er roots penetrate, absorbing required moisture and nutrients.

4. There are no harmful bacteria present—it is contact with water and bacteria that causes roots to rot.

For these reasons the plants by-pass drainage and grow like they were being chased.

We wish you all happy gardening wherever you are and however bad your soil is. Most soils need additives of some sort to make them suitably productive. Everyone has a favorite planting medium and most of them seem to work. But I still do not recommend planting cacti and other succulent in clayey or any other dense, impervious soil. And I do not recommend *Cereus hildmannianus* and *Cereus peruvianus* for small gardens, nor for giving them to friends and relatives.

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**BOTANIZING IN MEXICO IN THE 1820's**

Jean Louis Berlandier (1805–1851) arrived in Mexico in 1926 and botanized for years in that country and Texas, which was then part of Mexico. His name is commemorated in numerous plants. In Berlandier's striking *Voyage au Mexique par Louis Berlandier pendant les années 1826 à 1834*, which was translated and published in two volumes in 1980 by the Texas State Historical Association, University of Texas at Austin, he made several references to cacti and other succulents and illustrated three species of cacti. His diary entry for May 20, 1837: "We set out toward the Hacienda del Rio Grande [and] encountered some ranchos, which cultivated aloes [agaves] for the manufacture of pulque, a beverage of which the inhabitants of the cold regions are quite fond. The stalks of some of the plants we saw there had attained a considerable height, which we had never seen in European gardens. When we met in these plantations the Indians gathered the liquid and we drank it with pleasure because, before fermentation, it is sweet and does not have a bad smell. The people of San Bernardo, who live in roadside huts, also cultivate it in large quantities; even the hedges of their houses are made of maguey.

"[Then] we descended the opposite side of the mountain which we had just climbed, not finding anything on our route but some thorny mimosas and several cacti. Among the latter can be noted the senescent cactus and a species of *Melocactus* [not the genus *Melocactus* Link et Otto] of extraordinary dimension, which I sketched and which is quite common in all these mountains. It is three of four feet tall above its base and is very thorny. It is oblong in shape and ribbed with about fifty ridges. Some plants are six or eight feet in circumference. At the top where flowers should bloom (and which we were unable to observe), there are many feathery substances. In our botanical descriptions I have given it the name of *Melocactus major*, because of its large dimensions." [The species is likely a ferocactus; Berlandier's name *Melocactus major* was never published.]

Larry W. Mitich
In 1826 the renowned Augustin Pyramus de Candolle (1778–1841) sent Jean Louis Berlandier (1805–1851) to Mexico to collect natural history specimens and make notes upon the country. After Berlandier’s accidental death by drowning in the summer of 1851 while crossing the flooded Río San Fernando in Tamaulipas, extensive natural history collections and manuscripts on diverse topics were found at his Matamoros estate. Among them was the invaluable *Voyage au Mexique par Louis Berlandier pendant les années 1826 à 1834*, which was translated and published in two volumes in 1980 by the Texas State Historical Association, University of Texas at Austin. Berlandier also botanized in Texas and many plants have been named for him, including the popular *Jatropha berlandieri* Torrey. While traveling to Matamoros on April 6, 1830, Berlandier speculated on the countryside’s potential: “All that immense region, which is barren because of the lack of water, could be utilized. Cochineal could be introduced in the area between Capadero and Reynosa, and not only in these places, but even throughout all the barren points on Nuevo León and Tamaulipas. The great quantity of nopalies which are encountered in these localities, although different from *Cactus opuntia* [a misidentification; Linnaeus designated *Cactus opuntia* L. for an eastern North American species], could favor that industry. It would then be necessary to experiment to see if good cochineal could live there, and if cultivation would improve the plant. In the unexpected event that nothing succeeded, it would not be difficult to introduce the true nopal of Oaxaca [*Nopalea cochenillifera* (L.) Salm-Dyck]. If the rigorous winters proved too inimical to that industry, attention could be turned towards taking care of and improving the cochineal found naturally on the indigenous nopal. It is from that cochineal that all the women on the banks of the Río Bravo extract a crimson color, with which they dye the wool of the cloth they manufacture.”

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