maier of 1854; Meehan of 1876; Martindale of 1876): Delaware (Canby of 1861): Virginia (Vasey of 1878, Ft. Monroe): South Carolina (Mellichamp of 1871): also cultivated in numerous gardens.

This species is distinguished from mesacantha (which only grows west of the Alleghanies and with which it has been confused) by its smaller size, paler color, small pulvini, usual absence of spines, smaller flowers, and especially by its short thick more or less appressed leaves.