

Thomas Coulter (1793-1843) first came to the San Diego region in April 1832, accompanying a group of Americans who purchased mules and horses from the California missions and were driving them east to be sold in the United States [43]. He was 38 years old. He had arrived in Monterey six months earlier after working for five years in Mexico.

Coulter grew up Presbyterian in northeast Ireland and in 1820 became a medical doctor or surgeon [44]. In 1822 he studied botany at the Jardin des Plantes in Paris and in Geneva under Augustin-Pyramus de Candolle (1778–1841), his mentor. In 1824 he took a position as surgeon for a British mining company and moved to central Mexico. While working there he occasionally collected natural specimens, sending several new cacti to de Candolle in 1828 for publication [45]. In 1830 he moved up to Hermosillo in Sonora and after an unsuccessful mining venture prepared to travel overland to California for scientific observations and collecting. He decided not to cross the Sonora and Colorado Deserts and instead traveled down to Guaymas, where in September 1831 he boarded an American brig for Monterey.

In Monterey Coulter joined a significant expatriate community. In October 1831 he accompanied a group riding overland to and from Santa Barbara. He then met David Douglas and explored the Central California coastal region with him during the winter months. Douglas – a thorough and determined collector who became the source for hundreds of new California taxa – had been in the territory amassing specimens for a year before Coulter met him; many of the two explorers' plant-collections overlapped, causing Coulter some regret. In January 1832 both men enlisted in the *compañía extranjera* at Monterey opposing Echeandía's forces [46]. In March 1832 Coulter joined the American mule-traders and traveled south to San Gabriel, interested to see a part of the territory where Douglas had not gone.

Coulter is the first naturalist known to collect plants in the Southern California desert. The route he followed is shown on the map drawn for his *Notes on Upper California*, communicated by letter to the Royal Geographical Society in London in March 1835 (Figure 5) [47]. The group Coulter accompanied included Jonathan T. Warner and is described in Warner's *Reminiscences of Early California, 1831-1846* [48]. Coulter's companions were tough and experienced, led by two renowned trappers or mountain-men – David E. Jackson and Ewing Young. Warner (1807-1895) was one of nine employees Jackson brought from Santa Fe to California in October 1831 with sacks of silver coin to purchase mules. At San Gabriel, Young and many of his men joined Jackson to manage the herd of around 700 animals on the return trip east. The party moved southeast over San Luis Rey mission lands in Riverside County, reaching Pala around April 30, 1832. From Pala they headed east up what Coulter described as

the "narrow valley" of the San Luis Rey River, then crossed the Lake Henshaw plain and proceeded down the San Felipe valley to Vallecitos. Enduring hot days without water or much forage, the group finally passed the Algodones Dunes and arrived south of the confluence of the Gila and Colorado Rivers around May 8, 1832. Coulter camped ten days near present-day Yuma while the Americans worked strenuously to ford the river at its seasonal height. From there he wrote a letter to de Candolle's son, dated May 16, 1832, saying "...here is nothing, nothing. This is truly the kingdom of desolation" [49]. He then turned back west, accompanying Young, Warner, Kit Carson's older brother Moses Carson, Isaac Williams and a few other men, reaching Pala around May 27. He returned to San Gabriel in the second week of June 1832.

Coulter's route between Yuma and Lake Henshaw became a portion of the Southern Emigrant Trail – the main road between New Mexico and California after 1846. Coulter was one of the first English-speaking travelers known to take the trail, preceded only by Jackson's initial party including Warner, and probably by Ewing Young's group, which had followed Jackson west out of New Mexico late in 1831 [50]. Warner settled his ranch along the trail-route near Lake Henshaw in 1844 and died in Los Angeles in 1895.

Late in 1832, recovering from a broken leg, Coulter journeyed south from Monterey again, following El Camino Real via San Juan Capistrano and San Luis Rey to San Diego, where he sought passage by ship to central Mexico [51]. Douglas had left Monterey by ship in August 1832 for further exploration in the Pacific Northwest; after his injury Coulter withdrew from a project to accompany Ewing Young overland to the Oregon Territory, instead deciding to return to Mexico. He almost certainly stayed at the San Luis Rey mission en route to San Diego. With whom he traveled and where he slept in the town of San Diego, and the name and dates of his ship, are not presently known; he may have obtained lodging from a shipping agent.

Coulter possessed several advantages for travel in California at that early date. He had worked in rural Mexico for several years, understood Spanish, and carried a passport issued by the central government. He was an excellent marksman and fly-fisherman, according to Douglas. Most importantly, he was a medical doctor and scientist, lending him authority with the local residents, trappers, and missionaries whom he encountered. The priests befriended him, and he thought well of them, particularly Father Sanchez of the wealthy San Gabriel mission, whom Captain Barroso of Echeandía's presidio-guard imprisoned the year Coulter visited, and who died, dispirited by his Liberal opponents, in January 1833 [52]. Coulter showed an interest in anthropology, taking time to study Indian languages in addition to time spent on his natural history collections and geographical observations [53].

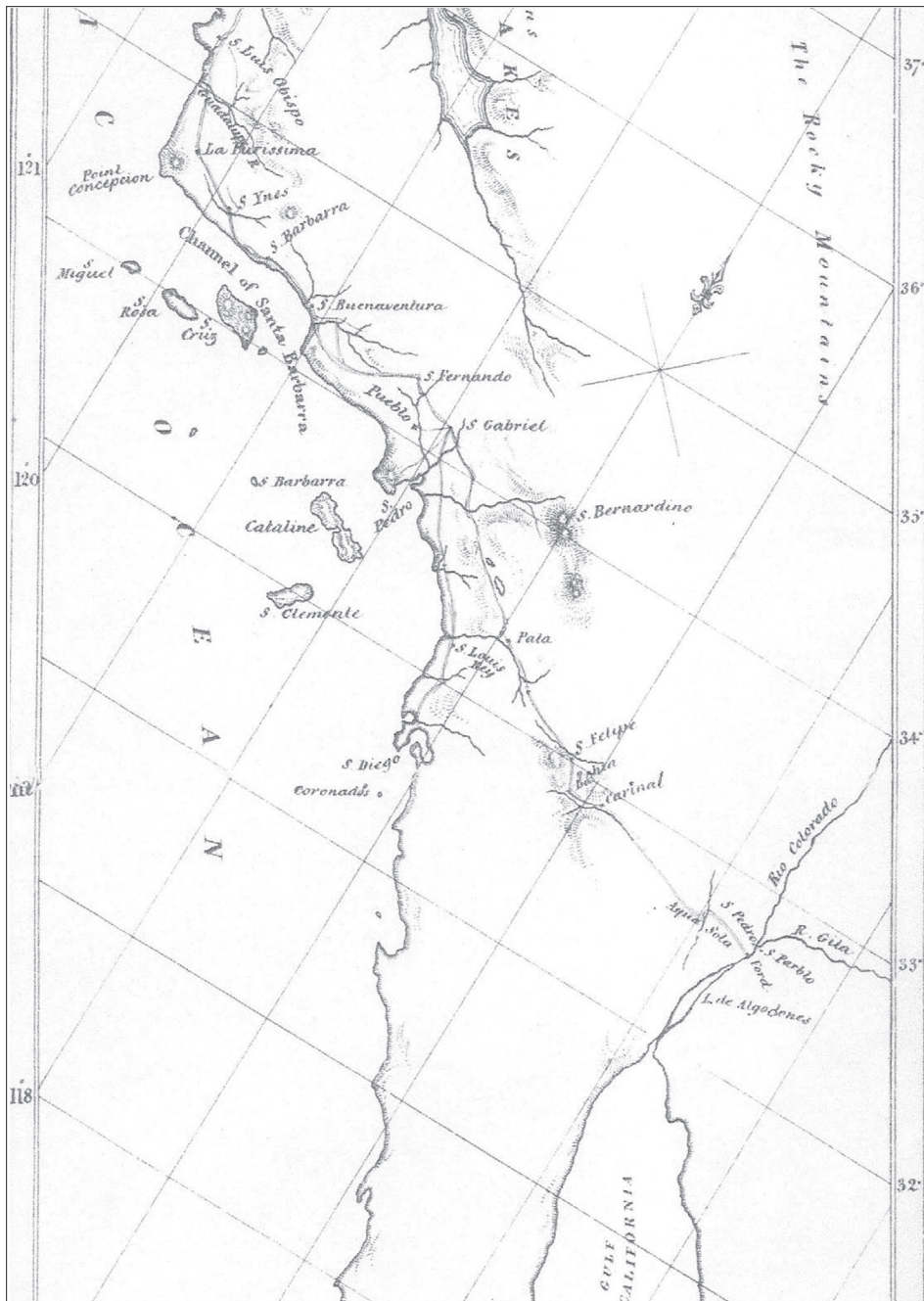


Figure 5: Map drawn in 1835 depicting Thomas Coulter's route in spring 1832 from the San Gabriel mission to Pala and across the desert to present-day Yuma. The route became part of the Southern Emigrant Trail.

Coulter's Collection from the San Diego Region

Coulter's fame among California botanists derives primarily from two plants he discovered – *Pinus coulteri* (Coulter Pine) and *Romneya coulteri* (Matilija Poppy) – both of which grow in the San Diego region. The Coulter or Big-cone Pine is notorious for its heavy, prickly cones, while the Matilija Poppy is celebrated for its impressive white flowers – the largest of any native California plant (cover photo).

In 1833 Coulter shipped his specimens from Mexico to his sister in London. He arrived in the UK in November 1834 and soon met with Aylmer Lambert – whose name Douglas gave to *Pinus lambertiana*, the Sugar Pine. Lambert had published a monograph on pines; Coulter shared some seed-cones he had collected. Using Coulter's specimens, in June 1835 Lambert's associate David Don published descriptions of five new conifers from California: *Pinus coulteri* (Coulter Pine), *P. radiata* (Monterey Pine), *P. muricata* (Bishop Pine), *P. tuberculata* or *P. attenuata* (Knob-cone Pine), and *P. bracteata* or *Abies bracteata* (Bristlecone Fir) [54]. Of the five only the Coulter Pine is native in San Diego County, and Coulter may have seen it near Lake Henshaw in May 1832. He reported collecting the type specimen near the San Antonio de Padua mission east of Big Sur [55].

Coulter donated his thousands of plant-specimens from Mexico and California to found the herbarium at Trinity College Dublin; in return he received an appointment as the first curator there. But he made scant progress organizing the herbarium or publishing new species in the nine years before he died, in November 1843. William H. Harvey, appointed to succeed Coulter at the new herbarium, deserves credit for numbering Coulter's California plants, sending duplicates to other taxonomists, and describing some new species.

In 1845 Harvey published a description of the Matilija Poppy in Hooker's *Journal of Botany* [56]. Coulter – who also collected *Eschscholzia californica* (California Poppy), *Dendromecon rigida* (Bush Poppy) and *Platystemon californicus* (Cream Cups) – apparently did not leave a record where he found *Romneya*. In his May 1832 letter from Yuma he mentions finding "a few fine Papaveraceae", suggesting he may already have collected it by then, possibly in western Riverside County where it is a fire-follower today. *Romneya* blooms in spring and early summer; Coulter only spent one spring in the territory. The *Romneya* sheet in the Kew herbarium shows bristles on the inflorescence and a relatively small flower on Coulter's specimen, suggesting the plant may be *Romneya trichocalyx*, which is concentrated today in southern San Diego County (Figure 6) [57].

Coulter almost certainly collected some of his known plants in the San Diego County desert. The *Jepson Manual* lists Harvey as the authority for the following taxa which are found today in Anza-Borrego Desert State Park, though not exclusively: *Acamptopappus sphaerocephalus* (Desert Goldenhead); *Baileya pauciradiata* (Colorado Desert Marigold),

Baileya pleniradiata (Desert Marigold); *Chaenactis artemisiifolia* (White Pincushion); *Pectis papposa* (Chinch Weed); *Phacelia minor* (Desert Canterbury Bells); *Dithyrea californica* (Spectacle Pod); and *Lyrocarpa coulteri* (Lyre-pod) [58]. In 1844 Harvey forwarded duplicates of dozens of Coulter's specimens to George Bentham, John Lindley and William Hooker in the UK, and to John Torrey and Asa Gray in the United States. These and other taxonomists authored additional new species most likely referring to Coulter's collection, including the desert species *Geraea canescens* (Desert Sunflower) by Gray; *Dalea mollis* (Silk Dalea) by Bentham; *Prosopis pubescens* (Screwbean Mesquite) by Bentham; *Hilaria rigida* (Galleta Grass) by Bentham; *Loeseliastrum schottii* (Desert Calico) by Torrey; *Rhus ovata* (Sugar Bush) by Gray's assistant Sereno Watson; and *Parkinsonia florida* (Blue Palo Verde) - from Sonora - by Bentham.

Uncertainties with Coulter's Collection

Coulter's California collection presents some uncertainties or difficulties. The herbarium at Trinity College Dublin, where his primary collections continue to be stored, thus far has not catalogued the specimens [59]. The California plants were numbered into the 800's - probably by Harvey - but identifications have not been completed. A few of the numbered plants are known to be repeats, including multiple different specimens of the variable taxon *Corethrogyne filaginifolia* (California Aster). Of the herbaria possessing duplicates of the known taxa, such as Kew, Harvard, and the New York Botanical Garden, no one herbarium outside Ireland is known to have more than a fraction of Coulter's total.

A second difficulty is the absence of a single taxonomic authority for the collection. Douglas sent his plants to Hooker; Thomas Nuttall described his own; the *Sulphur* had Bentham. Coulter failed to pursue the work himself or enlist a leading taxonomist to examine and identify his specimens. A related difficulty is the delay of more than a decade before the plants were unpacked. Without doubt, Coulter was the first naturalist to collect a great many new California species - perhaps hundreds - but because of the delay, later naturalists such as Nuttall found the same plants and identified them before Coulter's saw daylight. Many of his specimens became obsolete.

Finally, the lack of precise location information for Coulter's specimens frustrates California botanists today. Almost all herbarium-sheets showing his specimens give California - nothing more - as the location. He may have recorded precise locations and other descriptive details in field-notebooks; unfortunately, his personal papers from Mexico were lost or stolen en route to the United Kingdom in 1834 [60]. It may be that Coulter lost interest in his specimens after he lost the notes for them, or the combination of that setback and his knowledge of David Douglas' collection discouraged him from further work.



Figure 6. *Romneya coulteri* (Matilija Poppy) sheet, courtesy of Kew Herbarium, showing duplicate of Coulter's collection provided by William Harvey. Notation suggests Coulter's plant may be *R. trichocalyx*.