

The size of the industry, the large natural deposits in Texas, and the growing usefulness of this mineral are sufficient reasons to demand one's respect for gypsum and to arouse one's interest.

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CHARLES WRIGHT'S 1849 BOTANICAL COLLECTING-TRIP FROM SAN ANTONIO TO EL PASO; WITH TYPE-LOCALITIES FOR NEW SPECIES

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In the spring of 1849, Lt. William Farrar Smith, of the Corps of Topographical Engineers, U. S. A., discovered a southern route between San Antonio and El Paso. He had left San Antonio February 12, for El Paso over the "Northern Route" [by way of Fredericksburg and the San Saba valley, crossing the Pecos at the Liveoak Creek Crossing] and beyond the Pecos by Comanche and Leon Springs, the Limpia, and on to the Rio Grande. On his return he recrossed the Pecos at Liveoak Creek; then turning southwardly, he paralleled the left bank of the Pecos for about twenty miles, crossed in a southeasterly direction present Howard Creek at Howard Spring to present Johnson's Draw, and passed southerly down Johnson's Draw to the Pecan Spring, and the summer head of Devil's River. Following the Devil's River for seven or eight miles (during which he crossed the river three or four times) he left that river by its right bank by a road passing over the table-land

lying north of present Comstock in present Valverde County, until he reached Sell's Creek, which leads down to the final crossing of Devil's River northwest of present Del Rio. Thence he followed an Indian trail to Las Moras Springs, crossing *en route* present San Felipe, Sycamore, and Mud Creeks. From the Las Moras Springs he journeyed easterly 45 miles to the head of the Leona River, above present Uvalde; the route crossing the heads of present Arenosa, Elm, and Turkey Creeks, and crossing the Nueces at present Cline. From the Leona, the road joined the "Wool Road" (which led from Eagle Pass to San Antonio), and so continued on to Bexar. Charles Wright was permitted to accompany a train of soldiers and road-builders who, at the end of May, 1849, left San Antonio for El Paso. . . .

The train to El Paso by the southern route, in June, 1849, was divided into two divisions. The division under Captain S. G. French, A. Q. M., to transport the government stores and property of a batallion of the Third Infantry, was sent from San Antonio on May 31, with orders to follow the "Wool Road" as far as Camp Inge on the Leona, five or six miles beyond the crossing of the Frio River (in present Uvalde County). On arrival there, they were to await the arrival of the troops under Major Van Horn and Lt.-Colonel Joseph E. Johnston. The latter had orders to leave San Antonio the first of June. With the latter company were about twenty laborers for use in improving the road, and Mr. R. A. Howard, Surveyor, who had been with Lt. W. F. Smith in his discovery of the southern route between El Paso and San Antonio in the spring of 1849. Charles Wright was joined to the first company [under Captain French] which after the Leona was crossed was always from twenty to thirty miles behind the road-making division and their escort, under Major Van Horn and Lt.-Col. Johnston. This division left San Antonio on Thursday, the 31st of May; the delay in their departure having been caused by a heavy rain on the previous Saturday, which rendered the roads west of San Antonio very heavy, and in places hardly passable. The first day out, they made fifteen miles, and camped on present Medio Creek on the way to Castrovilla. Charles Wright left San Antonio in the late

afternoon, and arrived at the camp late that evening. Next day [June 1] the train made an early start, and reached Castroville, then a town of about 500 inhabitants, located on the west bank of the Medina (a fine clear stream of abundant water, well-stocked with bass). At the Medina a torrential rain fell, which, with what had fallen the previous Saturday, rendered the roads hardly passable. The train camped in Castroville the night of June 1st. Early next morning came a cold norther, with a violent thunderstorm. The train moved out of Castroville ten miles, however (part of it over boggy "hog-wallow prairies" to the German village of Quihi, and there they camped. The next two days were spent in reaching the Hondo, eleven miles from Quihi. Camp was made the night of June 4, on the Hondo, a fine, clear stream well-stocked with fish.

On the next day, the road led nine miles to the Seco, over an almost impassable hog-wallow prairie. Camp was made for the night [June 5] at a crossing two miles above present D'Hanis, then an embryo settlement of Germans, in Medina County. It was beautiful country, with grass and flowers growing luxuriantly. On the 6th June, the train passed over Rancheros [or "Comanche"] Creek, a branch of Sabinal; a fine, clear running stream of sweet water with abundant fish. Its banks were bordered by large trees suitable for building. Fourteen miles beyond the Sabinal, after crossing the Blanco River ["Comanche Creek"] they came to the Frio, with its striking and picturesque cañon. Camp was made on the Frio; and here, June 6 and June 7, Charles Wright collected numerous plants.

On June 8, the wagon-train left the Wool Road; took a northwesterly course to Camp Inge on the Leona (near a rocky, conical hill or mound now known as "Inge Mountain", about two miles south of present Uvalde); and here the baggage-train awaited the surveying and opening of a road to the west, beyond Camp Inge. On June 13, Lt.-Colonel Johnston, Major Van Horn, and Lt. W. F. Smith and party, with a small train of wagons advanced. Captain S. G. French's party, with Wright, remained on the Leona until the 19th of June, when the expedition moved to the head of the Leona (a mile or two above the railroad-crossing at

Uvalde), and passed in a northwesterly direction for about nine miles to the crossing of the Nueces. The weather had now become hot and dry, and but few plants were to be seen. Only twenty-one "numbers" were collected from June 8 to June 18 on the Leona.

Two days [June 19 and June 20] were taken to traverse the twenty miles between the head of the Leona and the head of Turkey Creek. The route taken probably followed the present course of the railroad to the neighborhood of present Obi Hill, and then followed the route later taken by the Uvalde-Cline-Brackett road. Camp was probably made near present Asphalt Mountain, at the head of Turkey Creek, in western Uvalde County. A spring made the head of Turkey Creek, and its water was of the purest and most beautiful description. Here heavy rains, especially on the 22nd and 24th of June, made the roads difficult; and the progress of the train was stopped for nine days (June 21-29).

From now on the route taken very closely anticipated the course of present U. S. Highway No. 90, between Cline and Brackettville. On the morning of June 29, a march of thirteen miles brought Wright's company to the bed of Arenosa Creek ["Live Oak Creek"]; and three miles farther on, Elm Creek. Wright's collections from these two creeks are dated June 29 and 30. Seven miles beyond Elm Creek the road headed the beautiful Las Moras Springs, much resorted to by the Indians, who identified their position at a distance of many miles from the springs by the prominent conical mound (Las Moras Mountain) that lies to the northeast at a distance of five miles. These springs lie in present Brackettville. They break out of the Eagle Ford Shale in large pools, and give rise to Las Moras Creek, which flows into the Rio Grande. Here the train camped for two days (June 1-2).

From Brackettville, on June 3, the company set out for the springs at the head of the San Felipe. After seven miles' travel, over very dry and uninteresting country, they crossed Pinto Creek ["Piedra Pinta" or "Piedras Puitados"], at the crossing, a stream about ten feet wide and three deep, with a limestone bottom and very boggy banks

made crossing extremely difficult. Here they camped for the night.

The next day [July 4], nine miles further on, the road crossed Mud Creek ["Zoquete", "Zacate"], a small stream more like a mud-hole in the prairie. Collections of new species were made here, and in the neighborhood of Sycamore Creek ["Arroyo Pedro"] from the 4th to 6th of July. Sycamore Creek, at the crossing, was rapidly-flowing stream of limpid water, with a stony bed and banks that were lined with groves of oak trees. For nine miles beyond Sycamore Creek until the San Felipe was reached, the soil was stony and barren, with a growth of cactus and chaparral.

Wright's party reached the San Felipe Springs and Creek, [near present Del Rio] on July 7. Here they remained two weeks, waiting for the advance party under Major Van Horn and Lt.-Colonel Johnston to survey and break out a road across the Devils River, and by way of Sell's Creek to the highland between the Devils and Pecos Rivers in Valverde County. [This work was very arduous, since west of San Felipe Spring, as the Devils River was approached, the country became more elevated, with correspondingly deeper arroyos and watercourses. The Devils River flowed through a deep cañon, and the descent to the river was through tortuous ravines which required great labor to make them passable.] Camp was made about a half-mile below the beautiful San Felipe Spring, near present Del Rio. This beautiful spring, fifty feet in diameter at the surface and twenty-eight feet deep at the center, bursts forth out of the Fort Worth Limestone [Cretaceous] in a flow of greenish-blue water that averages 75,000,000 gallons per day—enough for a city of three-quarters of a million inhabitants. The off-flow of this, with that of other springs, forms San Felipe Creek, which flows into the Rio Grande, five miles to the South.

On the 22nd of July, the wagon-train left San Felipe Spring for the Devils River, eleven miles away. This river was crossed at a ford near the point where Sells Creek enters the river from the west. The road ascended the tableland beyond the Devils River by the arroyo of Sells

Creek; and the company camped for the night of July 22, at a spring two-and-a-half miles from the mouth of the creek. From now on, until the wagon-train left the valley of the Devils River at Johnson's Draw, progress was slow, averaging only six miles a day. The route taken by the train fairly closely approximated, north of present Comstock, that of the present Comstock-Ozona highway. They approached the Devils River, and crossed to the left bank at a point about three miles south of the Thirtieth Parallel; and between that point and present Juno subsequently crossed and recrossed the Devils River. Prairie dogs, which had been encountered several times since leaving San Antonio, were especially abundant on the Devils River, along with javelinas [a species of peccary].

At the "summer head" of the Devils River, about a mile below present Juno, the party [August 2] turned up Johnson's Draw and followed a westerly and northerly course by the [present] Juno-Ozona road. This present route was left by the train about seven miles north of the Valverde-Crockett County line. Here they struck off on a westerly course, up a ravine, from Johnson's Draw; and, descending by means of another ravine opening into Howard's Creek, they crossed the latter at Howard's Springs. These springs, distant forty-one miles from the Devils River, furnished the only constant water source between Devils River and Live-Oak Creek on the Pecos.

On the day that Wright's train left the Devils River, he fell ill with malaria, and was completely incapacitated for any work until the Pecos had been crossed, and for some distance beyond. As the expedition took it, the distance between the Devils River and the Pecos was eighty-one miles. The region between the two rivers had an abundant and rich flora; and it was unfortunate that Wright could not have explored that region. Beale (1858, 20), taking the same route eight years later, says [July 8]; "The rain has brought the grass forward wonderfully, and with it an abundance of beautiful flowers, so that the prairie for the past few days has been filled with perfume and richly colored flowers, which would have been no disgrace to the most costly greenhouse." And later, in writing of the de-

scent to Live-Oak Creek, a few miles from Fort Lancaster, Beale says [p. 22]: "Just before descending into the valley of [Live Oak Creek] we came to a very steep, rocky hill, overlooking a valley of great beauty and graceful shape. The sides of the hill were covered with the most brilliant verdure and flowers." Peccaries were very abundant along Live-Oak Creek and along the Pecos. The Pecos was reached August 12; and during the passage up that stream [August 12-16] to a point approximately 35 miles below Horsehead Crossing, and near the present point Iraan, a number of collections were made. [Coll. nos. 805-843.]

Leaving the Pecos [August 16], the road lay in a westerly direction over a plain margined with broken ridges. Twelve miles from the river, the road turned over a gentle hill, and, at a distance of 18-20 miles from the Pecos, entered the valley of an intermittent creek, called, in Wright's day, "Escondido Creek", but now known as Mule Creek. Eight miles further along a good road to Comanche Spring [28 miles distant] they came upon Escondido Springs, and here Wright made some scanty collections [No. 849]. The Trans-Pecos plains had a typically desert-appearance, with dwarfed and xerophytic vegetation. The general trend was westerly, over a good road of 19.5 miles to Comanche Spring [present Fort Stockton]. Here they camped [August 19]; and (on August 20) at Leon Springs, ten miles further along the trail. On the twenty-first of August, Wright's party went into camp somewhere not far from present Barilla Spring, forty miles or so west of Leon Springs, at the opening of the wide valley down which the Limpia Creek intermittently flows to join a north-flowing tributary of the Pecos. At this point a considerable number of plant-species were collected. The stream-bed of the Limpia was struck fifteen miles up the valley, on the 21st of August; and Wright's company ascended this stream until they reached the Cañon and Pass of the Limpia ["Wild Rose Pass"] in the Davis Mountains. Through this lovely pass—one of the most picturesque and beautiful in Texas—the company journeyed from the 24th to the 26th of August. Here Wright collected a number of new species of plants. On the 26th of August the train left the Limpia

Pass, and during the next two days passed an immense prairie-dog town as they skirted the southern edge of the Davis Mountains, on their way from the Limpia to the Van Horn Flats. [Aug. 26-28.] They followed the Van Horn trough up the Chispa or Wildhorse Creek as far as the Van Horn Wells, in present Culberson County. The Tierra Vieja and Van Horn Mountains lay close at hand on their left on the way up. Beyond Van Horn Wells [which they found a pool of water of fair quality] the road taken roughly paralleled the present course of the Southern Pacific Railway around the northern end of Van Horn Mountains, until Eagle Mountain, with Eagle Spring, was passed. From this point, the road bore to the left between Eagle Mountain and Devil Ridge, crossing the present Quitman Arroyo. About twenty-three miles from Eagle Spring, the road entered a deep, rugged cañon in the Quitman Mountains by which, after a course of eight or nine miles, the train entered [September 3] upon the valley of the Rio Grande, opposite present Las Banderas, Mexico. From this point, the course led up the valley of the Rio Grande to El Paso, which was reached the twelfth of the month. The distance from San Antonio to El Paso was six-hundred and seventy-three miles, and the trip had taken one hundred and five days.

AN INCOMPLETE LIST OF THE NEW SPECIES COLLECTED WITH TYPE-LOCALITIES

Banks of the Medina River, June 1, 1849 (Castroville.)

Collection-numbers 322-26; 330-32; 334-35. *Dalea lasiathera* ("Prairies west of San Antonio"); *Acacia Wrightii* Bentham [all n. s. are by Asa Gray unless otherwise indicated]; *Nesaea longipes* (Medina River. "Extends to Zacate Creek").

Banks of the Hondo Creek, June 4, 1849

Collection-numbers 327-29; 333; 336. No new species.

On the Seco, June 5, 1849

Collection-numbers 337-347, "*Acacia tephroloba*, n. s." = *Acacia berlandieri* Benth; "*Conolinum dissectum*, n. s." = *Eupatorium Greggii* (Gray); *Perezia Wrightii* ("On the Rio Seco and Westward.")

On the Sabinal and Blanco River ["Turkey Creek"], June 6, 1849

Collection-numbers 345-355. *Rhynchosia texana angustifolia* n. var. ("Prairies of Sabinal and Turkey Creek.")

On the Frio, June 6-7, 1849

Collection-numbers 356-399. *Polygala ovatifolia* ("Rio Frio to San Felipe".)

On the Leona, June 8-18, 1849

Collection-numbers 400-461. *Acacia malacophylla* Benth., n. s. ("Uplands of the Leona, June."—two miles north of Uvalde-town.)

Nueces River and Vicinity, June 19-20, 1849

Collection-numbers 462-483; 490. *Leucaena retusa* Benth n. s. ("Bottom of Rio Nueces").

Hibiscus cardiophyllus ("Rocky hillside, Turkey Creek"); *Oxalis dicbondaerfolia* ("Turkey Creek to the prairies of the San Felipe"); 484-89; 491-549.

Arenosa ["Live-Oak"] and Elm Creeks, June 29-30, 1849

Krameria ramosissima ("Prairies of Live Oak Creek, June"); *Sida longipes* (Prairies of Live Oak Creek, June"); *Houstonia acerosa* (Gray) ("High Prairies, from Live Oak Creek to Las Moras, June"). 550-70.

**Las Moras Spring and Creek; Headwaters of Pinto Creek ["Piedra Pinta"], Mud Creek, ["Zoquete Creek"], and Sycamore Creek ["San Pedro"], to San Felipe Spring;
July 1-6, 1849**

Calliandra conferta Benth., n. s. ("Zoquete Creek") *Nesaea longipes* ("Zoquete Creek"—first coll. on the Medina.) 571-608.

San Felipe Spring and Creek, July 7-21, 1849

Greggia camporum ("Hills at head of the San Felipe"); *Polygala macrodenia* ("Hills at head of San Felipe"); *Abutilon parvulum* ("Hills at head of the San Felipe"); *Schafferia cuneifolia* ("High prairies on the San Felipe"); *Mortonia sempervirens* ("Calcareous hills along the San Felipe"); *Condalia spatbulata* (Prairies of the San Felipe"); *Hoffmanseggia oxycarpa* Benth., n. s. ("Calcareous hills and high prairies"); *Acacia constricta* Benth., n. s. ("Prairies near source of the San Felipe"); *Calliandra conferta* Benth., n. s. ("Hills at head of San Felipe") [first found at Mud Creek]; 609-696.

**Between San Felipe Creek and Devils River; and along the latter;
July 22-August 2, 1849**

Amoreuxia Wrightii ("Prairies of the San Pedro [Devils] River, July"); *Hibiscus Coulteri* ("High hills of the San Pedro River, July"); *Dalea argyrea* ("High hills near the San Pedro River, July"); *Sedum Wrightii* ("Hills near the San Pedro River"); *Thebesperma longipes* ("Hills and banks of the San Pedro, July"); *Laphamia halimifolia* ("Crevice of rocks, on summits of hills" of the Devils River); *Porophyllum scoparium* ("Rock banks of Devils River, July"); 697-806.

Valley of the Pecos, between the Live Oak Creek Crossing and a point near Iraann 36 miles above. August 13-14, 1849

Krameria canescens ("Prairies near the Pecos"); *Hoffmanseggia densiflora* Benth., n. s. ("Valley of the Pecos"); 805-816.

Between the Pecos and Mule ["Escondido"] Creek, August 15-16 1849

Sphaeralcea bastulata ("Prairies beyond the Pecos"; *Oenothera Greggii pubescens* n. var. ("Dry hills beyond the Pecos"); *Oenothera tubicola* ("Prairies beyond the Pecos"); *Zinnia anomala* ("Prairies beyond the Pecos"); 817-843.

**From Escondido Spring to the vicinity of Barilla Spring,
August 18-21, 1849**

Sida lepidota sagittaeifolia n. var. [near Barilla Spring]; *Dalea lachnostachys*; *Dalea Wrightii* [both near Barilla Spring]; 851-860.

Valley of the Limpia, August 21, 1849

Polygala puberula ("Valley of the Limpia"); *Dalea lasiathera* [first found on prairies west of San Antonio]; *Galactia Wrightii* (Hills near the Limpia"); *Baccharis Wrightii* ("Valley of the Limpia"); 861-886.

Along the Stream Bed of the Limpia, August 22-24, 1849

Eryngium Wrightii. 887-970.

Canyon and Pass of the Limpia, August 24-26, 1849

Thelypodium Wrightii ("Pass of the Limpia"); *Sisymbrium diffusum* ("Pass of the Limpia"); *Leucanaena retusa* Benth., n. s. ("Pass of the Limpia"); *Acacia constricta* Benth., n. s. ("Pass of the Limpia"); *Galium Wrightii* ("Pass of the Limpia"); *Galium microphyllum* ("Mountains at the Pass of the Limpia, August; and in the Pass of the Limpia"); *Hymenatherum polychaetum* ("Prairies at the Pass of the Limpia"); *Laphamia rupestris* ("Pass of the Limpia"); 971-1014.

Davis Mountains, beyond Limpia Pass, August 26-28, 1849

Peteria Scoparia ("Mountain valleys beyond Pass of Limpia, August"); *Hoffmansi-eggia stricta demissa* n. var. ("Mountain valleys west of the Limpia, August"); *Mimosa flexuosa* Benth., n. s. ("Mountain valleys beyond Limpia, August"); *Mimosa dasycarpa* Benth., n. s. ("Mountains west of Limpia Pass, August"); *Cotyledon strictiflora* (Gray) ("West of the Pass of the Limpia"); *Eupatorium solidaginifolium* ("Mountains beyond the Limpia, August"); *Brickellia parvula* ("Mountains beyond the Pass of Limpia, August"); *Hieracium Rusbyi Wrightii* n. var. ("Hills between Limpia and Rio Grande, August"); 1015-1058.

Near the Tierra Vieja and Van Horn Mountains, August 29-30, 1849

Janusia Gracilis ("Mountains east of El Paso, August"); *Iva dealbata* ("In mountain valley, between Limpia and Rio Grande, September"); *Zeximia brevifolia* ("Rocky banks of mountain stream between Limpia and Rio Grande"); 1059-1093.

Eagle Mountains, September 1-2, 1849

No new species. 1094-1106.

Quitman Mountains, September 2-3, 1849

Talinopsis frutescens ("Mountain valleys 17 miles east of Rio Grande, September"). 1101-1121.

From entrance into Rio Grande Valley; up the river to El Paso, September 4-12 1849 [81 miles]

Sisymbrium auriculatum ("Valleys of a stream about ten miles below El Paso"); *Bigelovia coronipifolia* ("Along the Rio Grande, September"); *Bigelovia Wrightii* ("Valley of the Rio Grande, 60 or 70 miles below El Paso"); 1122-1227.

The list of new species is compiled from the *PLANTAE WRIGHTIANAE* of Asa Gray; and the numbers are copied from Charles Wright's Manuscript *Field List* of his 1849 expedition, which is preserved in the Gray Herbarium at Cambridge.

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