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Herbarium of Franklin and Marshall College,

LANCASTER, PA.

No. I.

BOTANICAL EXPLORATIONS

IN

SOUTHERN TEXAS

DURING

THE SEASON OF 1894.

By A. A. HELLER.

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Perfect copy - J. J. F.

INTRODUCTION.

THE State of Texas, an empire in itself, comprising one-twelfth of the area of the United States, with great diversity of soil and climate, must necessarily present a corresponding diversity in plant life. When all of its immense area is thoroughly explored, it will undoubtedly yield as many or perhaps more species than are contained within the limits of Gray's Manual.

As is stated in the Introduction to the Botany of the Mexican Boundary Survey, a line drawn from the Pan Handle southeast to the vicinity of Corpus Christi, divides the State into two unequal portions. The smaller eastern part is well watered as a whole, and gives rise to more luxuriant vegetation than the other, where rain is uncertain and often scanty. The flora of this eastern section, at least in its northern and eastern portions, has many species in common with the adjacent States of Louisiana and Arkansas and the Indian Territory.

The larger southern and western division, in many places a veritable desert, contains many peculiar plants, found only within its limits, especially in the central portions, in the limestone foothills, and in the mountains of the extreme western part. Along the southern border, the species are essentially Mexican, intermingling in the mountain region with more northern forms found in the mountains of New Mexico, and with characteristic Texan plants.

Undoubtedly the best part of the State botanically, and also the least known, is the extreme southern portion, from Corpus Christi west to Laredo and south to Brownsville. In the Mexican Boundary Survey, the statement is made that "the botany of this region is too well known from various published accounts to require further details in this place."

Nevertheless, the fact remains that practically we know nothing of what it contains. The bulk of Neally's new species were collected between Brazos Santiago and Rio Grande City. Between the latter place and Laredo I find no mention of plants ever having been collected. The rough character of the country, its inaccessibility, dryness, and the great expense to be incurred in properly working it up, are formidable barriers to an individual explorer.

Corpus Christi Bay and the lower Nueces may be considered the northern boundary of this interesting tract of country. The vegetation so characteristic of a dry country is very marked, nearly everything being armed with thorns or spines. At Corpus Christi, where in all, eight

weeks were spent, one can form a very good idea of what the country between there and the Rio Grande is like. The lower, or business portion of the town, is built where once the waters of the bay rolled. This low portion ends rather abruptly on the south side, where the bluff rises precipitately to a height of thirty or forty feet. It gradually becomes broader, until its northern portion is about two miles wide. The bulk of this width, though, is an arm which juts out, forming the division between Corpus Christi Bay and Nueces Bay. Its extreme northern portion is low and flat, marshy near the water, and at times of unusually high water, overflowed. The plants which occur on these "Flats" are those which are usually found in saline soil, such as *Batis maritima*, *Suaeda suffrutescens*, etc. Here the ascent to the plateau is less abrupt, and the plateau itself lower. Much of this low land, at least near the beach, is composed of a shell deposit, instead of sand. One can dig into it for a distance of several feet without meeting with anything else.

Corpus Christi Bay is very shallow, the maximum depth being seventeen feet, but the average is hardly ten. Nueces Bay is still shallower and full of quicksand. I am told that long ago Spanish ships of the largest size were accustomed to cast anchor where now a boat with a draught of three or four feet would run aground. At present the only deep water inlet is Aransas Pass, at the upper end of Mustang Island. It seems, therefore, that a gradual elevation of the land is slowly going on.

The plateau is level, cut here and there near the shore by arroyos, or ravines. Near these the ground is full of holes, which gradually become larger, until finally they cave in, forming side branches. The soil is very rich, and is called "black land," or "black waxy land." When wet by rain it becomes exceedingly sticky, great clods of it clinging to one's shoes, so that walking becomes extremely tiresome. It is covered with sod, and under favorable conditions would be a splendid agricultural country; but lack of rain makes the raising of crops uncertain, and during the past year many cattle perished from starvation.

Until last April, there had not been a good rain for over four years, nothing but light showers at intervals, and these scarcely sufficed to moisten the ground. Early in April there were two or three heavy rainstorms, but storms of this kind occurring at long intervals do very little good and often much damage.

During the spring months there is a great deal of cloudy weather, and in the coast region, one would expect to have an abundance of rain. The strong trade winds which blow almost continually at that time probably carry the clouds away before they have had time to deposit their moisture.

The features so characteristic of the Atlantic coast region are here entirely wanting. Swamps are conspicuous by their absence, as likewise are trees, which are found only along the upper end of Nueces Bay. Occasionally *Prosopis juliflora*, the Mesquite, becomes large enough to be called a tree, but even then is low and spreading. Indeed, low and spreading, stunted-looking trees are the rule, as the tall graceful forms of a more northern climate do not find a place here; but bushes of various kinds are abundant, forming the dense and usually impenetrable chaparral. This chaparral is a very deluding thing, too. One ventures into it by way of one of its lanes, which here and there sends off side branches, imagining that by one of them he will find an exit, only at last to discover that the way is completely blocked by a solid mass of bushes. Getting lost in a place of this sort would be a very serious matter.

Many species of smaller plants are found only under the chaparral. They have either betaken themselves to these places of safety for self-protection, or are the remnant of a flora which once thickly dotted the open places.

When grass is scarce the cattle become omniverous, devouring anything that they can chew, whether it be good, bad or indifferent; but into the thorny wilderness they cannot penetrate. The collector, in order to be successful in obtaining good specimens from these places, should possess a great amount of patience, go prepared to cut down the bushes, and if he is inclined to profanity will probably exhaust his vocabulary before finishing the job.

Nine miles southeast of Corpus Christi is the Oso, a salt water lake, three or four miles in diameter, connected with the bay by two inlets about fifteen feet wide, and distant from each other about a mile. On all maps which I have seen, the Oso is marked as an arm of the bay instead of being separated from it by a strip of land, which at the "Blind Oso," its narrowest part, is about 150 yards wide at times of unusually high water. Beyond this narrow strip of dry sand, is a mud flat, a half mile wide, before the waters of the Oso are reached. At other places the strip of land separating the two bodies of water is much wider, being almost a mile on the south side of the Blind Oso.

Between the Oso and the Lagoon de Madre is a strip of slightly elevated sandy land, about three miles wide, called Flower Bluff, the principal growth of which is the live oak, reduced to a scrubby bush, from three to eight feet high. Several truck farms are located on it, and although there is more moisture here than at Corpus Christi the vegetables produced are often of an inferior quality.

In all, eight weeks were spent at Corpus Christi, from March 3d to

April 17th, and from May 28th to June 9th. The part explored was a narrow strip along the shore, from the mouth of the Nueces River to Flower Bluff, a distance of twenty-five miles. One day was spent in San Patricio county, across the bay from Corpus Christi. Away from the immediate vicinity of the bay the country is too inaccessible on account of the chapparal, and does not contain enough moisture to make good collecting ground, although it might if there were not several head of cattle to every plant which ventures above ground.

The bulk of the collecting was done in and about the town. Two trips were made to the mouth of the Nueces along Nueces Bay, two to the Oso, and one to Flower Bluff.

When I arrived there early in March, plants were plentiful and blooming profusely after the slight winter rains. During the last week of March a "norther" came down, followed by another in a few days, when, as if by magic, the plants began to droop, the flowers to disappear, and on some of the pasture land scarcely a sprig of green could be seen—nothing but the brown, bare earth.

The most prominent herbaceous plants on the plateau in early spring were *Lesquerella Gordoni* and a species of *Oenothera* as lately received, apparently close to *O. primiveris*. Of shrubs, the most common were *Prosopis juliflora*, *Castela Nicholsoni*, *Celtis pallida*, *Zizyphus obtusifolia*, *Acacia amentacea*, *A. tortuosa* and *Colubrina Texensis*.

On April 17th I moved to Kerrville, 71 miles northwest of San Antonio, and about 280 from Corpus Christi. It is a small town of perhaps 1000 inhabitants, situated on the headwaters of the Guadalupe, at an elevation of 1650 feet above sea level, and is one of the health resorts of Texas. It is situated in a limestone formation and surrounded by hills, the highest of which are about 2000 feet above sea level. Occasionally one of these hills is isolated and cone-shaped, like the buttes of the Bad Lands in the Dakotas. They are likewise terraced, a wall of rock two or three feet high completely encircling the hill; above this a bench of earth, then another rock wall, and so on to the summit, the intervals between the benches becoming less as one ascends.

At the northwestern end of the town, the Guadalupe receives a small tributary called Town Creek. My explorations here were confined to the immediate vicinity of Kerrville, along the banks of the Guadalupe for a distance of about two miles, along the banks of Town Creek for about a mile, and the surrounding hills, principally those on the left bank of the river, and at a distance of about a mile from the town. One day was spent along Bear Creek, in the extreme northeastern part of the county, one trip made to a point on Wolf Creek, about fourteen miles north of

Kerrville, and one trip up Town Creek for a distance of about seven miles.

For at least twenty-five miles on all sides, and for many more in some directions, the same limestone formation prevails, and plant life appears to be pretty uniform throughout. Having found by experience that long trips yielded practically the same things which I could find within a radius of a mile from Kerrville, I directed my attention to thoroughly exploring a small area, dividing the time so that each particular place was visited once a week.

The steep, stony, left bank of the river for a distance of about one-fourth of a mile took up at least two days of the week, Town Creek one or two, and the hills the balance of time. To the best of my knowledge, horehound, which is abundant about the streets, and a species of Juniper occasionally met with along Town Creek, are the only plants found in flower or fruit between the middle of April and the first of July that I did not collect.

The characteristic plants of the limestone region in Kerr county are many. In fact the bulk of the species are plentiful over the whole area at certain elevations. At no place is there a greater range of more than 400 feet between the lowest and the highest elevations, yet a number of species growing abundantly on all the hilltops are not found at the lowest elevations, and some of them only on the summits. *Acacia Roemeriana*, *Coreopsis Drummondii*, *Thelesperma filifolium*, *Bifora Americana*, and *Brazoria scutellarioides* are examples of the hilltop flora. A few of those found at both the highest and lowest elevations are *Lesquerella recurvata*, *Kuhnistera pulcherrima*, *Cassia Roemeriana* and *Erigeron longifolium*. Along streams, the dwarf walnut, *Juglans rupestris*, is very plentiful.

Three trips were made to San Antonio, with very satisfactory results, the rich, moist ground along the river banks always producing an abundance of plants.

In all, 573 numbers were collected, only a few of them being duplicated. Of these, 39 were collected at San Antonio, 4 at Kenedy, Carnes county, 8 at Waco, McLennan county, 248 about Corpus Christi, and 299 about Kerrville.

The orders represented by the largest number of species are Compositae and grasses, of which some 60 species each were collected. Texas is very prolific in grasses, but they grow in scattered clumps or as solitary plants, rarely forming a sward, as they do further north. The Leguminosae are represented by over 50 species, many of which are

very plentiful. Next come Euphorbiaceae with about 25 species, Labiatae with 20, and Umbelliferae and Cruciferae with 12 or 15.

As before mentioned, Corpus Christi Bay and the lower Nueces may be considered the northern boundary of a flora peculiar to southern Texas. Within the limits of this, six of my eleven new species were collected, and a number of rare ones re-discovered.

Between this and the more elevated limestone district, is a tract 200 miles wide at some places, which appears to have a flora more or less distinct from the other two sections, although many species common to both are found within its limits. My knowledge of this central tract was obtained principally from observations made along the railroad while traveling. Here the Mesquite is much more abundant than in the southern section, while in the limestone region proper it seems to be entirely wanting.

At San Antonio, or rather a few miles west, the limestone formation and hilly ground begins, with a distinct and sharply marked flora, the Mesquite and other plants so common and rather monotonous suddenly giving place to groups of *Sapindus*, *Monarda citriodora*, etc.

My thanks are due to Mr. Frederick V. Coville, Government Botanist, who kindly gave me the opportunity of making my determinations at the U. S. National Herbarium, and determined the *Junci*; to Mr. J. N. Rose, who determined the Umbelliferae; to Prof. F. Lamson Scribner, for the determination of the grasses; to Dr. N. L. Britton, for the use of the botanical library of Columbia College and of the herbarium while making corrections and final determinations; to Mr. John K. Small, for the determination of the Polygonums and Rumex; to Dr. Thos. C. Porter, for the determination of 100 of the first numbers, and to Mr. M. S. Bebb, for the determination of the willows. Without the aid of these gentlemen, it would have been impossible to produce the present work.

In the matter of citations of publication, it is to be regretted that in perhaps a dozen cases the date could not be obtained. Certain numbers of the *Botanical Magazine* and *Botanical Register* could not be consulted, as well as several other works.

Apology must be made for the unnecessary omission of many type localities. The first part of the enumeration was prepared before I had access to the original descriptions, and later this omission was overlooked.

The last line in the paragraphs under the enumeration and descriptions of species refers to the date of collection and the number of the plant, the latter in parenthesis, as "May 26 (1781)."

ENUMERATION

SP

ADIANTUM

Adiantum Capillus-Veneris

On a dripping limestone bluff at Kerrville, where it was plentiful. Altitude 1625 feet. The only growth.

July 2 (1939).

DRYOPTERIS

Dryopteris patens (Swartz)

Aspidium patens Swartz, i

On the banks of the San Antonio River at Kerrville, altitude 600 feet. Only a few plants were collected. June 9, (1835); type locality.

CON

TAXODIUM (L.) L. C.

Taxodium distichum (L.) (1810).

Cupressus disticha L. Sp.

A number of fine large trees at altitude 1600 feet. No "knees" found growing on the dry banks. Unfortunately not collected, were the April 19 and June 20 (1620).

BROMELIACEAE.

TILLANDSIA L. Sp. Pl. 286 (1753).*

Tillandsia recurvata L. Sp. Pl. Ed. 2, 410 (1762).

Collected on chaparral at Corpus Christi, where it is found occasionally. Near the mouth of the Nueces it is quite plentiful on trees, *Quercus*, *Celtis*, etc. Also observed on live oaks between Corpus Christi and Kenedy, and on trees at Kerrville, on the upper Guadalupe. Usually grows in ball-like masses.

March 6 (1400); type locality, Jamaica.

COMMELINACEAE.

COMMELINA L. Sp. Pl. 40 (1753).

Commelina Virginiana L. Sp. Pl. Ed. 2, 61 (1762).

Commelina angustifolia Michx. Fl. Bor. Am. 1: 24 (1803).

In sandy, cultivated fields at the Oso; flowers greenish blue. Seen also at Corpus Christi and Kerrville.

April 12 (1555).

TRADESCANTIA L. Sp. Pl. 288 (1753).

Tradescantia micrantha Torr. Mex. Bound. Surv. 2: 224 (1859).

Near the Oso, Nueces county, growing among clumps of low tangled bushes, altitude 25 feet. Owing to the difficulty in collecting it, only a few specimens were obtained, although it is rather plentiful. The flowers are small, rose color, apparently open only in the forenoon. The specimens were collected between 9 and 10 A. M., but when I returned in the afternoon not a single open flower could be seen.

April 12 (1564); type locality, near the mouth of the Rio Grande.

Tradescantia

On the plateau above Corpus Christi Bay, a short distance southeast of the town, altitude 40 feet, growing among chaparral, in rich black land. Flowers comparatively small, pale pink. This seems to be *Tradescantia leiandra* var. *brevifolia* Torr., and the var. (?) *ovata* of Coulter. It is certainly specifically distinct from *leiandra*, but the "caule

* *T. usneoides* L. reported in the Manual of Western Texas as occurring in Southern Texas, but not north of the mouth of the Pecos, was seen in abundance along the San Antonio and Aransas Pass R. R. quite a distance north of the Colorado. At the crossing of the Colorado it is found in great profusion.

the Guadalupe at Kerrville, altitude
s, usually prostrate, but some of the
table in size, the stems ranging from

Fl. Bor. Am. 1: 37 (1803).

S. Hitchcock, 4th Rept. Mo. Bot.

43 (1753).

ar. 71 (1788).

hx. Fl. Bor. Am. 1: 37 (1803).

1, Bull. Torr. Club. 15: 100 (1888).

anks of the Guadalupe at Kerrville,
feet.

I. Wright.

aces on the left bank of the Gandalupe,

Abundant at this one station, but not
ne has prevented the obtaining of the

tr. et Ic. 70, t. 19, f. 3 (1773).

2: 384 (1806).

Ann. Lyc. N. Y. 2: 252 (1828), not

istatula Torr. Ann. Lyc. N. Y. 3: 291

of the Guadalupe, at Kerrville. Plants
s; altitude 1600 feet.

and Nat. Hist. Jam. 114 (1756).

Lyc. N. Y. 3: 374 (1836).

of the Guadalupe at Kerrville, but not

LILIACEAE.

ALLIUM L. Sp. Pl. 294 (1753).

Allium mutabile Michx. Fl. Bor. Am. 1: 195 (1803).

In rich stony limestone soil along Bear Creek, Kerr county, altitude 1900 feet. Scape rather stout, flowers white.

April 30 (1684).

Allium Nuttallii S. Wats. Proc. Am. Acad. 14: 227 (1879).

Abundant in stony limestone ground about Kerrville, usually near bushes, altitude 1600-1800 feet. Found at the lowest elevations along the Guadalupe and on hillsides. Flowers rose color.

April 26 (1659).

NOTHOSCORDUM Kunth, Enum. 4: 457 (1843).

Nothoscordum ornithogaloides (Walt.) Kunth, 4: 460 (1843).

Allium ornithogaloides Walt. Fl. Car. 121 (1788).

Allium striatum Jacq. Coll. Suppl. 51 (1796).

Nothoscordum striatum Kunth, Enum. 4: 459 (1843).

Common, but scattered, in low dry ground at Corpus Christi and surrounding country. Seen also at Kerrville.

March 10 (1397); type locality, Carolina.

YUCCA L. Sp. Pl. 319 (1753).

Yucca glauca stricta (Sims) Trelease, Fourth Ann. Rep. Mo. Bot. Gard. 206 (1893).

Yucca stricta Sims, Bot. Mag. t. 2222 (1821).

Yucca angustifolia var. *mollis* Engelm. Trans. St. Louis Acad. 3: 50 (1873).

At two stations near Kerrville, on Town Creek, altitude 1650 feet. A low plant 15 inches to 3 feet high; leaves short, sparingly filamentous; scape rather densely flowered; flowers greenish white, tinged slightly with dull purple, especially on the outside. It had all the appearance of an introduced plant, growing only in cultivated fields.

May 3 (1689); type locality, Carolina.

Yucca rupicola Scheele, Linnaea, 23: 143 (1850).

On stony limestone hilltops near Kerrville, not common, altitude 1900 feet. The flowers on all the plants noticed were pure white, not greenish-white. Not seen in fruit.

May 21 (1775); type locality, New Braunfels.

es not fit, as this plant is ascending.
ley, Proc. Acad. Phila. 4 (1862),
isti.

n. Gartenzeit. 7: 365 (1839).

e.
ex. Bound. Surv. 2: 225 (1859).
k and along the Guadalupe at Kerr-
ect, but weak, one to two feet high;

stin and San Antonio.

ACEAE.

1. 325 (1753).

oc. Acad. Phila. 1862, 8 (1859).

n Engelm. Trans. St. Louis Acad. 2:

thin deposit of mud on the right bank
et. Plants scattered and not plentiful.
of this rather rare *Juncus*. "Appar-
thern portion of the State."—Man. of

Doville, Proc. Biol. Soc. Wash. 8: 124

Corpus Christi, near the "Arroyo," alti-
tude 1600 feet. The roots were so inter-
locking that a slight pull brought
up a layer of mud, laying bare the rocks.

Engelm. Trans. St. Louis Acad. 2: 471

umps in mud on the left bank of the
: 1600 feet. The roots were so inter-
locking that a slight pull brought
up a layer of mud, laying bare the rocks.

: 214 (1799).

ed mixed with *J. filipendulus*. Appar-
ently, as no others were seen.

Yucca Treculeana Carr. Rev. Hort. 7: 280 (1858).

Individual plants 6-10 feet high; occasional in the chapparal about Corpus Christi. Leaves dark green, sparingly filamentous near the base. A species of light brown wasp flies, and bugs were observed on and in the flowers. Through carelessness, the leaves became spoiled and unfit for specimens.

DASYLIRION Zucc. in Otto & Dietr. Allg. Gartenz. 6: 258 (1838).

Dasylirion Texanum Scheele, Linnaea, 23: 140 (1850).

A single plant found in bloom near the summit of a conical terraced hill at Kerrville, altitude 1900 feet.

June 30 (1929); type locality, New Braunfels.

SCHOENOCAULON A. Gray, Ann. Lyc. Nat. Hist. N. Y. 4: 127 (1837).

Schoenocaulon Texanum Scheele, 25: 262 (1852).

Schoenocaulon Drummondii A. Gray, Bot. Beechy, 388 (1841), name only.

Very common on the dry limestone hills about Kerrville, ranging from the lowest elevations along the Guadalupe and Town Creek to near the summits of the hills, 1600-1900 feet.

April 25 (1926); type locality, New Braunfels.

SMILACEAE.

SMILAX L. Sp. Pl. 1028 (1753).

Smilax Bona-Nox L. Sp. Pl. 1030 (1753).

Smilax tamnoides A. Gray, Man. 485 (1848), not L.

Climbing over bushes along Town Creek, altitude 1650 feet.

April 28 (1974).

Smilax rotundifolia L. Sp. Pl. 1030 (1753).

Smilax caduca L. Sp. Pl. 1030 (1753).

Climbing high over bushes and trees along Bear Creek, Kerr county, altitude 1800 feet.

April 30 (1979).

AMARYLLIDACEAE.

COOPERIA Herb. Bot. Reg. 7: 2835 (1836).

Cooperia Drummondii Herb. Bot. Reg. 7: 2835 (1836).

In dry open ground at Corpus Christi, altitude 10 feet. Flowers

white, tinged with
along the Guadalupe

June 6 (1826).

Cooperia pedunculata

On stony slopes
altitude 1625 feet

Drummondii, the

April 19 (1911)

Agave maculata

Common about
specimens noticed
rather crown is small

June 2 (1815).

CALYDORAEAE.

Calydorea Texana

Gelasine? ?

Collected by J. R. ...
found. Scattered
Christi and along
creek, and although
were fit for specimens

March 8 (1900).

SISYRINCHIUM.

Sisyrinchium

Sisyrinchium

Sisyrinchium

Sisyrinchium

Sisyrinchium

In sand near the

April 12 (1852)

ACEAE.

Sp. Pl. 1 (1753).

Antonio at San Antonio. Stems 5-6

copies of both continents.

IDACEAE.

Sp. Pl. 997 (1753).

Antonio near the S. P. bridge, altitude

Rep. Sitgr. Rep. 171, t. 15 (1853).
common in low ground along the

15); type locality, New Mexico.

Rep. (H.) 5: 352 (1808).

L. Ind. 109 (1817).]

en. 2: 221 (1818).]

, Bull. Torr. Club, 15: 282 (1888).

m. 69 (1785).

itr. Holz. Am. 54, t. 18, f. 43 (1787).

. 2: 221 (1818).

P. R. R. at San Antonio, several large
600 feet.

CACEAE.

p. Pl. 1015 (1753).

9 (1785).

tree 25 feet high, along the Guadalupe,

nulosa Andl. Monog. Sal. 22 (1867).*

893), as *S. nigra venulosa*.

Two forms of this willow were collected, one in flower (1643), April 24, about a mile and a half below Kerrville, near the mouth of a tributary of the Guadalupe, which empties from the right bank. The specimens were from a slender bush or clump of bushes about 10 feet high. The leaves are comparatively short and broad in proportion, very white underneath. The other, collected on the right bank of the Guadalupe, about a mile below Kerrville, was a branching bush 10-15 feet high, in fruit (1902), June 22. The leaves are longer and narrower, more like *S. nigra*, light green, shining, and less whitened beneath; altitude 1600 feet.

Type locality, "in Nova Mexico."

FAGACEAE.

QUERCUS L. Sp. Pl. 994 (1753).

Quercus cinerea Michx. Fl. Bor. Am. 197 (1803).

A bush about 7 feet high on the left bank of the Guadalupe, at Kerrville, on a moist limestone ledge. The leaves seem to be deciduous, as there were no signs of old ones. Apparently not recorded from so far south and west, its range given as "sandy barrens, extending from the Gulf States to the valley of the Brazos."

April 19 (1616); type locality, Carolina and Georgia.

Quercus coccinea Wang. Am. 44, t. 4, f. 9 (1789).

Quercus rubra var. β L. Sp. Pl. Ed. 2, 1414 (1763).

Occurring as a small spreading tree along the Guadalupe and its tributaries about Kerrville, altitude 1650 feet.

April 19 (1639).

Quercus Virginiana Mill. Gard. Dict. Ed. 8, No. 16 (1768).

Quercus virens Ait. Hort. Kew. 3: 356 (1789).

Occurring as straggling bushes 6-8 feet high at Flower Bluff, near the Gulf coast, altitude 15 feet.

April 9 (1542).

ULMACEAE.

CELTIS L. Sp. Pl. 1043 (1753).

Celtis occidentalis L. Sp. Pl. 1044 (1753).

A small tree in the region of Corpus Christi, along Nueces Bay, at sea level. At San Antonio it often occurs as a large spreading tree with rough, corky bark and thick coriaceous leaves, whitened beneath.

April 17 (1587); type locality, Virginia.

Pl. 333 (1753).

Torr. Club, 22: 44 (1895). *

[L.]

...n, somewhat glaucescent. Root-
long; roots fibrous; stem erect,
y branched above, leafy through-
channeled, woolly below; leaves
-13 cm. long, 1.5-4.5 cm. broad,
the apex, the lower ones obtuse or
ute or acuminate at the base, all
light-green, undulate and crisped,
ously nerved; petioles strict, 2-5
rly one-half as long as the inter-
mply paniculate, naked; racemes
s, rather erect, the terminal one
al ones; calyx 2 mm. broad;
length, jointed below the middle;
ader than high, 1 cm. long, 1-1.2
mes slightly constricted below the
ntly nerved, crenulate and undu-
g-ovoid callosity, the three wings
broadly oblong-ovoid, 3 mm. long,
its faces nearly flat, its angles con-

e margins of ponds near Kenedy,
Heller, collected in flower and fruit
de of the station is about 400 feet.
nus, from which, however, it differs
iceolate leaves, which are longer-
more or less truncate at the base
of *R. spiralis* is more open, not
thicker. Wings twice to thrice as
readly oblong-ovoid achene. The
trikingly cordate, whereas those of
not strongly cordate and less prom-
d three callosities are developed

Sp. Pl. 359 (1753).

Mart. Fl. Bras. 5: Part 1, 13 (1855).

...s permission.

Collected in mud and water in the San Antonio river, at the S. P.
bridge, in mature fruit, May 3 (1836), 600 feet.

On July 2 it was collected in a similar situation on the Guadalupe, at
Kerrville, in flower only (1942), 1600 feet.

Type locality, "Banda orientale Brasiliae." Type in Columbia
College Herbarium.

Polygonum lapathifolium L. Sp. Pl. 300 (1753).

Polygonum Pennsylvanicum Curt. Fl. Lond. 4: 73 (1777), not L.

At Kerrville, on the edge of the bluff overlooking the Guadalupe, in
wet ground, altitude 1650 feet, growing in a dense clump. Leaves very
resinous beneath; flowers greenish white, dense.

June 12 (1844); type locality, "in Gallia."

CHENOPODIACEAE.

CHENOPODIUM L. Sp. Pl. 218 (1753).

Chenopodium album L. Sp. Pl. 219 (1753).

About the streets of Kerrville, apparently not very abundant. Altitude
1650 feet.

June 30 (1928); type locality, "in agris Europae."

ATRIPLEX L. Sp. Pl. 1052 (1753).

Atriplex

In sandy soil along the beach of Corpus Christi Bay. Seen only in
flower.

June 2 (1819).

SUAEDA Forsk. Fl. Aeg. Arab. 69, t. 186 (1775).

Suaeda suffrutescens S. Wats. Proc. Am. Acad. 9: 88 (1874).

Suaeda fruticosa var. ? *multiflora* Torr. Pac. R. R. Rep. 4: 130
(1857), in part.

Abundant on the "Flats" at Corpus Christi, growing in dense bunches.
Sea level.

June 6 (1827); type locality not given; range, "from western Texas
to southern California and northern Mexico, in saline plains."

AMARANTACEAE.

Amaranthus Berlandieri (Moq.) Uline & Bray, Bot. Gaz. 19: 268
(1904).

Sarratia Berlandieri Moq.; DC. Prodr. 132: 268 (1849).

About Corpus Christi, in both sandy soil and black waxy land, from

sea level to 40 feet, and at Kerrville on the left bank of the Guadalupe, on rocks thinly covered with soil, 1600 feet.

April-June (1487); type locality, Mexico.

Amaranthus blitoides S. Wats. Proc. Am. Acad. 12: 273 (1876).

Very abundant about Kerrville along gutters and in open lots and yards. Altitude, 1650 feet.

June 15 (1867); type locality not given, but "frequent in the valleys and plains of the interior, from Mexico to N. Nevada and Iowa."

Amaranthus Palmeri S. Wats. Proc. Am. Acad. 12: 274 (1876).

On the left bank of the Guadalupe at Kerrville in both shaded and open places but not plentiful. Altitude 1625 feet.

June 19 (1890); type locality, "at Larkin's Station, San Diego county, California."

Amaranthus retroflexus L. Sp. Pl. 991 (1753).

Common in rich ground about the streets of Kerrville, altitude 1650 feet.

May 19 (1765); type locality, "in Pennsylvania."

CLADOTHRIX Nutt.; Moq. in DC. Prodr. 13: Part 2, 359 (1849).

Cladotrix lanuginosa Nutt.; Moq. in DC. Prodr. 13: Part 2, 360 (1849).

Achyranthes lanuginosa Nutt. Trans. Am. Phil. Soc. (II.) 5: 166 (1833-37).

Prostrate in the sand along the beach of Corpus Christi Bay. Much branched and spreading.

June 2 (1813); type locality, "secus Salt River et Red River."

ALTERNANTHERA Forsk. Fl. Aegypt. Arab. 28 (1775).

Alternanthera repens (L.) Kuntze, Rev. Gen. Pl. 540 (1891).

Achyranthes repens L. Sp. Pl. 205 (1753).

Illecebrum Achyrantha L. Sp. Pl. Ed. 2, 299 (1763).

Alternanthera Achyrantha R. Br. Prodr. Fl. Nov. Holl. 1: 417 (1810).

A common weed in yards and open places in rich ground at Kerrville, altitude 1650 feet.

June 15 (1896); type locality, "in Turcomannia."

GOMPHRENA L. Sp. Pl. 224 (1753).

Gomphrena Neallyi Coult. & Fisher, Cont. U. S. Nat. Herb. 2: 363 (1894).

Gomphrena nitida Coulter, Cont. U. S. Nat. Herb. No. 2, 48 (1890), not Rothrock.

Rather plentiful al
branching from the la
or more stems. In M
three inches high, and
altitude, sea level to 4
March 8 (1408); f

IRESINE L.

Iresine vermicular

Gomphrena verm

Illecebrum verm

Philoxerus verm

Growing in dense t
Island, on the west
vermicularis Moq.

May 28 (1784); ty

F

RI

Rivina humilis L.

Growing by and un

March 9 (1422), se
Kerrville.

PHYTO

Phytolacca decand

In rich, shaded gro
ville, altitude 1620 fee
June 19 (1891); ty

BATIS P.

Batis maritima L. S

Growing luxuriantly
the moister portions.

June 6 (1825); type

on the left bank of the Guadalupe,
600 feet.

Mexico.
Proc. Am. Acad. 12: 273 (1876).
along gutters and in open lots and

given, but "frequent in the valleys
from N. Nevada and Iowa."
Proc. Am. Acad. 12: 274 (1876).
at Kerrville in both shaded and open
625 feet.

"at Larkin's Station, San Diego

Pl. 991 (1753).

the streets of Kerrville, altitude 1650

in Pennsylvania."

DC. Prodr. 13: Part 2, 359 (1849).
Moq. in DC. Prodr. 13: Part 2, 360

Trans. Am. Phil. Soc. (II.) 5: 166

each of Corpus Christi Bay. Much

ecus Salt River et Red River."

k. Fl. Aegypt. Arab. 28 (1775).

ize, Rev. Gen. Pl. 540 (1891).

205 (1753).

Pl. Ed. 2, 299 (1763).

. Br. Prodr. Pl. Nov. Holl. 1: 417

in places in rich ground at Kerrville,

in Turcomannia."

. Sp. Pl. 224 (1753).

sher, Cont. U. S. Nat. Herb. 2: 363

for* U. S. Nat. Herb. No. 2, 48

Rather plentiful about Corpus Christi, in dry ground, often freely
branching from the large fusiform root, thus making a clump of a dozen
or more stems. In March it was first found in flower when only two or
three inches high, and in June plants from 1-2 feet high were collected;
altitude, sea level to 40 feet.

March 8 (1408); from type locality.

IREFINE P. Br. Civ. & Nat. Hist. Jam. 358 (1755).

Iresine vermicularis (L.) Moq. in DC. Prodr. 13: 2, 340 (1849).

Gomphrena vermicularis L. Sp. Pl. 224 (1753).

Illecebrum vermiculatum L. Sp. Pl. Ed. 2, 300 (1762).

Philoxerus vermiculatus Rees. Cycl. 5: 27 ().

Growing in dense tangled bunches on the flat, sandy shore of Mustang
Island, on the west side, at Rope's Pass. Distributed as *Philoxerus*
vermicularis Moq.

May 28 (1784); type locality, "in Brasilia, Chrassao."

PHYTOLACCACEAE.

RIVINA L. Sp. Pl. 121 (1753).

Rivina humilis L. Sp. Pl. 121 (1753).

Growing by and under bushes at Corpus Christi; also at Kerrville.

March 9 (1422), sea level to 35 feet at Corpus Christi; 1625 feet at
Kerrville.

PHYTOLACCA L. Sp. Pl. 441 (1753).

Phytolacca decandra L. Sp. Pl. Ed. 2, 631 (1762).

In rich, shaded ground, on the left banks of the Guadalupe, at Kerr-
ville, altitude 1620 feet.

June 19 (1891); type locality, "in Virginia."

BATIDEAE.

BATIS P. Br. Civ. & Nat. Hist. Jam. 358 (1755).

Batis maritima L. Sp. Pl. Ed. 2, 1451 (1763).

Growing luxuriantly on the "Flats" at Corpus Christi, especially in
the moister portions. Sea level.

June 6 (1825); type locality, "in Jamaicae maritimis salsis."

ROSACEAE.

CRATAEGUS L. Sp. Pl. 475 (1753).

Crataegus Crus-galli L. Sp. Pl. 476 (1753).

On the summit of a stony, limestone hill about 5 miles northwest of Kerrville along Town Creek, altitude 1900 feet. Only two bushes about 5 feet high were seen. A western and southern extension of the range in Texas. "Extending into Texas to the Colorado and its tributaries."—Coulter.

April 29 (1668); type locality not given.

ROSA L. Sp. Pl. 491 (1753).

Rosa Arkansana Porter, Syn. Fl. Colo. 38 (1874).

Rosa blanda var. *Arkansana* Best, Bull. Torr. Club. 17: 145 (1890).

In rich wooded bottom land along Bear Creek, northeast Kerr county, at an altitude of about 1800 feet. Two to three feet high, flowers white.

April 30 (1687); type locality, "banks of the Arkansas near Cañon City" (Colorado).

CERASUS Juss. Gen. 340 (1774).

Cerasus serotina (Ehrh.) Lois. in Duham. Nouv. 5: 3 (1812).

Prunus serotina Ehrh. Beitr. 3: 20 (1788).

Several small trees on the steep, left bank of the Guadalupe, at Kerrville, altitude 1625 feet.

April 19 in flower, May 16 in fruit (1592).

LEGUMINOSAE.

ACACIA Adans. Fam. Pl. 2: 319 (1763).

Acacia filiculoides (Cav.) Trel.; Branner & Coville, Rept. Geol. Surv. Ark. 1888, 4: 178 (1891).

Mimosa filiculoides Cav. Ic. 1: 55, t. 78 (1791).

Acacia filicina Willd. Sp. Pl. 4: 1072 (1806).

Collected first at the Oso, in sandy ground at sea level (1563), where it was scarce, later at Kerrville, on the edges of cultivated fields, and under bushes in pasture land, altitude 1650-1800 feet.

May 21 (1770); type locality, "Mexico."

Acacia amentacea DC. Prodr. 2: 455 (1825).

Acacia rigidula Benth. Lond. Jour. Bot. 1: 504 (1842).

Usually a low, gnarled and twisted branching prostrate shrub at Corpus Christi, altitude 10-35 feet, beginning to flower before the leaves appear. Very spiny. Sometimes erect and spreading.

March 5 (1382); type locality, "in Nova-Hispania."—Mexico.

Acacia Farnesiana Willd. Sp. Pl. 4: 1083 (1806).

A handsome tree with smooth brown bark, much cultivated at Corpus Christi, but growing wild about the town, on the bluff portion, altitude 20-40 feet. The flowering heads on the specimens collected were only slightly odorous, rather small and lax, scattered.

March 17 (1454); type locality, "in Domingo."

Acacia Roemeriana Scheele, Linnaea 21: 456 (1848).

One of the most common shrubs on the hills about Kerrville, usually confined to near and on the summits, at an altitude of 1900-2000 feet. The original description calls for "flores rosei," perhaps owing to discoloration in the dried specimens. They are tawny white. Schlechtendahl instead of Scheele, is often given as the author of this species.

April 23 in flower, in fruit May 22 (1624); type locality, "prope Austin."

Acacia tortuosa Willd. Sp. Pl. 4: 1083 (1806).

Growing in company with, and flowering at the same time as *A. amentacea*. A prostrate, much-twisted, spreading bush, the orange yellow flowers of which are delightfully fragrant. The numerous heads are on slender, glandular peduncles an inch long. Spines over an inch long, whitish, at least the older ones. The pods are from two to four inches long, usually curved, linear, flat, with flat edges a line or two wide, tomentose, covered especially along the sides with cherry-colored glands. Flowering specimens of this have, no doubt, often been confused with *A. Farnesiana*. I took it to be that species until I found it in fruit.

March 5 (1383); type locality, West Indies.

MIMOSA L. Sp. Pl. 516 (1753).

Mimosa fragrans A. Gray, Bost. Jour. Nat. Hist. 6: 182 (1850).

Frequently met with along the stony banks of the Guadalupe and on hillsides at Kerrville, ranging from 1625-1900 feet altitude. A shrub 5-6 feet high, with slender, flexuous branches, bearing an abundance of pale rose purple flowers, which fade almost white when old. The pod occasionally armed with scattered prickles.

April 19 in flower, May 20 in fruit (1594); type locality, "rocky on the Piedrales," a stream eighteen miles north of Kerrville.

OXALIDACEAE.

OXALIS L. Sp. Pl. 433 (1753).

Oxalis dichondraefolia A. Gray, Pl. Wright. 1: 27 (1852).

Occasional around Corpus Christi, but growing in profusion in open ground at the "Blind Oso."

March 12 (1442); type locality, "Turkey Creek to the prairies of the San Felipe, and on the Rio Grande."

LINACEAE.

LINUM L. Sp. Pl. 277 (1753).

Linum multicaule Hook.; T. & G. Fl. N. A. 1: 678 (1840).*Linum selaginoides* T. & G. Fl. N. A. 1: 205 (1838), not Lam.

Plentiful in dry open ground at Corpus Christi, altitude 10-40 feet. The earliest specimens are simple, one flowered, flowers rather large, dark orange in color.

March 5 (1389); type locality, "Texas."

Linum rigidum Pursh, Fl. Am. Sept. 210 (1814).In low, sandy ground at Corpus Christi, sea level, and plentiful on the summits of ridges around Kerrville. Flowers orange color, lighter than those of *L. multicaule*. In Coulter's Manual of Western Texas, *L. rigidum* is placed under the section " * * flowers rather small." The flowers are usually an inch in diameter as are those of the one placed next to it, *L. Berlandieri*.

April-June (1496); type locality, "on the Missouri."

Linum rupestre Engelm.; A. Gray, Bost. Jour. Nat. Hist. 6: 232 (1850).

On the steep stony left bank of the Guadalupe at Kerrville, altitude 1630 feet, profusely branching from a perennial root.

May 7 (1715); type locality, "growing from the crevices of naked rocks, New Braunfels."

MALPIGHIACEAE.

THRYALLIS L. Sp. Pl. Ed. 2, 554 (1762), not Ad. Ju-s.

[*GALPHIMIA* Cav. Ic. Desc. Pl. 5: 61 (1799).]*Thryallis angustifolia* (Benth.) Kuntze, Rev. Gen. Pl. 89 (1891).*Galphimia angustifolia* Benth. Bot. Sulph. 9, t. 5 (1844).*Galphimia tinifolia* A. Gray, Bost. Journ. Nat. Hist. 6: 166 (1850).On rocky ledges of the left bank on stony, grassy hillsides, altitude 1 *folia* of Gray from the type locality Upper Guadalupe."

May 14 (1737); type locality, "

MALPIGHIA L.

Malpighia glabra L. Sp. Pl. 425

Found sparingly along Nueces P. fruticose plant 12-15 inches high noticed in cultivation.

March 5 (1396); type locality, Brasilia, Surinamo, Curacao."

ZYGOPHY

PORLIERA Ruiz and

Porlieria angustifolia (Engelm.)*Guaiacum angustifolium* Engelm.

In shady soil near the mouth of. At a little distance this shrub on Conifer, its dark green leaves, and peculiar appearance.

April 3 (1524); type locality, "

TRIBULUS L.

Tribulus maximus L. Sp. Pl. 3*Tribulus terrestris* Muhl. Cat.*Tribulus trigatus* Nutt. Gen.*Kallstroemia maxima* T. & G.

Plentiful in rich ground about abundant at Corpus Christi. Flow mornings and nearly an hour later two hours.

May 23 (1777); type locality, "

RUT.

THAMNOSMA Torr. & Fr.

Thamnosma Texanum (A. G. (1859).

Rutosma Texana A. Gray, Gen. Fl. Am. Bor. Orien. 2: 144 (1849).

In gravelly ground along Town Creek, 1600 feet and on the hilltops in rich rocky ground 2000 feet, but not observed at intermediate elevations. A homely little spreading plant, the greenish-yellow flowers apparently never fully expanding.

April 23 (1627).

ZANTHOXYLUM L. Sp. Pl. 270 (1753).

Zanthoxylum Fagara (L.) Sargent, Gard. and Forest, 3: 186 (1890).

Schinus Fagara L. Sp. Pl. 389 (1753).

Pterota subspinoso P. Br. Civ. & Nat. Hist. Jam. 146, t. 5, f. 1 (1755).

Fagara Pterota L. Amoen. 5: 396 ().

Zanthoxylum Pterota H. B. K. Nov. Gen. 6: 3 (1823).

Collected near Gregory, San Patricio county, altitude 35 feet, where it is plentiful as a tall shrub or small tree. The leaves of these specimens are much smaller than are those from Florida, and the flower clusters much shorter. The bark is whitened, and in that particular at least, agrees with Buckley's *Z. hirsutum*, the type of which was collected in the same region, near Corpus Christi, but he does not state on which side of the Bay.

April 14 (1566); "in Jamaicae campestribus."

PTELEA L. Sp. Pl. 118 (1753).

Ptelea trifoliata L. Sp. Pl. 118 (1753).

In gravelly ground along Town Creek, altitude 1620 feet.

May 3 (1690); type locality, "in Virginia."

Ptelea trifoliata mollis T. & G. Fl. N. A. 1: 680 (1840).

In a copse at San Antonio, along the S. P. R. R., where it grows in abundance.

April 17 (1582); type locality, "Texas."

SIMARUBACEAE.

CASTELA Turp. Ann. Mus. Paris, 7: 78, t. 5 (1806).

Castela Nicholsoni Hook. Bot. Misc. 1: 271, t. 56 (1830).

One of the chapparral bushes; plentiful about Corpus Christi, altitude 10-40 feet. Apparently not reported so far northeast before, as its range is given as "gravelly bluffs of the lower Rio Grande from Eagle Pass downwards."—Coulter.

March 8 (1402); type locality, West Indies.

MELIACI

MELIA L. Sp. Pl.

Melia Azederach L. Sp. Pl. 384 (17

This ornamental tree is cultivated at other places in Texas. A single tree roadside, between Corpus Christi and Corpus Christi it begins to bloom about Kerrville, 270 miles northwest and 160 part of April.

April 3 (1525); type locality, "in

POLYGAL.

POLYGALA L. Sp.

Polygala alba Nutt. Gen. 2: 87 (1

Very abundant in the stony limestone from the banks of Town Creek to all sides, 1650-1900 feet.

April 24 (1645); type locality, "o

KRAMERIA Loeff. 1

Krameria secundiflora DC. Prodr.

Krameria lanceolata Torr. Ann.

Very plentiful, and having the same that it does not reach as great an altitude, stopping where the abrupt ascents are usually thick, sending out very low into the hard, stony ground. Flower

April 23 (1625); type locality, "o

EUPHORI

PHYLLANTHUS L.

Phyllanthus polygonoides Spreng.

Plentiful in gravelly ground about elevations, 1625-1700 feet.

April 25 (1640); type locality, At

CROTON L. Sp. Pl. 1004 (1753).

Croton balsamiferus Willd. Sp. Pl. 4: 548 (1805).

Growing among chaparral at the "Blind Oso." Leaves somewhat viscid. A bush 3 or 4 feet high, at an altitude of 10-30 feet.

March 21 (1477); type locality, West Indies.

Croton capitatus Michx. Fl. Bor. Am. 2: 214 (1803).

Very abundant in dry ground near the Arroyo at Corpus Christi, in company with *Gomphrena Nealleyi*.

May 30 (1800); type locality, "in regione Illinoensi."

Croton fruticulosus Engelm.; Torr. Mex. Bound Surv. 194 (1859).

In rich shaded ground on both banks of the Guadalupe at Kerrville. The leaves on these specimens are less pubescent than those of the type, probably due to the fact that the plants grew in moister and more shaded situations.

June 12 (1842); type locality, western Texas and northern Mexico.

Croton maritimus Walt. Fl. Car. 239 (1788).

In sand along the beach of Corpus Christi Bay, and the Gulf coast of Mustang Island, at sea level.

March—May (1423); type locality, Carolina.

Croton monanthogynus Michx. Fl. Bor. Am. 2: 215 (1803).

Very common at Kerrville along roadsides and in cultivated fields; in rich ground, altitude 1650-1700 feet. Seen also at Corpus Christi.

June 30 (1932); type locality, in Tennessee, near Nashville.

Croton punctatus Jacq. Coll. 1: 166 (1786).

Croton argyranthemus Michx. Fl. Bor. Am. 2: 215 (1803).

In sandy soil at Flower Bluff, altitude about 15 feet, growing among the scrub oaks.

April 9 (1547).

Croton suaveolens Torr. Mex. Bound. Surv. 2: 194 (1859).

At sea level along Nueces Bay, Nueces county, among chaparral. A branching bush about four feet high.

March 12 (1429); type locality, "on the Rio Grande."

Croton Texensis (Klotzch) Muell. Arg. in DC. Prodr. 15; Part 2, 692 (1862).

Hendecandra Texensis Klotzch in Erichs. Archiv. 1: 125 (1841).

Common in rich, open ground about Kerrville, altitude 1650 feet. Also seen at Corpus Christi and San Antonio.

June 15 (1863); type locality, Texas.

ACALYPHA L. Sp. Pl.

Acalypha Lindheimeri Muell. Arg. L.

Acalypha phleoides Torr. Mex. Bound Surv. 194 (1859).
not Cav.

In stony and gravelly ground along the Rio Grande at Kerrville, altitude 1600 feet.

May 3 (1691); type locality, Texas.

Acalypha radians Torr. Mex. Bound Surv. 194 (1859).

Common in bare exposed ground near Kerrville, where it grows prostrate from a tough, stony soil. In rich ground where it was more prostrate, slender, ascending.

April 3 (1519); type locality, "west of Rio Grande."

TRAGIA L. Sp. Pl.

Tragia ramosa Torr. Ann. Lyc. N. Y.

Tragia stylaris Muell. Arg. Linnaea 1: 125 (1782).

Rather common in stony ground at Kerrville, the Guadalupe, altitude 1600-1650 feet.

May 7 (1716); type locality, "source of the Rio Grande."

JATROPHA L. Sp. Pl.

Jatropha spathulata (Ortega) Muell. Arg. L.

2, 1081 (1862).

Mozinna spathulata Ortega, Dec. 8.

Very abundant at Corpus Christi; altitude 1600 feet, a wine colored juice exudes. Callus 1-2 feet high, stems soft and yielding.

April 11 (1550); type locality, Mexico.

STILLINGIA L. Mant.

Stillingia angustifolia (Muell. Arg.) L.

In stony or gravelly ground about Kerrville, altitude 1600-1650 feet.

May 7 (1714).

Stillingia sylvatica L. Mant. 1: 125 (1753).

Growing in sand at Flower Bluff, and on the low, western shore, at Rope's Pass. Unusual.

April 9 (1539); type locality, "in C."

A. DC. Prodr. 10: 70 (1846).
 Tabl. Encycl. 1: 367 (1791).
 of the river, altitude 600 feet.

EAE.

Pl. 18 (1753).
 id. Phila. 2: 123 (1821).
 inity, principally in dry open

of Red river."

l. 2: 274, t. 136 (1817).
 e hills about Kerrville, altitude

n. Mexico, near Guanajuato.
 53).

en ground, sea level to 20 feet,
 he flowers are usually twice as
 plant stouter and more simple,

i Europae mediterraneae rude-

ulata n. sp.

n an apparently perennial, slen-
 ally the stems; the upper surface
 pubescence appressed; cymosely
 es an inch or less in length,
 ate, abruptly contracted into a
 e middle lobe largest, three to
 hree cleft; spikes dense, bracts
 ed, slightly more than half the
 inently five-ridged, the ridges
 , which are joined by a scarious
 site, or pinkish tinged, tube ex-
 ; fruit shorter than the calyx,
 from a broad base, angled and
 l crown, the wings of which are

This most peculiar plant has the habit and general appearance of the species of *Verbena* which bear rather large and showy flowers, as *V. bipinnatifida* and *V. Aubletia*, but its very small flower at once throws it out of that group. Its most striking feature is the shape of the fruit, which is well shown in the accompanying plate. The crown of this curiously-shaped seed is much like the four-angled fruit of certain species of *Gaura* and is hollow. Until the exact limit of *Verbena* seeds be known, it is provisionally placed under this genus, although it is probably an undescribed genus.

Collected at Corpus Christi, where it is plentiful in open ground, at both the southern and northern ends of the town. Altitude 10-35 feet.

March 5 (1388).

LIPPIA L. Sp. Pl. 633 (1753).

Lippia nodiflora (L.) Michx. Fl. Bor. Am. 2: 15 (1803).

Verbena nodiflora L. Sp. Pl. 20 (1753).

Abundant about Corpus Christi, in rich, dry ground, altitude sea level to 40 feet. Perennial from a woody base, and large, thick root. Branches creeping extensively and rooting at the nodes. A broader-leaved form (1920), was collected at Kerrville, growing on wet limestone rocks. Distributed as *L. lanceolata*.

May 30 (1906); type locality, "in Virginia."

LANTANA L. Sp. Pl. 626 (1753).

Lantana Camara L. Sp. Pl. 627 (1753).

This handsome, shrubby species is rather common at Corpus Christi and in the surrounding country, altitude sea level to 40 feet.

March 5 (1386).

CALLICARPA L. Sp. Pl. 111 (1753).

Callicarpa Americana L. Sp. Pl. 111 (1753).

At San Antonio at the Southern Pacific bridge, growing in rich ground, but not plentiful.

June 9 (1832); type locality, "in Virginia, Carolina."

LABIATAE.

HEDEOMA Pers. Syn. 2: 131 (1807).

Hedeoma acinoides Scheele, Linnaea, 22: 592 (1849).

In rich, low ground along streams about Kerrville, usually growing near trees or bushes, altitude 1600-1625 feet.

April 19 (1604); type locality, New Braunfels.

at an altitude of 1620-1650 feet it

on the Brazos.

Lyc. N. Y. 2: 232 (1827).

Proc. Am. Acad. 8: 370 (1872).

Kerrville, in dry, stony ground, altitude

purple flowers are very handsome.

Porter in the Bulletin of the Torrey

giving under the name of *S. Wrightii*.

in the Canadian.

Lab. Gen. & Sp. 504 (1834).

Benth. Lab. Gen. & Sp. 504 (1834).

L. Sp. Pl. 594 (1753).

ect, Brit. Fl. Gard. 2: 93 (1825).

var *speciosa* in the Synoptical Flora,

Guadalupe in moist ground.

, North Carolina and Texas, and have

manner of growth is different from

the flowers are larger, more inflated

North America.

Bost. Jour. Nat. Hist. 5: 255 (1845).

in. & Gray, Bost. Jour. Nat. Hist. 5:

ot. Mag. 2: 3494 ().

summits of hills about Kerrville, alti-

t, resembling a *Physostegia*.

near Cat Spring, west of the Brazos."

Sp. Pl. 580 (1753).

ab. Gen. & Sp. 551 (1834).

trees and bushes, near the upper end

ny other place.

on the Brazos.

Sp. Pl. 562 (1753).

564 (1753).

l. 564 (1753).

In rich, moist ground along Town Creek at Kerrville, altitude 1600 feet. On some plants the bracts are unusually long.

June 16 (1873); type locality, "in Canada."

Teucrium Cubense L. Mant. 80 (1767).

Along the shores of Corpus Christi and Nueces Bays, usually growing in clumps under bushes.

March 12 (1839); type locality, in Cuba.

Teucrium laciniatum Torr. Ann. Lyc. N. Y. 2: 231 (1828).

Growing in patches along the streets at Kerrville, and also on the road between Kerrville and Fredericksburg, altitude 1650-1800 feet.

May 8 (1718); type locality, "on the Rocky Mountains."

SOLANACEAE.

LYCIUM L. Sp. Pl. 191 (1753).

Lycium Carolinianum Walt. Fl. Car. 84 (1788).

On the salt flats at Corpus Christi, where it is abundant, but very little found in flower.

March 6 (1395); type locality, Carolina.

CHAMAESARACHA A. Gray; Benth. & Hook. Gen. Pl. 2: 891 (1876).

Chamaesaracha Coronopus (Dunal) A. Gray, Syn. Fl. 2: Part 2, 232 (1878).

Solanum Coronopus Dunal, in DC. Prodr. 13: Part 1, 64 (1852).

Rather common in dry, open ground about Kerrville, altitude 1650-1700 feet.

April 24 (1647); type locality, Mexico between Laredo and Bejar.

PHYSALIS L. Sp. Pl. 182 (1753).

Physalis mollis Nutt. Trans. Am. Phil. Soc. (H.) 5: 194 (1837).

This plant is rather common at Corpus Christi, usually growing in rich, shaded ground, from sea level to 40 feet.

March 17 (1453); type locality, sandy banks of the Arkansas.

Physalis*

On the bluff southeast of Corpus Christi, in open ground once broken for a street, was a patch of plants with large, pale yellow flowers, rarely with a darker center. The plants were prostrate from a large and thick, fleshy root. The leaves are dull green, rather thick.

March 27 (1507).

Physalis*

* These two species are in the hands of Mr. P. A. Rydberg, for determination.

A few specimens of a tall, but rather weak plant, were collected along Town Creek, at Kerrville, in rich, shaded ground. The flower is small, greenish-yellow, the inflated calyx large, and rather slender pointed.

May 17 (1756).

SOLANUM L. Sp. Pl. 184 (1753).

Solanum elaeagnifolium Cav. Ic. 3: 22, t. 243 (1794).

A very common plant of the coast region, and apparently everywhere throughout southern Texas. Collected at Corpus Christi, sea level to 40 feet.

March 27 (1511).

Solanum rostratum Dunal, Sol. 231, t. 24 (1813).

Solanum heterandrum Pursh, Fl. Am. Sept. 156, t. 7 (1814).

Common in the streets of Kerrville, and also on the hills in rich ground, altitude 1650-1800 feet.

May 17 (1755); described from cultivated specimens by Dunal.

Solanum Torreyi A. Gray, Proc. Am. Acad. 6: 44 (1862).

At San Antonio this species was plentiful in rich ground along the river bank.

May 3 (1709); type locality, "upper Arkansas to lower Texas."

Solanum triquetrum Cav. Ic. 3: 30, t. 259 (1794).

At Corpus Christi from sea level to 40 feet, usually woody at base; sometimes long and vine-like.

March 6 (1399); type locality, Mexico.

CESTRUM L. Sp. Pl. 191 (1753).

Cestrum Parqui L'Her.

A single clump, or rather hedge, of this species was found at San Antonio, along the roadside. The bushes were tall and slender, growing very closely together.

May 5 (1797).

NICOTIANA L. Sp. Pl. 180 (1753).

Nicotiana repanda Willd.; Lehm. Hist. Gen. Nicot. 40, t. 3 (1818).

A common plant at Corpus Christi from sea level to 40 feet. The flowers expand in the evening just before dark, closing early the next morning.

March 6 (1498); type locality, "in Cuba."

PETUNIA Juss. Ann. Mus. Paris, 2:

Petunia parviflora Juss. Ann. Mus. Paris, 2:

Nicotiana parviflora Lehm. Hist. Gen. Nicot.

Found growing in depressions at Corpus Christi. Very abundant near the upper part of the bay. March 9 (1412).

SCROPHULARIAC

VERBASCUM L. Sp. Pl. 1:

Verbascum Thapsus L. Sp. Pl. 177 (1753).

A few plants were found on the right bank of the river a mile below Kerrville, altitude 1600 feet. This is the species in Texas.

June 22 (1907); type locality, Europe.

LINARIA Juss. Gen. Pl. 1:

Linaria Canadensis (L.) Dumont, Bot. Can.

Antirrhinum Canadense L. Sp. Pl. 618 (1753).

Occurring occasionally in cultivated land near the river. March 12 (1445); type locality, "in Virginia."

ANTIRRHINUM L. Sp. Pl. 1:

Antirrhinum antirrhiniflora (Willd.).

Maurandia antirrhiniflora Willd. Enum.

Usteria antirrhiniflora Poir. in Lam. (1817).

Antirrhinum maurandioides A. Gray, J. Bot. (1868).

Ipomoea Neallyi Coulter, Cont. U. S. Nat.

First noticed in cultivation at Corpus Christi. Twining over bushes along the upper end of the bay. Purple flowers do not in the least resemble *Antirrhinum*, plainly belong to a Scrophulariaceous plant.

a superficial resemblance to that of an *Ipomoea*. May 29 (1790); type locality, Mexico.

PENTSTEMON Soland. in Ait. Hort.

Pentstemon Cobaea Nutt. Trans. Am. Acad. (1834).?

Plentiful in thickets along the banks of the Guadalupe, altitude 1600 feet. Stems five to six feet high. Distributed as *V. Baldwinii*.

June 29 (1927).

Vernonia fasciculata Michx. Fl. Bor. Am. 2: 94 (1803).

Found sparingly along the Guadalupe below Kerrville, altitude 1600 feet. Low, some forms of it approaching *V. Lindheimeri*. Distributed as *V. Guadalupeensis* n. sp.

June 22 (1909); type locality, Illinois.

Vernonia Lindheimeri Engelm. & Gray, Proc. Am. Acad. 1: 46 (1846).

Common in dry stony ground along Town Creek and the Guadalupe, at Kerrville, altitude 1600-1650 feet.

June 22 (1908); type locality, New Braunfels, Texas.

EUPATORIUM L. Sp. Pl. 836 (1753).

Eupatorium conyzoides Vahl. Symb. Bot. 3: 96 (1794).

A few plants were found on the edge of the plateau southeast of Corpus Christi. Apparently not recorded from so far east in Texas, as it is given as "along the Rio Grande."

June 2 (1816).

Eupatorium incarnatum Walt. Fl. Car. 200 (1788).

Two or three stunted plants were found under chapparral bushes at Corpus Christi, altitude 20 feet.

March 6 (1398); type locality, Carolina.

GRINDELIA Willd. Gesell. Nat. Fr. Berlin, Mag. 1: 260 (1807).

Grindelia inuloides Willd. Gesell. Nat. Fr. Berlin, Mag. 1: 260 (1807).

Rather common on the plateau southeast of Corpus Christi, altitude 35 feet.

June 2 (1820).

Grindelia squarrosa grandiflora A. Gray, Pl. Wright. 1: 98 (1852).

Grindelia grandiflora Hook. Bot. Mag. t. 4628 ().

Just coming into bloom on hillsides about Kerrville, and rather plentiful at medium elevations, 1650-1800 feet.

June 22 (1904).

CHRYSOPSIS Nutt. Gen. 2: 150 (1818).

Chrysopsis villosa canescens (DC.) A. Gray, Syn. Fl. 1: Part 2, 123 (1884).

Aplopappus? (*Leucopsis*) *canescens* DC. Prodr. 5: 349 (1836).

On the edge of the bluff on the left bank of the Guadalupe, at Kerrville, growing in clumps; altitude 1650 feet. June 13 (1854); type locality, Texas.

ERIOCARPUM Nutt. Trans. Am. Pl.

Eriocarpum rubiginosum phyllocephalum DC. Prodr.

Aplopappus phyllocephalus DC. Prodr.

Aplopappus rubiginosus var. *phyllocephalus*

Part 2, 130 (1884).

Found sparingly in dry ground on the edge of the plateau, at Corpus Christi, and along Nueces Bay.

March 12 (1440).

Eriocarpum spinulosum (Pursh) Gray

Amellus spinulosus Pursh, Fl. Am.

Aplopappus? (*?*) *spinulosus* DC. Prodr.

Two clumps of this plant were found on the edge of the plateau, at Corpus Christi, altitude 1750 feet.

June 14 (1858).

CHONDROPHORA Raf. New

[BIGELOWIA DC. Prodr. 5: 329]

Chondrophora Drummondii (T. & G.)

Linosyris Drummondii T. & G. Fl.

Bigelovia Drummondii A. Gray, Pl.

On the plateau near the Arroyo at Corpus Christi, near the water, apparently rather plentiful when I left. A rare plant in herbaria.

April 12 (1557); type locality, coast.

APHANOSTEPHUS DC.

Aphanostephus humilis (Benth.) A.

Leucopsidium humile Benth. Pl. Ha.

In open, exposed ground at Corpus Christi, near the beach. Plants prostrate.

March 8 (1404).

Aphanostephus ramosissimus DC.

Aphanostephus Riddellii T. & G. Fl.

Along the banks of the Guadalupe, at Kerrville, altitude 1620 feet. Growing in clumps.

April 24 (1642); type locality, Mexico.